

# Program

## Sunday, 7 August

### Registration

Sunday afternoon, 7 August, 15:00

### Welcome Reception

Sunday afternoon, 7 August, 18:00  
Reception Hall

## Monday, 8 August

### Opening Ceremony

Monday morning, 8 August, 8:30  
Century Hall

### Plenary 1

Monday morning, 8 August, 10:17  
Century Hall

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10:17 Plenary Lecture (40 min)

#### **Invention of GaN p-n junction blue LEDs**

Isamu Akasaki\*  
*Meijo University and Nagoya University, Japan*

### Lunch

Monday morning, 8 August  
Shirotori Hall

### Plenary 2

Monday afternoon, 8 August, 13:50  
Century Hall

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13:50 Plenary Lecture (40 min)

#### **Advances in bulk crystal growth of transparent semiconducting oxides**

Zbigniew Galazka\*  
*IKZ Berlin, Germany*

### Plenary 3

Monday afternoon, 8 August, 14:30  
Century Hall

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14:30 Plenary Lecture (40 min)

#### **The role of nucleation in Complex Self-Assembly**

Daan Frenkel\*, Aleks Reinhardt, William M. Jacobs  
*University of Cambridge, UK*

### Award 1

Monday afternoon, 8 August, 15:10  
Century Hall

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15:10 IOCG Award Lecture (30 min)

#### **[Laudise Prize Lecture]**

**The Emergence of High-performance**

### Multi-crystalline Silicon in Photovoltaics

C.W. Lan<sup>1</sup>\*, M. Yang<sup>2</sup>, A. Yu<sup>2</sup>, B. Hsu<sup>2</sup>, C. Hsu<sup>2</sup>, A. Yang<sup>3</sup>

<sup>1</sup>National Taiwan University, Taiwan, <sup>2</sup>Sino-American Silicon Products Inc., Taiwan, <sup>3</sup>Solartech Energy Inc., Taiwan

### Award 2

Monday afternoon, 8 August, 15:40  
Century Hall

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15:40 IOCG Award Lecture (30 min)

#### **[Shieber Prize Lecture]**

#### **Calcium sulfate crystallization: from construction material to natural world wonder**

A. E. S. Van Driessche\*  
*Univ. Grenoble Alpes, CNRS, ISTERRE, France*

### Coffee break

Monday afternoon, 8 August, 16:10  
Event Hall

### Session Mo1

Monday afternoon, 8 August, 16:40  
G01, G02, G03, G04, G07, G08, G10, T07, T09

## Mo1-G01

*Fundamentals of Nucleation and Crystal Growth*  
Room: Oral 6

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16:40 Mo1-G01-1 Invited oral (25 min)

#### **A holistic picture of non-classical nucleation and growth processes**

J. J. De Yoreo<sup>1,2</sup>\*  
<sup>1</sup>Pacific Northwest National Laboratory, USA,  
<sup>2</sup>University of Washington, USA

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17:05 Mo1-G01-2 Invited oral (25 min)

#### **In Situ Imaging of 2D and 3D Crystal Nucleation from Liquids**

K. Tsukamoto<sup>1</sup>, Y. Kimura<sup>2</sup>  
<sup>1</sup>Osaka University/Tohoku University, Japan, <sup>2</sup>Hokkaido University, Japan

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17:30 Mo1-G01-3 Oral (15 min)

#### **Why is two-step nucleation selected?**

M. A. Vorontsova<sup>1</sup>, L. Filobelo, P. G. Vekilov<sup>1,2</sup>\*  
<sup>1</sup>Department of Chemical and Biomolecular Engineering,  
<sup>2</sup>Department of Chemistry, University of Houston, USA

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17:45 Mo1-G01-4 Oral (15 min)

#### **Undercooling measurement and nucleation study in levitated or sessile silicon droplets**

T. Duffar\*, M. Tsoutsouva, M. Beaudhuin, K. Zaidat  
*SIMAP-EPM, France*

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18:00 Mo1-G01-5 Oral (15 min)

#### **Two-dimensional nucleation of colloidal crystals added with polymer**

J. Nozawa\*, S. Guo, S. Hu, H. Koizumi, S. Uda  
*Tohoku University, Japan*

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18:15 Mo1-G01-6 Oral (15 min)

**The effect of oscillatory flow on nucleation and grain growth in the undercooled melt**

M. Chen<sup>1</sup>\*, J. Mi<sup>1</sup>, Z. Wang<sup>2</sup>  
<sup>1</sup>School of Mathematics and Physics, <sup>2</sup>School of Materials Science and Engineering, University of Science and Technology Beijing, China

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18:30 Mo1-G01-7 Oral (15 min)

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**Determination of nucleation kinetics and optical properties of semi-organic NLO single crystal-sodium acid phthalate**  
 S. Chandran\*, R. Paulraj, P. Ramasamy  
 SSN College of Engineering, India

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**Mo1-G02**  
*Surfaces and Interfaces*  
 Room: Oral 3

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16:40 Mo1-G02-1 Invited oral (25 min)

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**Classical and two-step nucleation of glucose isomerase**  
 D. Maes<sup>1</sup>\*, M. Sleutel<sup>1</sup>, J. Lutsko<sup>2</sup>, M.A. Vorontsova<sup>3</sup>, P. G. Vekilov<sup>3</sup>  
<sup>1</sup>Vrije Universiteit Brussel, Belgium, <sup>2</sup>Université Libre de Bruxelles, Belgium, <sup>3</sup>University of Houston, USA

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17:05 Mo1-G02-2 Oral (15 min)

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**Heterogeneous Crystal Growth on Seed Particle by Molecular Dynamics**  
 D. Suh\*, K. Yasuoka  
 Keio University, Japan

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17:20 Mo1-G02-3 Oral (15 min)

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**Numerical Simulation of Crystal Growth Hysteresis**  
 H. Miura\*  
 Nagoya City University, Japan

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17:35 Mo1-G02-4 Oral (15 min)

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**Kink Energies of Si(111) (1x1) Surface: Lattice Model Analysis Combined with LEEM Observation**  
 N. Akutsu\*  
 Osaka Electro-Communication University, Japan

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17:50 Mo1-G02-5 Oral (15 min)

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**An Enhanced Facet Determination Scheme**  
 M. E.A. Reivinen\*, E.-M. Salonen  
 Aalto University, Finland

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18:05 Mo1-G02-6 Oral (15 min)

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**Crystal Habits Prediction of LiNi<sub>0.5</sub>Mn<sub>1.5</sub>O<sub>4</sub> System using Ab initio DFT Calculations**  
 H. Shiiba<sup>1</sup>\*, N. Zettsu<sup>1,2</sup>, K. Teshima<sup>1,2</sup>  
<sup>1</sup>Faculty of Engineering, <sup>2</sup>Center for Energy and Environmental Science, Shinshu University, Japan

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18:20 Mo1-G02-7 Oral (15 min)

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**Theoretical study to predict crystal morphology for axis-symmetric crystals during the Kyropoulos growth process**  
 G. Sen\*, H. Lu, Y. Malier, T. Duffar  
 SIMAP-EPM, France

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**Mo1-G03**  
*Nanomaterials and Low Dimensional Structures, Nanostructure - Fundamentals and Applications*  
 Room: Oral 2

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16:40 Mo1-G03-1 Invited oral (25 min)

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**Size-, Defect- and Disorder-mediated Quantum Confinement Phenomena in GaAs-based Nanowires**

B. Loitsch<sup>1</sup>, N. Jeon<sup>2</sup>, M. Müller<sup>3</sup>, F. Bertram<sup>3</sup>, J. Christen<sup>3</sup>, L. J. Lauhon<sup>2</sup>, J. J. Finley<sup>1</sup>, G. Koblmüller<sup>1</sup>\*  
<sup>1</sup>TU Munich, Germany, <sup>2</sup>Northwestern University, USA, <sup>3</sup>Otto-von-Guericke University Magdeburg, Germany

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17:05 Mo1-G03-2 Invited oral (25 min)

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**III-V semiconductor nanowire hetero-epitaxy on Si, Ge, poly-Si and graphene**  
 T. Fukui\*, K. Tomioka  
 Hokkaido University, Japan

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17:30 Mo1-G03-3 Oral (15 min)

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**Growth of InGaAs/GaAs nanowire-quantum dots on AlGaAs/GaAs distributed Bragg reflectors for laser applications**  
 J. Tatebayashi<sup>1</sup>\*, S. Kako<sup>1,2</sup>, J. Ho<sup>2</sup>, Y. Ota<sup>1</sup>, S. Iwamoto<sup>1,2</sup>, Y. Arakawa<sup>1,2</sup>  
<sup>1</sup>NanoQUINE, <sup>2</sup>IIS, the University of Tokyo, Japan

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17:45 Mo1-G03-4 Oral (15 min)

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**Selective-area growth of InGaAs-based core-multishell nanowires on Si(111) with modulation-doped layer toward tunnel FETs**  
 K. Tomioka\*, F. Ishizaka, J. Motohisa, T. Fukui  
 Hokkaido University, Japan

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18:00 Mo1-G03-5 Oral (15 min)

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**Radial nanowire light-emitting diodes in the AlGaInP material system**  
 A. Berg<sup>1</sup>\*, S. Yazdi<sup>2,3</sup>, A. Nowzari<sup>1</sup>, K. Storm<sup>1</sup>, V. Jain<sup>1,4</sup>, N. Vainorius<sup>1</sup>, L. Samuelson<sup>1</sup>, J. B. Wagner<sup>2</sup>, M. T. Borgström<sup>1</sup>  
<sup>1</sup>Lund University, Sweden, <sup>2</sup>Technical University of Denmark, Denmark, <sup>3</sup>Rice University, USA, <sup>4</sup>Halmstad University, Sweden

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18:15 Mo1-G03-6 Oral (15 min)

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**Influence of indium supply on Au-catalyzed InGaAs nanowire growth studied by in situ X-ray diffraction**  
 T. Sasaki\*, M. Takahashi  
 National Institutes for Quantum and Radiological Science and Technology, Japan

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**Mo1-G04**  
*Thin Films and Epitaxial Growth*  
 Room: Oral 4

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16:40 Mo1-G04-1 Invited oral (25 min)

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**Control of Macrostep Structure for High-Quality SiC Grown by Liquid Phase Epitaxy**  
 T. Ujihara<sup>1,2</sup>\*, C. Zhu<sup>2</sup>, K. Murayama<sup>2</sup>, S. Harada<sup>1,2</sup>, M. Tagawa<sup>1,2</sup>  
<sup>1</sup>IMaSS, <sup>2</sup>Department of Materials Science and Engineering, Nagoya University, Japan

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17:05 Mo1-G04-2 Oral (15 min)

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**Growth conditions to stabilize both non-equivalent polar faces, c+ and c-, of KTiOPO<sub>4</sub> crystals**  
 A. Peña<sup>1,2</sup>\*, B. Ménaert<sup>1,2</sup>, J. Debray<sup>1,2</sup>, B. Boulanger<sup>1,2</sup>  
<sup>1</sup>Univ. Grenoble Alpes, France, <sup>2</sup>CNRS, France

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17:20 Mo1-G04-3 Oral (15 min)

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**Diffusion-limited vs. kinetics-limited regimes of step bunching: How to distinguish in between?**  
 V. Tonchev\*  
 Institute of Physical Chemistry, Bulgarian Academy of Sciences, Bulgaria

17:35	Mo1-G04-4	Oral (15 min)
<b>Increase in Silicon Film Deposition Rate in a SiHCl<sub>3</sub>/SiH<sub>x</sub>H<sub>2</sub> System</b>		
A. Saito, A. Yamada, A. Sakurai, H. Habuka* <i>Yokohama National University, Japan</i>		
17:50	Mo1-G04-5	Oral (15 min)
<b>Large Orbital Moment Contribution to the Spin-Orbit Coupling Induced by the Strong Pseudomorphism in the Co/Pd superlattice</b>		
S. Kim <sup>1,2*</sup> , S. Jekal <sup>3</sup> , S.-H. Park <sup>4,5</sup> , S. Lee <sup>1</sup> , H. H. Lee <sup>4</sup> , H.-K. Lee <sup>4</sup> , S. H. Rhim <sup>3</sup> , J.-H. Park <sup>5</sup> , S. C. Hong <sup>3</sup> , J. Hong <sup>1</sup> <sup>1</sup> <i>Yonsei University, Korea</i> , <sup>2</sup> <i>Kyoto University, Japan</i> , <sup>3</sup> <i>University of Ulsan, Korea</i> , <sup>4</sup> <i>Pohang Acceleration Laboratory, Korea</i> , <sup>5</sup> <i>Pohang University of Science and Technology, Korea</i>		
18:05	Mo1-G04-6	Oral (15 min)
<b>The Study on Hydrogen Sulfide Plasma-Etching Endpoint in Molybdenum Disulfide Synthesis</b>		
M. Kim <sup>1</sup> , C. Ahn <sup>2,3</sup> , J. Son <sup>4</sup> , T. Kim <sup>1,2,4*</sup> <sup>1</sup> <i>School of Mechanical Engineering</i> , <sup>2</sup> <i>Center for Human Interface Nano Technology</i> , <sup>3</sup> <i>SKKU Advanced Institute of Nanotechnology (SAINT)</i> , <sup>4</sup> <i>Department of Convergence Mechanical Engineering, Sungkyunkwan University, Korea</i>		
18:20	Mo1-G04-7	Oral (15 min)
<b>Growth of {110}-oriented Perovskite-type Proton Conductive Oxide Thin Films by RF Magnetron Sputtering Method</b>		
T. Sato <sup>1,2*</sup> , T. Kiguchi <sup>3</sup> , T.J. Konno <sup>3</sup> , J. Kimura <sup>4</sup> , D. Ichinose <sup>2,4</sup> , T. Mimura <sup>4</sup> , H. Funakubo <sup>2,4</sup> , K. Uchiyama <sup>1</sup> <sup>1</sup> <i>National Institute of Technology, Tsuruoka College, Japan</i> , <sup>2</sup> <i>Tokyo Institute of Technology/School of Materials and Chemical Technology, Japan</i> , <sup>3</sup> <i>Tohoku University, Japan</i> , <sup>4</sup> <i>Tokyo Institute of Technology/Dept. of Innovative and Engineered Material, Japan</i>		
18:35	Mo1-G04-8	Oral (15 min)
<b>Synthesis of Wafer Scale Molybdenum Oxide (MoO<sub>3</sub>) using PECVD for Flexible Gas Sensor Application</b>		
J. Son <sup>1</sup> , C. Ahn <sup>2</sup> , H.-U Kim <sup>2</sup> , G. Park <sup>3</sup> , G. Kim <sup>3</sup> , H. Sin <sup>3</sup> , T. Kim <sup>2,3</sup> <sup>1</sup> <i>Department of Convergence Mechanical Engineering</i> , <sup>2</sup> <i>SKKU Advanced Institute of Nanotechnology (SAINT)</i> , <sup>3</sup> <i>School of Mechanical Engineering, Sungkyunkwan University, Korea</i>		
<b>Mo1-G07</b>		
<i>Defect Formation</i>		
Room: Oral 5		
16:40	Mo1-G07-1	Invited oral (25 min)
<b>Ab Initio Calculation and Simulation of Vacancy V<sub>n</sub> and Vacancy Oxygen V<sub>n</sub>O<sub>m</sub> Clustering in Silicon</b>		
G. Kissinger <sup>1*</sup> , J. Dabrowski <sup>1</sup> , T. Sinno <sup>2</sup> , Y. Yang <sup>2</sup> , D. Kot <sup>1</sup> , A. Sattler <sup>3</sup> <sup>1</sup> <i>IHP, Germany</i> , <sup>2</sup> <i>University of Pennsylvania, USA</i> , <sup>3</sup> <i>Siltronic AG, Germany</i>		
17:05	Mo1-G07-2	Invited oral (25 min)
<b>Grain boundaries in silicon crystals: Crystallographic interaction and dislocation generation during crystal</b>		

## growth

K. Kutsukake\*, Y. Ohno, M. Deura, I. Yonenaga  
*Tohoku University, Japan*

17:30 Mo1-G07-3 Oral (15 min)

## Observations of interstitial Si atoms to be generated during pulling stop for a long time on CZ Si crystal growth

T. Abe<sup>1\*</sup>, T. Takahashi<sup>1</sup>, K. Shirai<sup>2</sup>  
<sup>1</sup>*Shin-Etsu Handotai, Japan*, <sup>2</sup>*Osaka University, Japan*

17:45 Mo1-G07-4 Oral (15 min)

## Analysis of the V/G criterion governing critical point-defect concentrations in silicon single crystal growth

F. Dupret<sup>1,2\*</sup>  
<sup>1</sup>*FEMAG S. A., Belgium*, <sup>2</sup>*Universite catholique de Louvain, Belgium*

18:00 Mo1-G07-5 Oral (15 min)

## Numerical study of microdefect formation during Cz growth of monocrystalline silicon

V.M. Mamedov\*, V. Kalaev  
*STR Group Inc., Russia*

18:15 Mo1-G07-6 Oral (15 min)

## Impact of grain boundary structures on trapping iron

O. Al-Ani\* J. P. Goss, M. I-Hadidi, P. R. Briddon, M. J. Rayson, N. E. B. Cowern  
*Newcastle University, UK*

## Mo1-G08

*Advanced Growth Technologies*

Room: Oral 7

16:40 Mo1-G08-1 Invited oral (25 min)

## A novel class of multiferroic single crystals:

### Bi<sub>4</sub>Ti<sub>3</sub>O<sub>12</sub>·nBiFeO<sub>3</sub>

H. Zhao\*, Z. Ma, K. Cai, Z. Huang  
*Wuhan Institute of Technology, China*

17:05 Mo1-G08-2 Invited oral (25 min)

## Crystal Growth of BiFeO<sub>3</sub> using Laser-Diode-Heated Floating Zone (LDFZ) Technique and Physical Properties of the Crystals

T. Ito\*, T. Ushiyama, Y. Ozaki and Y. Tomioka  
*National Institute of Advanced Industrial Science and Technology (AIST), Japan*

17:30 Mo1-G08-3 Oral (15 min)

## Local electromechanical and magnetic properties of multiferroic Bi<sub>0.9</sub>La<sub>0.1</sub>FeO<sub>3</sub> thin film

T. Jia<sup>1\*</sup>, H. Kimura<sup>1,\*</sup>, Z. Cheng<sup>2</sup>, H. Zhao<sup>3</sup>  
<sup>1</sup>*National Institute for Materials Science, Japan*, <sup>2</sup>*University of Wollongong, Australia*, <sup>3</sup>*Wuhan Institute of Technology, China*

17:45 Mo1-G08-4 Oral (15 min)

## Stain Engineering for Novel Multiferroic Materials

Z. Cheng<sup>1\*</sup>, F. Hong<sup>1</sup>, H. Kimura<sup>2</sup>, K. Ozawa<sup>2</sup>  
<sup>1</sup>*University of Wollongong, Australia*, <sup>2</sup>*National Institute for Materials Science, Japan*

18:00 Mo1-G08-5 Oral (15 min)

## Optical Floating Zone Growth and Optical Properties of near-3:2 Mullite Crystal and Cr:Mullite Crystals

Y. Jiang\*, C. Zhang, Y. Ma  
*Beijing University of Technology, China*

18:15 Mo1-G08-6 Oral (15 min)

**Growth of magnesium tantalate crystals by the micro-pulling down technique**

Y. Ma<sup>1,2\*</sup>, D. Smiadak<sup>1,3</sup>, D. Perrodin<sup>1</sup>, G. Bizarri<sup>1</sup>, E. Bourret<sup>1</sup>

<sup>1</sup>Lawrence Berkeley National Laboratory, University of California, USA, <sup>2</sup>Beijing University of Technology, China, <sup>3</sup>Michigan State University, USA

18:30 Mo1-G08-7 Oral (15 min)

**Growth of Iridium and Platinum fiber crystals from the melt by micro-pulling-down method**

Y. Yokota<sup>1\*</sup>, K. Tanaka<sup>2</sup>, C. Sugawara<sup>2</sup>, K. Sakairi<sup>2</sup>, Y. Ohashi<sup>3</sup>, S. Kurosawa<sup>1</sup>, K. Kamada<sup>1,4</sup>, A. Yoshikawa<sup>1,3,4</sup>

<sup>1</sup>NICHE, Tohoku University, Japan, <sup>2</sup>Tanaka Kikinzoku Kogyo Corporation, Japan, <sup>3</sup>Institute for Materials Research, Tohoku University, Japan, <sup>4</sup>C&A Corporation, Japan

**Mo1-G10**

External Fields, Microgravity

Room: Oral 8

16:40 Mo1-G10-1 Invited oral (25 min)

**Bridgman Growth of Germanium and Germanium-Silicon Crystals under Microgravity**

A. Cröll<sup>1\*</sup>, A. Hess<sup>1</sup>, J. Zähringer<sup>1</sup>, T. Sorgenfrei<sup>1</sup>, A. Egorov<sup>2</sup>, A. Senchenkov<sup>2</sup>, K. Mazuruk<sup>3</sup>, M. Volz<sup>4</sup>

<sup>1</sup>University of Freiburg, Germany, <sup>2</sup>NIISK, Russia, <sup>3</sup>University of Alabama in Huntsville, USA, <sup>4</sup>NASA MSFC, USA

17:05 Mo1-G10-2 Oral (15 min)

**Detached Melt and Vapor Growth of InI in SUBSA Hardware**

A. G. Ostrogorsky<sup>1\*</sup>, V. Riabov<sup>1</sup>, M. P. Volz<sup>2</sup>, L. van den Berg<sup>3</sup>, A. Cröll<sup>4</sup>

<sup>1</sup>Illinois Institute of Technology, USA, <sup>2</sup>NASA MSFC, USA, <sup>3</sup>Constellation Technology Largo Florida, USA, <sup>4</sup>University of Freiburg, Germany

17:20 Mo1-G10-3 Oral (15 min)

**Particle incorporation during solidification of silicon under microgravity**

J. Friedrich<sup>1\*</sup>, T. Jaub<sup>2</sup>, A. Cröll<sup>2</sup>, T. Sorgenfrei<sup>2</sup>, C. Reimann<sup>1</sup>, Y. Tao<sup>3</sup>, J.J. Derby<sup>3</sup>

<sup>1</sup>Fraunhofer IISB, Germany, <sup>2</sup>University of Freiburg, Germany, <sup>3</sup>University of Minnesota, U.S.A

17:35 Mo1-G10-4 Oral (15 min)

**Electromagnetic Levitation Method for Silicon Purification**

S. Favre<sup>1,2\*</sup>, I. Nuta<sup>1,2</sup>, G. Chichignoud<sup>1,2</sup>, K. Zäidat<sup>1</sup>, C. Chatillon<sup>1,2</sup>

<sup>1</sup>Univ. Grenoble Alpes, France, <sup>2</sup>CNRS, SIMAP, France

17:50 Mo1-G10-5 Oral (15 min)

**Optimization of TMF driven directional solidification of silicon by artificial intelligence**

N. Dropka\*, F.-M. Kiessling  
Leibniz-Institute for Crystal Growth (IKZ), Germany

18:05 Mo1-G10-6 Oral (15 min)

**Influence of travelling magnetic fields on the distribution of oxygen in the directional solidification process for multi-crystalline silicon ingots**

Y. Shao\*, Z. Li, L. J. Liu

Xi'an Jiaotong University, China

**Mo1-T07**

Materials for Electron Devices

Room: Oral 9

16:40 Mo1-T07-1 Invited oral (25 min)

**Advanced In-situ Monitoring of Nitride-based Epitaxy**

F. Brunner\*

Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany

17:05 Mo1-T07-2 Invited oral (25 min)

**Metalorganic Vapor-Phase Epitaxy of InGaAs/GaAsP Quantum Wells and Wires for High-Efficiency Photovoltaic Applications**

M. Sugiyama<sup>1\*</sup>, T. Kasidit<sup>1</sup>, H. Fujii<sup>1</sup>, H. Cho<sup>1</sup>, H. Sodabanlu<sup>2</sup>, K. Watanabe<sup>2</sup>, Y. Nakano<sup>2</sup>

<sup>1</sup>Department of EEIS, The University of Tokyo, Japan,

<sup>2</sup>Research Center for Advanced Science and Technology, The University of Tokyo, Japan

17:30 Mo1-T07-3 Oral (15 min)

**Importance of Growth Pressure on Achieving High Quality InAlN/GaN Heterostructures by Pulsed Metal Organic Chemical Vapor Deposition**

J. S. Xue\*, J. C. Zhang, Y. Hao

Xidian University, China

17:45 Mo1-T07-4 Oral (15 min)

**First Principles Investigation of AlGaN/SiC(0001) Band Offset**

E. Kojima<sup>1\*</sup>, K. Endo<sup>1</sup>, H. Shirakawa<sup>1</sup>, M. Araidai<sup>2,1</sup>, Y. Ebihara<sup>3</sup>, T. Kanemura<sup>3</sup>, S. Onda<sup>3</sup>, K. Shiraishi<sup>2,1</sup>

<sup>1</sup>Graduate School of Engineering, <sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University, Japan, <sup>3</sup>Denso Corporation, Japan

18:00 Mo1-T07-5 Oral (15 min)

**Characteristics of Reactively Sputtered Sc<sub>x</sub>Al<sub>1-x</sub>N films on ST-X Quartz for Surface Acoustic Wave devices**

W. J. Liauh<sup>1\*</sup>, S. Wu<sup>2</sup>, J.-L. Huang<sup>1,3,4</sup>, D.-F. Lii<sup>5</sup>, W.-K. Yeh<sup>6,7</sup>, Z.-X. Lin<sup>2</sup>, Y.-H. Chen<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, National Cheng Kung University, Taiwan, <sup>2</sup>Tung-Fang Design Institute, Taiwan, <sup>3</sup>Department of Chemical and Materials Engineering, National University of Kaohsiung, Taiwan, <sup>4</sup>Center for Micro/Nano Science and Technology, National Cheng Kung University, Taiwan

<sup>5</sup>Cheng Shiu University, Taiwan, <sup>6</sup>Department of Electrical Engineering, National University of Kaohsiung, Taiwan, <sup>7</sup>National Nano Device Laboratories, Taiwan

18:15 Mo1-T07-6 Oral (15 min)

**The p-n junction, Schottky diode and MOS fabrication on substrates of the detached crystals grown by VDS to operate at ambient Temperature**

D. Gadkari<sup>1\*</sup>, D. Maske<sup>2</sup>, M. Deshpande<sup>3</sup>, B. M. Arora<sup>4</sup>

<sup>1</sup>Mithibai College, India, <sup>2</sup>Ruparel College, India, <sup>3</sup>Jai Hind College, India, <sup>4</sup>I. I. T., India

## Mo1-T09

Nitride Semiconductors

Room: Oral 1

16:40 Mo1-T09-1 Invited oral (25 min)

**Ammonothermal growth of GaN crystals in basic environment**

M. Zając\*, R. Kucharski

*Ammono, Poland*

17:05 Mo1-T09-2 Invited oral (25 min)

**Growth of bulk GaN crystal by acidic ammonothermal**

Y. Mikawa<sup>1</sup>\*, Y. Kagamitani<sup>2</sup>, T. Ishinabe<sup>2</sup>, T. Mochizuki<sup>1</sup>, A. Kojima<sup>1</sup>, H. Fujisawa<sup>1</sup>

*Mitsubishi Chemical Corporation, <sup>1</sup>Ushiku, Ibaraki, <sup>2</sup>Kurashiki, Okayama, Japan*

17:30 Mo1-T09-3 Oral (15 min)

**Characterization of helical dislocations in ammonothermal GaN substrate by heat treatment**

K. Horibuchi\*, S. Yamaguchi, Y. Kimoto, K. Nishikawa, T. Kachi

*Toyota Central R&D Labs., Inc., Japan*

17:45 Mo1-T09-4 Oral (15 min)

**Detailed study of homoepitaxial HVPE-GaN growth in the c-direction**

B. Lucznik<sup>1,2</sup>\*, M. Amilusk<sup>1,2</sup>, T. Sochacki<sup>1,2</sup>, M. Iwinska<sup>1</sup>, M. Fijalkowski<sup>1</sup>, I. Grzegory<sup>1</sup>, M. Bockowski<sup>1</sup>

*<sup>1</sup>Institute of High Pressure Physics PAS, Poland, <sup>2</sup>TopGaN Sp z o.o., Poland*

18:00 Mo1-T09-5 Oral (15 min)

**Numerical analysis of dislocation density and residual stress in a GaN single crystal during the cooling process**

S. Nakano\*, B. Gao, K. Kakimoto

*RIAM, Kyushu University, Japan*

18:15 Mo1-T09-6 Oral (15 min)

**Surface supersaturation in flow-rate modulation epitaxy of GaN**

T. Akasaka\*, C. H. Lin, H. Yamamoto, K. Kumakura

*NTT Basic Research Laboratories, Japan*

18:30 Mo1-T09-7 Oral (15 min)

**Formation of 2D structures during GaN(000-1) surface evolution**

F. Krzyżewski\*, M. A. Załuska-Kotur

*Polish Academy of Sciences, Institute of Physics, Poland*

18:45 Mo1-T09-8 Oral (15 min)

**Intrasurface Electron Transition Contribution to Adsorption Energy at Semiconductor Surfaces - Basic Mechanism and Consequences**

S. Krukowski\*, P. Kempisty, P. Strak, K. Sakowski

*Institute of High Pressure Physics, Polish Academy of Sciences, Poland*

### Poster 1

Monday afternoon, 8 August, 18:40

Event Hall

G01, G02, G03, G04, G07, G08, T07

## MoP-G01

*Fundamentals of Nucleation and Crystal Growth*

18:40 MoP-G01-1 Poster (120 min)

**Understanding The Nucleation and Growth Mechanisms of Calcium Oxalate in Aqueous Solution by Computer Simulation**

W. Zhao\*, R. Demichelis, P. Raiteri, J. D. Gale

*Curtin University, Australia.*

18:40 MoP-G01-2 Poster (120 min)

**Synthesis, structure, crystal growth and characterization of a new cadmium halide complex with 4-hydroxy-L-proline**

K. Boopathi<sup>1,2</sup>\*, P. Ramasamy<sup>2</sup>, R. Gopalakrishnan<sup>1</sup>

*<sup>1</sup>Anna University, India, <sup>2</sup>SSN College of Engineering, India*

18:40 MoP-G01-3 Poster (120 min)

**The deuterium content measurement of DKDP and DADP crystals by using neutron diffraction**

F. Liu<sup>1,2</sup>, M. Xu<sup>1</sup>, L. Zhang<sup>1</sup>, S. Wang<sup>1</sup>, B. Liu<sup>1,2</sup>, Z. Wang<sup>1</sup>, X. Xu<sup>1</sup>, X. Sun<sup>1</sup>\*

*<sup>1</sup>Shandong University, China, <sup>2</sup>Institute of Nuclear Physics and Chemistry, China Academy of Engineering Physics, China*

18:40 MoP-G01-4 Poster (120 min)

**Grain refinement and mechanical properties of Ti-Mo alloy scraps prepared by adding Si element**

J.-M. Oh, J.-W. Lim\*

*Chonbuk National University, Korea*

18:40 MoP-G01-6 Poster (120 min)

**Crystal growth and physical properties of KTe<sub>x</sub>Ti<sub>1-x</sub>OPO<sub>4</sub>**

J. Li\*, Q. Yao, J. Y. Zhang, J. Y. Wang

*Shandong University, China*

18:40 MoP-G01-7 Poster (120 min)

**Crystal growth, nucleation kinetics and optical characterization of lithium hydrogen oxalate monohydrate single crystal**

S. Chandran\*, R. Paulraj, P. Ramasamy

*SSN College of Engineering, India*

18:40 MoP-G01-8 Poster (120 min)

**Effect of the Roughening Transition on the Vicinal Surface in the Step Droplet Zone**

N. Akutsu

*Osaka Electro-Communication University, Japan*

18:40 MoP-G01-9 Poster (120 min)

**Theoretical investigations of structure, elastic properties of ZnXP<sub>2</sub> (X=Si, Ge, Sn) chalcopyrite semiconductors: Pressure effect**

H. Liu<sup>1,2</sup>\*, B. Zhao<sup>1</sup>, S. Zhu<sup>1</sup>, Z. He<sup>1</sup>, B. Chen<sup>1</sup>, J. Xiao<sup>1</sup>, W. Huang<sup>1</sup>, L. Xie<sup>3</sup>

*<sup>1</sup>Sichuan University, China, <sup>2</sup>Chengdu University of Traditional Chinese Medicine, China, <sup>3</sup>Sichuan Normal University, China*

18:40 MoP-G01-10 Poster (120 min)

**Crystal growth, structural, spectral, thermal, optical and electrical properties of potential material:**

**4-N,N-dimethylamino 4'-N'-methylstilbozolium 4-hydroxybenzenesulfonate**

I. Md. Zahid<sup>1</sup>\*, S. Kalaiyarasi<sup>1</sup>, M. K. Kumar<sup>2</sup>, P. Pandi<sup>3</sup>, R. M. Kumar<sup>1</sup>

- <sup>1</sup>Presidency College, India, <sup>2</sup>Kalasalingam University, India, <sup>3</sup>Panimalar Engineering College, India  
18:40 MoP-G01-11 Poster (120 min)
- 
- Growth, structural, spectral and third-order nonlinear optical properties of Piperidinium 3-carboxy-4-hydroxybenzenesulfonate single crystal**  
S. Kalaiyarasi\*, I. Md Zahid, S. R. Devi, B. M. Sornamurthy, R. M. Kumar  
*Presidency College, India.*  
18:40 MoP-G01-12 Poster (120 min)
- 
- Precrystalline Aggregates Enable Control over Organic Crystallization in Solution**  
H. Weissman<sup>1</sup>\*, C. Shahar<sup>1</sup>, S. Dutta<sup>1</sup>, L. J. W. Shimon<sup>2</sup>, H. Ott<sup>3</sup>, B. Rybchinski<sup>1</sup>  
<sup>1</sup>Department of Organic Chemistry, <sup>2</sup>Department of Chemical Research Support, Weizmann Institute of Science, Israel, <sup>3</sup>Bruker AXS GmbH, Germany  
18:40 MoP-G01-13 Poster (120 min)
- 
- Studies of the Structural, Optical, Thermal and Dielectric Properties of Solution grown 4-methylpyridinium 4-nitrophenolate single crystal**  
S. R. Devi\*, S. Suresh, P. Rekha, R. M. Kumar  
*Presidency College, India*  
18:40 MoP-G01-14 Poster (120 min)
- 
- Oxygen vacancy-induces abnormal dielectric property in new single crystal LiNbMoO<sub>6</sub>**  
Z. Wang\*, Z. L. Gao, Y. X. Sun, X. T. Tao  
*Shandong University, China*  
18:40 MoP-G01-15 Poster (120 min)
- 
- The dodecagonal pyramid structure on substrate utilized for Hydride Vapor Phase Epitaxy growth free-standing GaN**  
Y. Shao\*, X. Hao, Y. Wu  
*Shandong University, China*  
18:40 MoP-G01-16 Poster (120 min)
- 
- Monte Carlo study of the growth rate and V/III flux ratio dependences of Ga surface diffusion during MBE of GaAs**  
O. A. Ageev, M. S. Solodovnik, S. V. Balakirev\*, M. M. Eremenko, I. A. Mikhaylin  
*Southern Federal University, Russia*  
18:40 MoP-G01-17 Poster (120 min)
- 
- Kinetic Monte Carlo Simulations and In-Situ X-ray Studies of GaN Vapor Phase Epitaxy**  
D. Xu<sup>1</sup>, E. Perret<sup>1,2</sup>, M. J. Highland<sup>1</sup>, G. Ju<sup>1</sup>, P. H. Fuoss<sup>1</sup>, P. Zapol<sup>1</sup>, G. B. Stephenson<sup>1</sup>, Carol Thompson<sup>3</sup>\*  
<sup>1</sup>Argonne National Laboratory, USA, <sup>2</sup>University of Fribourg, Switzerland, <sup>3</sup>Northern Illinois University, USA  
18:40 MoP-G01-18 Poster (120 min)
- 
- Effect of Direction of External Force on Crystallization of Colloidal Particles in a V-Groove in Sedimentation**  
M. Sato\*  
*Kanazawa University, Japan*  
18:40 MoP-G01-19 Poster (120 min)
- 
- Non-isothermal crystallization behaviors of supercooled water in monodisperse W/O emulsion**  
T. Nishizaki<sup>1</sup>\*, K. Yamane<sup>1</sup>, S. Iwamoto<sup>2</sup>, M. Peanparkdee<sup>3</sup>, Y. Teramoto<sup>2</sup>, R. Yamauchi<sup>2</sup>  
<sup>1</sup>Graduate School of Applied Biological Sciences, <sup>2</sup>Faculty of Applied Biological Sciences, <sup>3</sup>Division of Science of Biological Resources, Gifu University, Japan  
18:40 MoP-G01-20 Poster (120 min)
- 
- Crystallization Kinetics during Rapid Solidification of Si-0.5 at% Sn**  
K. Kuribayashi<sup>1,2,3</sup>\*, S. Ozawa<sup>2</sup>, K. Nagayama<sup>3</sup>, Y. Inatomi<sup>1</sup>  
<sup>1</sup>ISAS/JAXA, Japan, <sup>2</sup>Chiba Institute of Technology, Japan, <sup>3</sup>Shibaura Institute of Technology, Japan  
18:40 MoP-G01-21 Poster (120 min)
- 
- Parallel banded structures formed by synchronized growth of helical crystals in a polymer matrix**  
S. Mizue<sup>1</sup>\*, S. Ibaraki<sup>1</sup>, Y. Oaki<sup>1</sup>, G. Sazaki<sup>2</sup>, H. Imai<sup>1</sup>  
<sup>1</sup>Keio University, Japan, <sup>2</sup>Hokkaido University, Japan  
18:40 MoP-G01-22 Poster (120 min)
- 
- Specific Surface Free Energy and Roughening Transition of Sodium Chloride Single Crystal**  
R. Maruyama\*, A. Tsukagoshi, T. Suzuki  
*Shinshu University, Japan*  
18:40 MoP-G01-23 Poster (120 min)
- 
- Size Controlled Preparation of CdTe Nanoparticles by Apoferritin**  
P. Shasha\*, J. H. Kim, S. J. Park  
*Gachon University, Korea*  
18:40 MoP-G01-24 Poster (120 min)
- 
- Analysis of  $\gamma$ -to- $\alpha$  Transformation in Fe-C-Mn Ternary Alloy by Multi-Phase-Field Simulation Coupled with CALPHAD Database**  
T. Kohtake<sup>1,2</sup>\*, M. Segawa<sup>2</sup>, A. Yamanaka<sup>2</sup>  
<sup>1</sup>Nippon Steel & Sumitomo Metal Corporation, Japan, <sup>2</sup>Tokyo University of Agriculture and Technology, Japan  
18:40 MoP-G01-25 Poster (120 min)
- 
- Crystal Growth and Characterization of 7 mol% Neodymium Doped BiFeO<sub>3</sub> Multiferroic Crystals**  
P.-Y. Chen<sup>1</sup>\*, C.-S. Chen<sup>2</sup>, C.-Y. Lin<sup>3</sup>, Y.-S. Wu<sup>1</sup>, C.-S. Tu<sup>3</sup>  
<sup>1</sup>Ming Chi University of Technology, Taiwan, <sup>2</sup>Hwa Hsia University of Technology, Taiwan, <sup>3</sup>Fu Jen Catholic University, Taiwan  
18:40 MoP-G01-26 Poster (120 min)
- 
- Effect of chiral impurities on the chirality conversion by grinding**  
H. Katsuno<sup>1</sup>\*, M. Uwaha<sup>2</sup>  
<sup>1</sup>Ritsumeikan University, Japan, <sup>2</sup>Nagoya University, Japan  
18:40 MoP-G01-27 Poster (120 min)
- 
- Computational investigation of the onset of nucleation by the anharmonic downward distortion following method**  
J. Kawano<sup>1</sup>\*, S. Maeda<sup>2</sup>, T. Nagai<sup>1</sup>  
<sup>1</sup>Department of Earth and Planetary Sciences, <sup>2</sup>Department of Chemistry, Hokkaido University, Japan  
18:40 MoP-G01-28 Poster (120 min)
- 
- Crystal lattice structure of two components of DNA nano particles on a substrate**  
Y. Maegawa<sup>1</sup>, H. Katsuno<sup>2</sup>\*, M. Sato<sup>3</sup>  
<sup>1</sup>Graduate School of Natural Science and Technology,

- Kanazawa University, Japan, <sup>2</sup>Ritsumeikan University, Japan, <sup>3</sup>Information Media Center, Kanazawa University, Japan
- 
- 18:40 MoP-G01-29 Poster (120 min)
- Selective incorporation at step edges: a new growth mechanism of a solid solution**  
K. Matsumoto-Katsuno<sup>1</sup>\*, T. Irisawa<sup>2</sup>, M. Kitamura<sup>3</sup>  
<sup>1</sup>Seikei University, Japan, <sup>2</sup>Gakushuin University, Japan, <sup>3</sup>Kyoto University, Japan
- 
- 18:40 MoP-G01-30 Poster (120 min)
- Heterogenous nucleation in a groove between rod dendrites with an apex and iso-curvature lateral surface**  
Q.-L. Liu\*, X.-M. Li  
Kunming University of Science and Technology, China
- 
- 18:40 MoP-G01-31 Poster (120 min)
- Interstitial Fe-pairs in silicon**  
O. A. Al-Ani\*, J. P. Goss, P. R. Briddon, M. J. Rayson, N. E. B. Cowern  
Newcastle University, UK
- 
- 18:40 MoP-G01-32 Poster (120 min)
- Kinetics of solution crystal growth of strengite, FePO<sub>4</sub>·2H<sub>2</sub>O**  
H. E. L. Madsen\*  
University of Copenhagen, Denmark
- 
- 18:40 MoP-G01-33 Poster (120 min)
- The Epitaxy of GaN Nanowires Grown on Si from Reactive Metal Catalysts**  
K. L. Wu\*, C. C. Su, Y. Chou, W. I. Lee and Y. C. Chou  
National Chiao Tung University, Taiwan
- 
- 18:40 MoP-G01-34 Poster (120 min)
- Morphology and crystal growth of copper sulfate pentahydrate**  
T. Shinohara<sup>1</sup>, S. Yamamura<sup>1</sup>, K. Kamiya<sup>1</sup>, Y. Sugawara<sup>1</sup>\*, M. Ootaki<sup>2</sup>, N. Matsumoto<sup>2</sup>  
<sup>1</sup>Kitasato University, Japan, <sup>2</sup>St. Marianna University School of Medicine, Japan
- 
- 18:40 MoP-G01-35 Poster (120 min)
- Nucleation studies on potassium succinate succinic acid (KSSA) single crystal**  
P. Rajesh<sup>1</sup>\*, S. Rama<sup>1</sup>, A. Arunkumar<sup>1</sup>, R. Sivasankari<sup>1</sup>, P. Ramasamy<sup>2</sup>  
<sup>1</sup>Agni College of Technology, India, <sup>2</sup>SSN College of Engineering, India
- In this abstract the nucleation parameters of potassium succinate - succinic acid crystal (KSSA) were evaluated using Density functional theory and classical Nucleation theory.
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- 18:40 MoP-G01-36 Poster (120 min)
- Investigation on nucleation kinetics, growth and characterization of urea oxalic acid –ferroelectric single crystal**  
R. Dhivya, D. R. Babu, R. E. Vizhi\*  
VIT University, India
- 
- 18:40 MoP-G01-37 Poster (120 min)
- Growth of Ga-rich and Ga,Ge-rich tourmaline crystals in hydrothermal solutions**  
T. V. Setkova<sup>1</sup>\*, V. S. Balitsky<sup>1</sup>, D. V. Balitsky<sup>2</sup>  
<sup>1</sup>Institute of Experimental Mineralogy Russian Academy
- of Science, Russia, <sup>2</sup>Balitsky Consultancy, France
- 
- 18:40 MoP-G01-38 Poster (120 min)
- Morphologic Control of BaNbO<sub>2</sub>N Crystals Using Flux Grown Precursor Crystals and Their Photocatalytic Properties Response to Visible Light**  
T. Yamada<sup>1</sup>\*, Y. Murata<sup>2</sup>, K. Teshima<sup>1,3</sup>  
<sup>1</sup>Center for Energy and Environmental Science, <sup>2</sup>Graduate School of Science and Engineering, <sup>3</sup>Faculty of Engineering, Shinshu University, Japan
- 
- 18:40 MoP-G01-39 Poster (120 min)
- Influence of Li-doped CaCO<sub>3</sub> on Conversion of Li<sub>2</sub>CO<sub>3</sub> to LiOH**  
B. Yuan<sup>1,2</sup>\*, J. Shi<sup>2</sup>, M.-G. Yi<sup>1</sup>, L. Xiang<sup>2</sup>  
<sup>1</sup>Sichuan University, China, <sup>2</sup>Tsinghua University, China
- 
- 18:40 MoP-G01-40 Poster (120 min)\*Late News
- Understanding of Crystallization and Growth of LiB<sub>3</sub>O<sub>5</sub> crystal in the MoO<sub>3</sub>-based high-temperature solution at the Molecular Level<sup>†</sup>**  
D. Wang<sup>1</sup>\*, D. Zhang<sup>2</sup>, J. Zhang<sup>2</sup>, S. Liu<sup>3</sup>, Y. Yue<sup>3</sup>, G. Zhang<sup>3</sup>, Z. Hu<sup>3</sup>, S. Yin<sup>2</sup>, P. Fu<sup>3</sup>, J. Yu<sup>4</sup>, M. Wang<sup>1</sup>  
<sup>1</sup>Nanjing University, China, <sup>2</sup>Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Science, China, <sup>3</sup>Technical Institute of Physics and Chemistry of Chinese Academy of Science, China, <sup>4</sup>Shanghai University, China
- 
- MoP-G02**
- Surfaces and Interfaces*
- 
- 18:40 MoP-G02-1 Poster (120 min)
- Influence of Mn addition on precipitation and pitting corrosion of 19%Cr economical duplex stainless steel with aging at 800°C**  
Y. Yang\*, Y. Bai  
Kunming University of Science and Technology, China
- 
- 18:40 MoP-G02-2 Poster (120 min)
- An *ab initio* approach for stability of polar GaN/SiC and AlN/SiC interfaces**  
T. Akiyama\*, H. Nakane, K. Nakamura, T. Ito  
Mie University, Japan
- 
- 18:40 MoP-G02-3 Poster (120 min)
- Interaction forces between two calcite surfaces as a function of fluid composition**  
S. Javadi<sup>1,2</sup>\*, A. Røyne<sup>1</sup>  
<sup>1</sup>Oslo University, Norway, <sup>2</sup>Stavanger University, Norway
- 
- 18:40 MoP-G02-4 Poster (120 min)
- Growth and Shrinkage of Microbubbles in Water-Alcohol Mixture generated by Photoexcitation of Gold Nanoparticles**  
S. Yanagiya\*, A. Yoshida, A. Furube  
University of Tokushima, Japan
- 
- 18:40 MoP-G02-5 Poster (120 min)
- Structures and stability of polar GaN thin films on ScAlMgO<sub>4</sub> substrate: an *ab initio*-based study**  
H. Nakane\*, T. Akiyama, K. Nakamura, T. Ito  
Mie University, Japan
- 
- 18:40 MoP-G02-6 Poster (120 min)
- Growth morphology of flux-synthesized La<sub>4</sub>Ti<sub>3</sub>O<sub>12</sub>**

<b>particles</b>			
A.Orum <sup>1</sup> *, K. Takatori <sup>2</sup> , S. Hori <sup>2</sup> , T. Ikeda <sup>1</sup> , M. Yoshimura <sup>1</sup> , T. Tani <sup>1,2</sup>			<i>Anna University, India</i>
<sup>1</sup> Toyota Technological Institute, Japan, <sup>2</sup> Toyota Central Research and Development Laboratories, Inc., Japan	18:40	MoP-G03-4	Poster (120 min)
<b>Single Molecule Observations of Antifreeze Protein by using Diffracted X-ray Tracking</b>			
R. Okada <sup>1</sup> *, T. Arai <sup>2</sup> , Y. Matsushita <sup>1</sup> , J.-W. Chang <sup>1</sup> , H. Sekiguchi <sup>3</sup> , K. Ikezaki <sup>1</sup> , S. Tsuda <sup>2</sup> , Y. C.Sasaki <sup>1,3</sup>			
<sup>1</sup> Tokyo University, Japan, <sup>2</sup> AIST / Hokkaido University, Japan, <sup>3</sup> JASRI, Japan	18:40	MoP-G02-7	Poster (120 min)
<b>Modeling of Conductivity Measurements of Wigner Crystal Under Incomplete Compensation of The Holding Field</b>			
V. E. Syvokon <sup>1</sup> , I. V. Sharapova <sup>1</sup> *, K. Nasyedkin <sup>2</sup>			
<sup>1</sup> B. Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, Ukraine, <sup>2</sup> RIKENCEMS, Japan	18:40	MoP-G02-8	Poster (120 min)
<b>Solar Polysilicon Surface Nanostructuring by using Low Energy Argon Ion Irradiation</b>			
J. L. Plaza*, S. R. y E. Diéguez			
<i>Universidad Autónoma de Madrid, España</i>	18:40	MoP-G02-9	Poster (120 min)
<b>Void Growth in Silicon as Sink for Interstitial Iron: First Principle Study</b>			
O. A. Al-Ani*, J. P. Goss, M. Al-Hadidi, P. R. Briddon, M. J. Rayson, N. E. B. Cowern			
<i>Newcastle University, UK.</i>	18:40	MoP-G02-10	Poster (120 min)
<b>Ligand exchange solvent effect on the densification of CuIn<sub>0.7</sub>Ga<sub>0.3</sub>Se<sub>2</sub> prepared using heating-up method</b>			
C. T. Yang*, H. I. Hsiang			
<i>National Cheng Kung University, Taiwan</i>	18:40	MoP-G02-11	Poster (120 min)
<b>MoP-G03</b>			
<i>Nanomaterials and Low Dimensional Structures, Nanostructure - Fundamentals and Applications</i>			
<b>Ultrasonic-assisted synthesis and photocatalytic properties of ZnO nanoplates and microflowers</b>			
A. Phuruangrat*			
<i>Prince of Songkla University, Thailand</i>	18:40	MoP-G03-1	Poster (120 min)
The photocatalytic degradation of MB under UV radiation showed that the hexagonal nanoplates of ZnO have the highest photocatalytic activity.			
<b>Kinetics of cluster formation and growth of a solid phase in the molten aluminum of high purity</b>			
V. B.Vorontsov*, V. K. Pershin			
<i>Ural State University of Railway Transport, Russia</i>	18:40	MoP-G03-2	Poster (120 min)
<b>Morphological Controlled Synthesis (through Surfactants) of Hierarchical Copper Selenide Nanocrystals</b>			
M. Senthilkumar*, C. Imla Mary, S. Moorthy Babu			
	18:40	MoP-G03-3	Poster (120 min)
<b>Growth of isolated InAs quantum dots on core-shell GaAs/InP nanowire sidewalls by MOCVD</b>			
X. Yan*, F. Tang, Y. Wu, B. Li, X. Zhang, X. Ren			
<i>Beijing University of Posts and Telecommunications, China</i>	18:40	MoP-G03-4	Poster (120 min)
<b>Growth of Nanocrystals from Amorphous Bismuth</b>			
G. N. Kozhemyakin <sup>1</sup> *, S. Y. Kovalev <sup>2</sup>			
<sup>1</sup> Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia, <sup>2</sup> Volodumur Dahl State University, Russia	18:40	MoP-G03-5	Poster (120 min)
<b>Nanostructured Thermoelectric Materials</b>			
G. N. Kozhemyakin <sup>1</sup> *, S. Y. Skipidarov <sup>2</sup> , A. N. Parashchenko <sup>3</sup>			
<sup>1</sup> Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia, <sup>2</sup> Closed JSC "SKTB "NORD", Ferrotec Corp., Russia, <sup>3</sup> Volodumur Dahl State University, Russia	18:40	MoP-G03-6	Poster (120 min)
<b>Low-Temperature Nanophase Formation in the Fluoride Systems</b>			
P. P. Fedorov*, S. V. Kuznetsov, M. N. Mayakova, Yu. A. Rozhnova, V. V. Voronov, V. V. Osiko			
<i>Prokhorov General Physics Institute, Russian Academy of Sciences, Russia</i>	18:40	MoP-G03-7	Poster (120 min)
<b>Structural Properties of Tin Selenide Nanoparticles Prepared by Aqueous Solution Method</b>			
R. J. Pathak <sup>1</sup> *, R. J. Parmar <sup>2</sup> , V. R. Solanki <sup>1</sup> , M. D. Parmar <sup>3</sup> , K. D. Patel <sup>4</sup>			
<sup>1</sup> RR Mehta College of Science & CL Parikh College of Commerce, India, <sup>2</sup> Sheth MN Science College, India, <sup>3</sup> MN Science College, India, <sup>4</sup> S.P. University, India	18:40	MoP-G03-8	Poster (120 min)
<b>Hydrothermal Synthesis, Growth Mechanism and Down/Up Conversion Photoluminescence of Single Crystal NaGd(MoO<sub>4</sub>)<sub>2</sub> Nanocubes Doped with Eu<sup>3+</sup>, Tb<sup>3+</sup> and Yb<sup>3+</sup>/Er<sup>3+</sup></b>			
A. Li <sup>1,2,3</sup> *, H. Lin <sup>1</sup> , D. Xu <sup>1</sup> , S. Yang <sup>2</sup> , Y. Zhang <sup>1</sup> , Y. Shao <sup>2</sup>			
<sup>1</sup> School of Materials Science and Engineering, <sup>2</sup> School of Physics, Sun Yat-sen University, China, <sup>3</sup> Jinan University, China.	18:40	MoP-G03-9	Poster (120 min)
<b>Gallium, Indium, Bismuth and Antimony Nanoparticles Obtained by Thermal Evaporation</b>			
G. N. Kozhemyakin <sup>1</sup> *, O. E. Brul <sup>2</sup> , E. A. Panich <sup>2</sup> , A. I. Dovgalyuk <sup>3</sup> , V. S. Kozub <sup>3</sup> , I. V. Savitskiy <sup>3</sup> , A. A. Yarmov <sup>3</sup>			
<sup>1</sup> Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia, <sup>2</sup> Southern Federal University, Russia, <sup>3</sup> Volodumur Dahl State University, Russia	18:40	MoP-G03-10	Poster (120 min)
<b>XANES study on chemical states of Pt catalysts during SWNT growth</b>			
	18:40	MoP-G03-11	Poster (120 min)



- M. Kumakura<sup>1</sup>\*, A. Kozawa<sup>1</sup>, T. Saida<sup>2</sup>, S. Naritsuka<sup>1</sup>, T. Maruyama<sup>1,2</sup>  
<sup>1</sup>Department of Materials Science and Engineering,  
<sup>2</sup>Department of Applied Chemistry, Meijo University, Japan
- 
- 18:40 MoP-G03-12 Poster (120 min)  
**SWNT synthesis using Ru catalysts by alcohol CVD method**  
 T. Fujii<sup>1</sup>\*, A. Kozawa<sup>1</sup>, H. Kiribayashi<sup>1</sup>, S. Ogawa<sup>1</sup>, T. Saida<sup>1,2</sup>, S. Naritsuka<sup>1</sup>, T. Maruyama<sup>1,2</sup>  
<sup>1</sup>Department of Materials Science and Engineering,  
<sup>2</sup>Department of Applied Chemistry, Meijo University, Japan
- 
- 18:40 MoP-G03-13 Poster (120 min)  
**Preparation of Cu loaded BiVO<sub>4</sub> metal oxide as a photocatalyst for methylene blue degradation under visible light irradiation**  
 P. Rajesh, M. Nirmal Prashanth\*, P. Ramasamy  
 SSN College of Engineering, India
- 
- 18:40 MoP-G03-14 Poster (120 min)  
**The Synthesis of MgTeMoO<sub>6</sub> Microcrystal in Novel Hydrothermal System**  
 B. Li\*, Y. Liu, M. Zhang  
 Shandong University, China
- 
- 18:40 MoP-G03-15 Poster (120 min)  
**Construction of fine VO<sub>2</sub> hetero nano-wall wires and their nanoscale transport properties**  
 S. Tsubota<sup>1</sup>\*, A. N. Hattori<sup>1,2</sup>, Y. Azuma<sup>3</sup>, Y. Majima<sup>3</sup>, H. Tanaka<sup>1</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>JST-PRESTO, Japan, <sup>3</sup>Tokyo Institute of Technology, Japan
- 
- 18:40 MoP-G03-16 Poster (120 min)  
**Nanocomposites Zeolite-Oxides Titanium (IV): Preparation, Characterization, Adsorption, Photocatalytic and Bactericidal Properties**  
 E. N. Domoroshchina\*, G. V. Kravchenko, G. M. Kuz'micheva  
 Moscow Technological University, Russia
- 
- 18:40 MoP-G03-17 Poster (120 min)  
**Fabrication and characterization of self-organized one-dimensional diluted magnetic semiconductors**  
 A. Daidai, M. Koshimizu\*, Y. Fujimoto, K. Asai  
 Tohoku University, Japan
- 
- 18:40 MoP-G03-18 Poster (120 min)  
**ZnO nanorods electrochemically deposited under a magnetic field**  
 S. L. Yen\*, H. S. Hsu  
 National Pingtung University, Taiwan, R.O.C
- 
- 18:40 MoP-G03-19 Poster (120 min)  
**Hydrothermal Formation of  $\gamma$ -(Al,Ga)<sub>2</sub>O<sub>3</sub> Spinel Nanoparticles**  
 K. Sakoda\*, Y. Hirose, K. Souma, H. Nishimoto, K. Jinno, M. Hirano  
 Aichi Institute of Technology, Japan
- 
- 18:40 MoP-G03-20 Poster (120 min)  
**Solvothermal synthesis of bismuth telluride nanoplates and their thin films by printing method**  
 K. Wada<sup>1</sup>\*, K. Tomita<sup>2</sup>, M. Takashiri<sup>1</sup>  
<sup>1</sup>Department of Materials Science, <sup>2</sup>Department of
- Chemistry, Tokai University, Japan
- 
- 18:40 MoP-G03-21 Poster (120 min)  
**Structural and thermoelectric properties of Bi<sub>2</sub>Te<sub>3</sub>/Bi<sub>2</sub>Se<sub>3</sub> multi-layer thin films by RF magnetron sputtering**  
 J. Hamada\*, D. Zheng, M. Takashiri  
 Tokai University, Japan
- 
- 18:40 MoP-G03-22 Poster (120 min)  
**Effect of thiol concentration on etch pits formation on 1-dodecanethiol self-assembled monolayer on gold substrate**  
 Y. Ogasa\*, H. Katsuno, T. Hirai, T. Nakada  
 Ritsumeikan University, Japan
- 
- 18:40 MoP-G03-23 Poster (120 min)  
**Reduced parasitic growth of self-assisted GaAs nanowires on silicon grown by molecular beam epitaxy**  
 G. W. Ju<sup>1</sup>\*, K. W. Park<sup>2</sup>, B. H. Na<sup>3</sup>, J. W. Min<sup>4</sup>, S. J. Kang<sup>1</sup>, Y. T. Lee<sup>1</sup>  
<sup>1</sup>School of Information and Communications, Gwangju Institute of Science and Technology, Korea, <sup>2</sup>National Renewable Energy Laboratory, USA, <sup>3</sup>Samsung Advanced Institute of Technology, Korea, <sup>4</sup>Department of Physics and Photon Science, Gwangju Institute of Science and Technology, Korea
- 
- 18:40 MoP-G03-24 Poster (120 min)  
**Effect of several factors on the crystal growth and phase transformation of ZrO<sub>2</sub> nanocrystal by hydrothermal method**  
 A. Fukaya<sup>1</sup>\*, K. Kobayashi<sup>2</sup>, T. Hattori<sup>1</sup>, M. Ozawa<sup>2</sup>  
<sup>1</sup>Department of Materials Science and Engineering,  
<sup>2</sup>Institute of Materials and systems for Sustainability, Nagoya University, Japan
- 
- 18:40 MoP-G03-25 Poster (120 min)  
**Dynamic dissolution of MBE grown Type-II GaSb/GaAs in arsenic environment**  
 A. Salhi<sup>1</sup>\*, S. Alshaibani<sup>1</sup>, M. Alhamdan<sup>1</sup>, H. Albrithen<sup>1,2</sup>, A. Alyamani<sup>1</sup>, M. El-Desouki<sup>3</sup>  
<sup>1</sup>King Abdulaziz City for Science and Technology, Nanotechnology Research Centre, KSA, <sup>2</sup>King Saud University, KSA, <sup>3</sup>King Abdulaziz City for Science and Technology, Materials Science Research Institute, KSA
- 
- 18:40 MoP-G03-26 Poster (120 min)  
**Investigation of Effect of Formation of Gold Nanoparticles in Chitosan Membranes**  
 R. Radha Perumal\*, S. N. Suraiya Begum  
 Anna University, India
- 
- 18:40 MoP-G03-27 Poster (120 min)  
**Epitaxial GaN nanowire arrays: controllable synthesis, defect controlling and cathodoluminescence**  
 B. Liu\*, X. Jiang  
 Institute of Metal Research, Chinese Academy of Sciences, China
- 
- 18:40 MoP-G03-28 Poster (120 min)  
**Title: Synthesis and optoelectronic properties of quaternary heterostructure and solid-solution semiconductor nanowires**  
 B. Liu\*, X. Jiang  
 Institute of Metal Research, Chinese Academy of

<i>Sciences, China</i>		
18:40	MoP-G03-29	Poster (120 min)
<b>Synthesis of Diamond single crystal nano-cone structure array by Reactive ions etching using Microwave Plasma Chemical vapor deposition (MPCVD)</b>		
M. F. Yuen*, B. He, W. J. Zhang		
<i>City University of Hong Kong, Hong Kong SAR</i>		
18:40	MoP-G03-30	Poster (120 min)
<b>Liquid phase growth of few-layer graphene on sapphire substrates using Ga melts</b>		
T. Maruyama <sup>1</sup> *, Y. Yamashita <sup>2</sup> , T. Saida <sup>1</sup> , S. Tanaka <sup>3</sup> , S. Naritsuka <sup>2</sup>		
<sup>1</sup> Department of Applied Chemistry, <sup>2</sup> Department of Materials Science and Engineering, Meijo University, Japan, <sup>3</sup> Osaka University, Japan		
18:40	MoP-G03-31	Poster (120 min)
<b>Fabrication and Characterization of ZnO nanostructures based wire</b>		
A. Abidov <sup>1</sup> *, S. Abduraimova <sup>1</sup> , U. Ziyamukhamedova <sup>1</sup> , E. Sunil Babu <sup>2</sup> , S. W. Jeong, S. Kim <sup>2</sup>		
<sup>1</sup> Tashkent State Technical University, Uzbekistan		
<sup>2</sup> Kumoh National Institute of Technology, Korea		
18:40	MoP-G03-32	Poster (120 min)
<b>Growth and Structure of Single Crystal Sr<sub>3</sub>NbFe<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> –Langasite Family Multiferroics</b>		
A. P. Dudka <sup>1</sup> , A. M. Balbashov <sup>2</sup> *		
<sup>1</sup> The Institute of crystallography RAS, Russia, <sup>2</sup> Moscow Power Engineering Institute, Russia		
18:40	MoP-G03-33	Poster (120 min)
<b>Growth and Property of Nickel-Seeded Gallium Nitride Nanowires</b>		
C. C. Su*, K. L. Wu, C. H. Huang, W. I. Lee, Y. C. Chou		
<i>National Chiao Tung University, Taiwan</i>		
18:40	MoP-G03-34	Poster (120 min)
<b>Study on Selective-Area Growth of InGaAs Nanowires for Optical Communication Band</b>		
K. Chiba <sup>1</sup> *, K. Tomioka <sup>1,2,3</sup> , J. Motohisa <sup>1</sup> , F. Ishizaka <sup>1,2</sup> , A. Yoshida <sup>1</sup> , T. Fukui <sup>1,2</sup>		
<sup>1</sup> Graduate School of Information Science and Technology, <sup>2</sup> Research Center for Integrated Quantum Electronics, Hokkaido University, Japan, <sup>3</sup> JST-PRESTO, Japan		
18:40	MoP-G03-35	Poster (120 min)
<b>Synthesis and characteristics of layered SnS<sub>2</sub> nanostructures via hot injection method</b>		
P. C. Huang <sup>1</sup> *, H. I. Wang <sup>1</sup> , J. L. Huang <sup>1,2</sup> , S. C. Wang <sup>3</sup>		
<sup>1</sup> National Cheng Kung University, Taiwan, <sup>2</sup> National University of Kaohsiung, Taiwan, <sup>3</sup> Southern Taiwan University of Science and Technology, Taiwan		
18:40	MoP-G03-36	Poster (120 min)
<b>Synthesis of nanophasic CoFe<sub>2</sub>O<sub>4</sub> powder by self-igniting solution combustion method using mix up fuels</b>		
D. Rajan Babu*, K. Venkatesan		
<i>VIT University, India</i>		
18:40	MoP-G03-37	Poster (120 min)
<b>TiO<sub>2</sub>/ZnO nanorods growth and their applications for hydrogen gas sensing</b>		
E. Sunil Babu*, S. Kim		
<i>Kumoh National Institute of Technology, Korea.</i>		
18:40	MoP-G03-38	Poster (120 min)
<b>Effect of sintering temperature on phase transition and thermoelectric properties of bismuth telluride nanostructures</b>		
P. Anandan <sup>1</sup> , M. Arivanandhan <sup>2</sup> *, D. Rajan Babu <sup>3</sup> , M. Azhagurajan <sup>4</sup> , R. Jayavel <sup>1</sup> , Y. Hayakawa <sup>5</sup>		
<sup>1</sup> Thiru Kolanjiyappar Government Arts College, India, <sup>2</sup> Anna University, India, <sup>3</sup> VIT University, India, <sup>4</sup> Tohoku University, Japan, <sup>5</sup> Shizuoka University, Japan		
18:40	MoP-G03-39	Poster (120 min)
<b>Preparation of concrete material with environmental durability by the addition of nanoparticles</b>		
M. P. Sivaraj*, R. Jayavel		
<i>Anna University, India</i>		
18:40	MoP-G03-40	Poster (120 min)
<b>Use of gold nanoparticles on CdS films for photovoltaic applications</b>		
S. Rubio*, N. V. Sochinskii, J. L. Plaza, E. Diéguez		
<i>Universidad Autónoma de Madrid, Spain</i>		
18:40	MoP-G03-41	Poster (120 min)
<b>Polarized Photoluminescence Emission of InGaAsN/GaAs T-shaped Quantum Wire Structure Grown by MOVPE</b>		
P. Klangtakai <sup>1,2,3</sup> *, S. Sanorpim <sup>4</sup> , F. Karlsson <sup>5</sup> , P. O. Holtz <sup>5</sup> , K. Onabe <sup>6</sup>		
<sup>1</sup> Faculty of Science, Department of Physics, Khon Kaen University, Thailand, <sup>2</sup> Nanotec-KKU Center of Excellence on Advanced Nanomaterials for Energy Production and Storage, Thailand, <sup>3</sup> Integrated Nanotechnology Research Center, Khon Kaen University, Thailand, <sup>4</sup> Chulalongkorn University, Thailand, <sup>5</sup> Linköping University, Sweden, <sup>6</sup> The University of Tokyo, Japan		
18:40	MoP-G03-42	Poster (120 min)
<b>Influence of Non-Phosphine Solvents on Structural, Optical and Morphological Properties of Copper Tin Selenide (Cu<sub>2</sub>SnSe<sub>3</sub>) Nanoparticles</b>		
S. Ananthakumar, J. Ramkumar, S. Moorthy Babu*		
<i>Anna University, India</i>		
18:40	MoP-G03-43	Poster (120 min)
<b>Morphological Controlled Synthesis (through Surfactants) of Hierarchical Copper Selenide Nanocrystals</b>		
M. Senthilkumar, C. Imla Mary, S. Moorthy Babu*		
<i>Anna University, India</i>		
18:40	MoP-G03-44	Poster (120 min)
<b>Fabrication of ZnO/Graphene Composite for Room Temperature NO<sub>2</sub> Sensing</b>		
Y. Xia <sup>1,2</sup> *, J. Wang <sup>2</sup> , X. Li <sup>3</sup> , D. Zhou <sup>1</sup> , L. Xiang <sup>2</sup>		
<sup>1</sup> Sichuan University, China, <sup>2</sup> Department of Chemical Engineering, <sup>3</sup> Institute of Microelectronics, Tsinghua University, China		
18:40	MoP-G03-45	Poster (120 min)*Late News
<b>Comparative Analysis of LiGd(WO<sub>4</sub>)<sub>2</sub>: Eu<sup>3+</sup> Phosphors Derived by Sol-Gel and Hydrothermal Methods</b>		

- K. Kavi Rasu, D. Balaji, S. Moorthy Babu\*  
*Anna University, India.*
- 
- 18:40 MoP-G03-46 Poster (120 min)\**Late News*  
**Role of temperature and growth time on the structural, optical and morphological properties of hydrothermally grown TiO<sub>2</sub> nanorods**  
S. Ananthakumar<sup>1</sup>, P. Yilmaz<sup>2</sup>, X. Li<sup>2</sup>, J. Briscoe<sup>2</sup>, A.-L. Anderson<sup>2</sup>, S. Dunn<sup>2</sup>, S. Moorthy Babu<sup>1</sup>\*  
<sup>1</sup>*Anna University, India,* <sup>2</sup>*Queen Mary University of London, UK.*
- 
- MoP-G04**  
*Thin Films and Epitaxial Growth*
- 
- 18:40 MoP-G04-1 Poster (120 min)  
**Epitaxial growth of Ga<sub>2</sub>O<sub>3</sub>:Er films on silicon substrate**  
Z. Chen<sup>1</sup>\*, K. Saito<sup>1</sup>, T. Tanaka<sup>1</sup>, M. Nishio<sup>1</sup>, M. Arita<sup>2</sup>, Q. Guo<sup>1</sup>  
<sup>1</sup>*Saga University, Japan,* <sup>2</sup>*Kyushu University, Japan*
- 
- 18:40 MoP-G04-2 Poster (120 min)  
**Transport Phenomena in a Slim Vertical CVD Reactor for Minimal Manufacturing**  
A. Yamada<sup>1</sup>, N. Li<sup>1</sup>, M. Matsuo<sup>1</sup>, H. Habuka<sup>1</sup>\*, Y. Ishida<sup>2,3</sup>, S. Ikeda<sup>2,3</sup>, S. Hara<sup>2,3</sup>  
<sup>1</sup>*Yokohama National University, Japan,* <sup>2</sup>*National Institutes of Advanced Science and Technology, Japan,* <sup>3</sup>*Minimal Fab Development Association, Japan*
- 
- 18:40 MoP-G04-3 Poster (120 min)  
**The Epitaxial Relationships: Tensor Approach**  
A. O. Lebedev<sup>1</sup>\*, A. N. Efimov<sup>1</sup>, A. V. Bulatov<sup>2</sup>  
<sup>1</sup>*Ioffe Institute, Russia,* <sup>2</sup>*Institute of Biochemical Physics, Russia*
- 
- 18:40 MoP-G04-4 Poster (120 min)  
**Sol-gel Growth of In<sub>2</sub>O<sub>3</sub> Thin Films**  
S. A. Palomares Sanchez<sup>1,2</sup>, B. E. Watts<sup>2</sup>, A. Baraldi<sup>3</sup>, A. Parisini<sup>3</sup>, M. Pavesi<sup>3</sup>, S. Vantaggio<sup>3</sup>, R. Fornari<sup>3</sup>\*  
<sup>1</sup>*UASLP, México,* <sup>2</sup>*IMEM-CNR Institute, Italy,* <sup>3</sup>*Parma University, Italy*
- 
- 18:40 MoP-G04-5 Poster (120 min)  
**Dependence of the properties of ZnO thin films on the structure of de Laval nozzle for the generation of high-energy H<sub>2</sub>O beam**  
K. Watanabe, S. Ono, Y. Teraguchi, T. Nakamura, T. Kato, K. Yasui\*  
*Nagaoka University of Technology, Japan*
- 
- 18:40 MoP-G04-6 Poster (120 min)  
**X-ray Diffraction Simulation of GeSn/Ge Multi-quantum Wells with Kinematic Approach**  
H. Li\*, C. Chang, H.-H. Cheng  
*National Taiwan University, Taiwan, R. O. C*
- 
- 18:40 MoP-G04-7 Poster (120 min)  
**Characteristic μm-sized VO<sub>2</sub> domains grown on Al<sub>2</sub>O<sub>3</sub> (001) deposited under particular substrate biasing conditions**  
N. Hanis Azhan<sup>1</sup>\*, K. Okimura<sup>1</sup>, M. Zaghrioui<sup>2</sup>, J. Sakai<sup>2</sup>  
<sup>1</sup>*Tokai University, Japan,* <sup>2</sup>*Université François Rabelais de Tours, France*
- 
- 18:40 MoP-G04-8 Poster (120 min)
- 
- Characteristics of Li-doped amorphous NiO thin films formed by RF magnetron sputtering**  
K. Sato<sup>1</sup>\*, S. Kim<sup>1</sup>, H. Naganuma<sup>1</sup>, S. Komuro<sup>2</sup>, X. Zhao<sup>1</sup>  
<sup>1</sup>*Tokyo University of Science, Japan,* <sup>2</sup>*Toyo University, Japan*
- 
- 18:40 MoP-G04-9 Poster (120 min)  
**Solution growth on reorganized porous Si foils and on glass substrates**  
C. Ehlers, R. Bansen\*, Th. Teubner, T. Boeck  
*Leibniz Institute for Crystal Growth, Germany*
- 
- 18:40 MoP-G04-10 Poster (120 min)  
**Orientational control of CeO<sub>2</sub> films on sapphire substrates grown by magnetron sputtering**  
S. Yamamoto\*, M. Sugimoto, H. Koshikawa, T. Hakoda, T. Yamaki  
*Japan Atomic Energy Agency, Japan*
- 
- 18:40 MoP-G04-11 Poster (120 min)  
**Luminescence and Scintillation Properties of Liquid Phase Epitaxy Grown Y<sub>2</sub>SiO<sub>5</sub>:Ce Single Crystalline Films**  
K. Wantong<sup>1</sup>\*, N. Yawai<sup>1</sup>, W. Chewpraditkul<sup>1</sup>, M. Kucera<sup>2</sup>, M. Nikl<sup>3</sup>  
<sup>1</sup>*King Mongkut's University of Technology Thonburi, Thailand,* <sup>2</sup>*Charles University, Czech Republic,* <sup>3</sup>*Institute of Physics, AS CR, Czech Republic*
- 
- 18:40 MoP-G04-12 Poster (120 min)  
**The n-i-p heterostructure with oxide thin films grown by the Atomic Layer Deposition method**  
L. Wachnicki<sup>1</sup>\*, S. Gieraltowska<sup>1</sup>, B. S. Witkowski<sup>1</sup>, M. Godlewski<sup>1,2</sup>  
<sup>1</sup>*Institute of Physics, Polish Acad. of Sciences, Poland,* <sup>2</sup>*Cardinal S. Wyszyński University, Poland*
- 
- 18:40 MoP-G04-13 Poster (120 min)  
**Enhanced Lateral Overgrowth of GaN Using a Graphene Mask**  
J.-Y. Lee\*, J.-H. Min, M.-D. Park, W.-L. Jeong, D.-S. Lee  
*Gwangju Institute of Science and Technology, Korea*
- 
- 18:40 MoP-G04-14 Poster (120 min)  
**High-temperature growth and characterization of (Er, Yb):YAl<sub>3</sub>(BO<sub>3</sub>)<sub>4</sub> single crystal layers**  
E. Volkova, V. Markin, N. I. Leonyuk\*  
*Moscow State University, Russia*
- 
- 18:40 MoP-G04-15 Poster (120 min)  
**GaAs single-junction solar cell using modulation doping for low doped p-GaAs base grown by MOVPE**  
S.-J. Kang<sup>1</sup>\*, K.-W. Park<sup>3</sup>, E.-K. Kang<sup>1</sup>, H.-J. Choi<sup>2</sup>, S.-K. Lee<sup>1</sup>, J.-W. Min<sup>2</sup>, G.-W. Ju<sup>1</sup>, H.-J. Kim<sup>4</sup>, Y. T. Lee<sup>1</sup>  
<sup>1</sup>*School of Information and Communications,* <sup>2</sup>*Department of Physics and Photon Science, Gwangju Institute of Science and Technology, Korea,* <sup>3</sup>*National Renewable Energy Laboratory, USA,* <sup>4</sup>*Korea Photonics Technology Institute, Korea*
- 
- 18:40 MoP-G04-16 Poster (120 min)  
**Growth and Characterization of β-Ga<sub>2</sub>O<sub>3</sub> Films on LiAlO<sub>2</sub> Substrates by Chemical Vapor Deposition Method**  
J.-Yu Zheng<sup>1,2</sup>, C.-A. Li<sup>1,2</sup>\*, M. M.C. Chou<sup>1,2</sup>

<sup>1</sup>National Sun Yat-sen University, Taiwan, <sup>2</sup>Taiwan Consortium of Emergent Crystalline Materials, Ministry of Science and Technology, Taiwan

18:40 MoP-G04-17 Poster (120 min)

**Simulation of Surface Reaction during Silicon Selective Epitaxy Growth by DFT calculation**

T. R. Mayangsari\*, L. L. Yusup, J.-W. Jung, W.-J. Lee  
*Sejong University, Korea*

18:40 MoP-G04-18 Poster (120 min)

**CdS films on silicon substrates by Chemical Bath Deposition**

S. Rubio\*, J. L. Plaza, N. V. Sochinskii, E. Diéguez  
*Universidad Autónoma de Madrid, Spain*

18:40 MoP-G04-19 Poster (120 min)

**Control of native acceptor density in epitaxial Cu<sub>2</sub>O thin films grown by electrochemical process**

A. Ashida\*, S. Sato, T. Yoshimura and N. Fujimura  
*Osaka Prefecture University, Japan*

18:40 MoP-G04-20 Poster (120 min)

**Temperature Uniformity Analysis in an Industrial GaN-MOCVD Reactor**

J. Zheng<sup>1</sup>, H. S. Fang<sup>1</sup>\*, Z. Zhang<sup>1</sup>, Z. Y. Gan<sup>2</sup>, H. Yan<sup>3</sup>  
<sup>1</sup>School of Energy and Power Engineering, <sup>2</sup>School of Mechanical Science and Engineering, Huazhong University of Science & Technology, China, <sup>3</sup>Wuhan University of Technology, China

18:40 MoP-G04-21 Poster (120 min)

**PECVD-SiN<sub>x</sub>:H Growth-Induced Defects in Crystalline Si**

T. Kamioka<sup>1</sup>\*, H. Lee<sup>1</sup>, K. Nakamura<sup>2</sup>, Y. Ohshita<sup>1</sup>  
<sup>1</sup>Toyota Technological Institute, Japan, <sup>2</sup>Meiji University, Japan

18:40 MoP-G04-22 Poster (120 min)

**TEM assessment of cubic GaN films on GaAs (001) and (311) oriented substrates grown by MOVPE**

J. Parinyataramas<sup>1</sup>, S. Sumnavadee<sup>1</sup>, P. Wanarattikan<sup>2</sup>\*, S. Sanorpim<sup>1</sup>, K. Onabe<sup>3</sup>  
<sup>1</sup>Chulalongkorn University, Thailand, <sup>2</sup>Huachiew Chalermprakiet University, Thailand, <sup>3</sup>The University of Tokyo, Japan

18:40 MoP-G04-23 Poster (120 min)\*Late News

**Effect of process parameters on the crystal growth and opti-electronic properties of Mo doped ZnO thin film by using co-sputtering technology**

C. C. Chiang<sup>1</sup>, T. H. Chen<sup>1</sup>\*, L. Tsai<sup>1</sup>, C. H. Chen<sup>1</sup>, S. H. Wang<sup>2</sup>, B. R. Jiang<sup>1</sup>  
<sup>1</sup>National Kaohsiung University of Applied Sciences, Taiwan, <sup>2</sup>I-Shou University, Taiwan

18:40 MoP-G04-24 Poster (120 min)\*Late News

**MOCVD grown high-quality InAsSb films on GaAs substrates for room temperature MIR photodetection**

P.-N. Ni, J.-C. Tong, L. Y. M. Tobing, L. Qian, S.-P. Qiu, Z.-J. Xu, X.-H. Tang, D.-H. Zhang\*  
*Nanyang Technological University, Singapore*

18:40 MoP-G04-25 Poster (120 min)\*Late News

**Outrageous ferromagnetism and superconductivity in epitaxial SmN**

B. J. Ruck, E.-M. Anton, F. Natali\*, H. J. Trodahl  
*Victoria University of Wellington, New Zealand*

**MoP-G07**

*Defect Formation*

18:40 MoP-G07-1 Poster (120 min)

**Czochralski growth of bulk Li<sub>2</sub>MoO<sub>4</sub> crystals for the scintillating bolometers used in the rare events searches**

P. Veber<sup>1</sup>\*, M. Velázquez<sup>1</sup>, P. de Marcillac<sup>2</sup>, A. Giuliani<sup>2</sup>, D. Denux<sup>1</sup>, O. Viraphong<sup>1</sup>

<sup>1</sup>CNRS, Université de Bordeaux, France,

<sup>2</sup>CNRS-Université d'Orsay, France

18:40 MoP-G07-2 Poster (120 min)

**Self-Organization of Colloidal Particles in CaF<sub>2</sub> Crystals**

P. P. Fedorov<sup>1</sup>\*, A. V. Veniaminov<sup>2</sup>, A. S. Shcheulin<sup>2</sup>, A. E. Angervaks<sup>2</sup>, A. I. Ryskin<sup>2</sup>

<sup>1</sup>Prokhorov General Physics Institute, Russian Academy of Sciences, Russia, <sup>2</sup>ITMO University, Russia

18:40 MoP-G07-3 Poster (120 min)

**Effect of oxygen atoms on dislocation multiplication in a silicon crystal**

W. Fukushima<sup>1</sup>\*, B. Gao<sup>2</sup>, S. Nakano<sup>2</sup>, H. Harada<sup>2</sup>, Y. Miyamura<sup>2</sup>, K. Kakimoto<sup>1,2</sup>

<sup>1</sup>Department of Aeronautics and Astronautics, <sup>2</sup>Research Institute for Applied Mechanics, Kyushu University, Japan

18:40 MoP-G07-4 Poster (120 min)

**Rapid Growth of the Large Sized KTiOPO<sub>4</sub> Single Crystals**

Y. X. Sun\*, X. T. Tao

*Shandong University, China*

18:40 MoP-G07-5 Poster (120 min)

**Unified model for impacts of doping and thermal stress on the formation of intrinsic point defects in growing single crystal Si**

K. Kobayashi\*, S. Yamaoka, K. Sueoka

*Okayama Prefectural University, Japan*

18:40 MoP-G07-6 Poster (120 min)

**Density functional theory of the impacts of doping and thermal stress on intrinsic point defects in growing Ge crystals**

S. Yamaoka\*, K. Kobayashi, K. Sueoka

*Okayama Prefectural University, Japan*

18:40 MoP-G07-7 Poster (120 min)

**Evaluation of Stability Region for Scandium-Containing Rare-Earth Garnet Single Crystals and Their Congruent-Melting Compounds**

I. A. Kaurova<sup>1</sup>, E. N. Domoroshchina<sup>1</sup>\*, G. M.

Kuz'micheva<sup>1</sup>, V. B. Rybakov<sup>2</sup>

<sup>1</sup>Moscow Technological University, Russia, <sup>2</sup>Lomonosov State University, Russia

18:40 MoP-G07-8 Poster (120 min)

**Investigation on hydrothermal LiFePO<sub>4</sub> single crystals**

M.D. Ren\*, H.-T. Zhou, X.-L. He

*China Nonferrous Metal (Guilin) Geology and Mining Co., Ltd. China*

18:40 MoP-G07-9 Poster (120 min)

**Characterization on the dependence of growth**

<b>parameters on defect formation in DKDP crystals</b> B. Liu <sup>1</sup> *, X. Ju <sup>1</sup> , X. Sun <sup>2</sup> <sup>1</sup> University of Science and Technology Beijing, China, <sup>2</sup> Shandong University, China.	Pu, S. Fu, Y. Zhao Sichuan University, China
18:40 MoP-G07-10 Poster (120 min)	18:40 MoP-G08-2 Poster (120 min)
<b>Dislocation Structure of Ge Crystals Grown by the Low Thermal Gradient Czochralski Technique</b> E. M. Trukhanov <sup>1</sup> , K. B. Fritzler <sup>1</sup> , A. P. Vasilenko <sup>1</sup> , A. V. Kolesnikov <sup>1</sup> , P. V. Kasimkin <sup>2</sup> *, V. A. Moskovskih <sup>2</sup> <sup>1</sup> Institute of Semiconductor Physics, Russia, <sup>2</sup> Novosibirsk State Technical University, Russia	<b>Growth of ZnO Films Deposited by Spray Pyrolysis Using Diethylzinc Solution</b> M. Imai <sup>1,2</sup> *, M. Watanabe <sup>1,2</sup> , A. Mochihara <sup>1,2</sup> , H. Tominaga <sup>1</sup> , K. Yoshino <sup>1,2</sup> , Q. Shen <sup>2,3</sup> , T. Toyoda <sup>2,3</sup> , S. Hayase <sup>2,4</sup> <sup>1</sup> University of Miyazaki, Japan, <sup>2</sup> CREST, JST, Japan, <sup>3</sup> The University of Electro-Communications, Japan, <sup>4</sup> Kyusyu Institute Technology, Japan
18:40 MoP-G07-11 Poster (120 min)	18:40 MoP-G08-3 Poster (120 min)
<b>Relationships among Chemical Composition, Lattice Constants, and Acoustic Properties for Ca<sub>3</sub>Ta(Ga<sub>1-x</sub>Al<sub>x</sub>)<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> Single Crystals</b> Y. Ohashi <sup>1</sup> *, M. Kitahara <sup>1</sup> , T. Kudo <sup>1</sup> , Y. Yokota <sup>2</sup> , Y. Shoji <sup>1,3</sup> , S. Kurosawa <sup>2</sup> , K. Kamada <sup>2,3</sup> , A. Yoshikawa <sup>1,2,3</sup> <sup>1</sup> Institute for Materials Research (IMR), <sup>2</sup> New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>3</sup> C&A Corporation, Japan	<b>Spin-Crossover Fe<sup>II</sup>N<sub>6</sub> Complexes of Nonplanar Tridentate Ligands</b> Saleem Javed* Dr. B. R. Ambedkar University, India
18:40 MoP-G07-12 Poster (120 min)	18:40 MoP-G08-4 Poster (120 min)
<b>Dynamics analysis of growth-twin formation in compound crystals: Study on liquid encapsulated Czochralski-grown bulk InP single crystals</b> S. Wang <sup>1</sup> *, N. Sun <sup>1</sup> , X. Li <sup>1</sup> , H. Shao <sup>1</sup> , Y. Shi <sup>1</sup> , Y. Wang <sup>1</sup> , L. Fu <sup>1</sup> , Y. Han <sup>2</sup> , R. Yang <sup>2</sup> , H. Liu <sup>1</sup> , T. Sun <sup>1</sup> <sup>1</sup> Hebei Semiconductor Research Institute, China, <sup>2</sup> Hebei University of Technology, China	<b>Crystal growth and crystal properties studying in the system K<sub>2</sub>(Co,Ni)(SO<sub>4</sub>)<sub>2</sub>·6H<sub>2</sub>O</b> N. A. Vasilyeva*, M. S. Grigorieva, A. E. Voloshin Shubnikov Institute of Crystallography of Russian Academy of Sciences, Russia
18:40 MoP-G07-13 Poster (120 min)	18:40 MoP-G08-5 Poster (120 min)
<b>Influence of grain boundaries on stress concentration in multicrystalline Si</b> S. Sugioka, K. Kutsukake*, M. Deura, Y. Ohno, I. Yonenaga Tohoku University, Japan	<b>Bridgman Growth and Luminescence Properties of Dysprosium Doped Lead Potassium Niobate Crystal</b> T. Tian*, W. B. Liu and J.Y. Xu Shanghai Institute of Technology, China
18:40 MoP-G07-14 Poster (120 min)	18:40 MoP-G08-6 Poster (120 min)
<b>Lattice parameter of heavily impurity doped Si</b> I. Yonenaga <sup>1</sup> *, R. Gotoh <sup>1</sup> , K. Omot <sup>2</sup> , K. Inoue <sup>1</sup> , K. Kutsukake <sup>1</sup> , M. Deura <sup>1</sup> , Y. Ohno <sup>1</sup> <sup>1</sup> Tohoku University, Sendai 980-8577, Japan, <sup>2</sup> Rigaku Corporation, Japan	<b>Control of Solid-Liquid Interface during Growth of Ce doped Gd<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> Crystal by Traveling Solvent Floating Zone Method</b> K. Matsuya <sup>1</sup> *, M. Nagao <sup>1</sup> , S. Watauchi <sup>1</sup> , I. Tanaka <sup>1</sup> , S. Kurosawa <sup>2,3</sup> , Y. Yokota <sup>3</sup> , A. Yosikawa <sup>2,3</sup> <sup>1</sup> University of Yamanashi, Japan, <sup>2</sup> IMR, <sup>3</sup> NICHe, Tohoku University, Japan
18:40 MoP-G07-15 Poster (120 min)	18:40 MoP-G08-7 Poster (120 min)
<b>Enhanced diffusivity of Mn in heavily dislocated region of Si crystal</b> R. Gotoh, Y. Ohno, I. Yonenaga* Tohoku University, Japan	<b>MBE formation of Ga nanostructures using GaAs native oxide</b> M. S. Solodovnik*, O. A. Ageev, S. V. Balakirev, M. M. Eremenko, I. A. Mikhaylin Southern Federal University, Russia
18:40 MoP-G07-16 Poster (120 min)	18:40 MoP-G08-8 Poster (120 min)
<b>Abnormal diffusivity of oxygen in thermal-double-donor formation in Si</b> T. Yoshioka, M. Deura, K. Kutsukake, Y. Ohno and I. Yonenaga* Tohoku University, Japan	<b>The Rubidium and Cesium Complex Hydrogen Sulphatephosphates - Perspective Materials for Hydrogen Energy</b> V. A. Komornikov <sup>1</sup> *, V. V. Grebenev <sup>1</sup> , I. P. Makarova <sup>1</sup> , E. V. Selezneva <sup>1</sup> , P. V. Andreev <sup>2</sup> <sup>1</sup> Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia, <sup>2</sup> Lobachevsky State University, Russia
	18:40 MoP-G08-9 Poster (120 min)
<b>MoP-G08</b> Advanced Growth Technologies	<b>Growth of SnSe crystal by an inclined furnace</b> M. Jin <sup>1</sup> *, J. Jiang <sup>1</sup> , H. Hu <sup>1</sup> , H. Shen <sup>2</sup> , J. Xu <sup>2</sup> <sup>1</sup> Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, China., <sup>2</sup> Shanghai Institute of Technology, China
18:40 MoP-G08-1 Poster (120 min)	18:40 MoP-G08-10 Poster (120 min)
<b>Synthesis of AgGaGeS<sub>4</sub> polycrystalline materials by vapor transporting and mechanical oscillation method</b> W. Huang*, B. Zhao, S. Zhu, Z. He, B. Chen, Z. Zhen, Y.	<b>Carbon polymorphic nanocrystals grown in ~GPa range high pressures using laser-heated</b>

**diamond-anvil cell**

K. Niwa\*, T. Oda, M. Iida, K. Kusaba, Y. Shirako, M. Hasegawa

*Nagoya University, Japan*

18:40 MoP-G08-11 Poster (120 min)

**The Effect of Partial Substitution of Fluoro-anion on Structural and Electrochemical properties of LiNi<sub>0.5</sub>Mn<sub>1.5</sub>O<sub>4-x</sub> Crystals**

D. Kim<sup>1\*</sup>, H. Shiiba<sup>1</sup>, N. Zetsu<sup>1,2</sup>, K. Teshima<sup>1,2</sup>

<sup>1</sup>Faculty of Engineering, <sup>2</sup>Center for Energy & Environmental Science, Shinshu University, Japan

18:40 MoP-G08-12 Poster (120 min)

**Low-Temperature Flux Growth of Crystalline Titanate for Ion Exchange**

T. Sudare<sup>1\*</sup>, F. Hayashi<sup>2</sup>, K. Teshima<sup>1,2</sup>

<sup>1</sup>Center for Energy and Environmental Science, <sup>2</sup>Faculty of Engineering, Shinshu University, Japan

**MoP-T07**

*Materials for Electron Devices*

18:40 MoP-T07-1 Poster (120 min)

**Orientation-dependent electromechanical properties of Mn-doped (Li,Na,K)(Nb,Ta)O<sub>3</sub> single crystals**

H. Liu<sup>1,2\*</sup>, J. Koruza<sup>1</sup>, P. Veber<sup>2</sup>, D. Rytz<sup>3</sup>, M. Maglione<sup>2</sup>, J. Rödel<sup>1</sup>

<sup>1</sup>Technische Universität Darmstadt, Germany,

<sup>2</sup>CNRS-ICMCB, France, <sup>3</sup>Forschungsinstitut für mineralische und metallische Werkstoffe, Germany

18:40 MoP-T07-2 Poster (120 min)

**Enhanced efficiency of Luminescence with stoichiometry control in LiGd(W<sub>(1-x)</sub>Mo<sub>x</sub>O<sub>4</sub>)<sub>2</sub>:Eu<sup>3+</sup> Red Phosphors**

K. Kavi Rasu, D. Balaji, S. Moorthy Babu\*

*Anna University, India*

18:40 MoP-T07-3 Poster (120 min)

**Preparation and Characterization of Highly Oriented (K,Na)NbO<sub>3</sub> Thin Films Using a Calcium Niobate-Based Nanosheets Buffer Layer**

W. Sakamoto<sup>1\*</sup>, M. Iwata<sup>1</sup>, I. Yuitoo<sup>2</sup>, T. Takeuchi<sup>2</sup>, K. Hayashi<sup>1</sup>, T. Yogo<sup>1</sup>

<sup>1</sup>Nagoya University, Japan, <sup>2</sup>Waseda University, Japan

18:40 MoP-T07-4 Poster (120 min)

**Lead-free Ba(Ti<sub>0.8</sub>Zr<sub>0.2</sub>)O<sub>3</sub>-0.5(Ba<sub>0.7</sub>Ca<sub>0.3</sub>)TiO<sub>3</sub> Based Nanocomposite Materials For Energy Harvesting**

Z. Wang<sup>1\*</sup>, L. Xing<sup>1</sup>, R. Zhu<sup>1</sup>, H. Kimura<sup>2</sup>

<sup>1</sup>Southeast University, China, <sup>2</sup>National Institute of Materials Science, Japan

18:40 MoP-T07-5 Poster (120 min)

**Polycrystalline Type-I BaGaGe Clathrate with the Optimized Power Factor Grown by the Vertical Bridgman Method with Tuning Ga Content**

B.-H. Siao and L.-S. Chang\*

*National Chung Hsing University, Taiwan, R.O.C.*

18:40 MoP-T07-6 Poster (120 min)

**Investigation of relaxor-PT single crystals for practical applications**

H. Luo\*, X. Zhao, W. Di, H. Deng, X. Li

*Shanghai Institute of Ceramics, Chinese Academy of Sciences, China*

18:40 MoP-T07-7 Poster (120 min)

**The effect of complex electrodeposition by the addition of Multi-layered graphene on copper nanoparticles**

Y.-L. Cho<sup>1\*</sup>, J.-W. Lee<sup>1</sup>, Y.-I. Song<sup>2</sup>, C. Park<sup>3</sup>, S.-J. Suh<sup>2</sup>

<sup>1</sup>School of Advanced Materials Science & Engineering,

<sup>2</sup>Advanced Materials and Process Research for IT, Sungkyunkwan University, Korea, <sup>3</sup>Pukyong National University, Korea

18:40 MoP-T07-8 Poster (120 min)

**Single crystal growth and exploration of new iron-based superconductors in Ca-RE-Fe-As system**

H. Ogino<sup>1,2\*</sup>, H. Yakita<sup>1</sup>, A. Sala<sup>2</sup>, A. Iyo<sup>2</sup>, H. Eisaki<sup>2</sup>, J. Shimoyama<sup>3</sup>, K. Kishio<sup>1</sup>

<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>National Institute of

Advanced Industrial Science and Technology, Japan,

<sup>3</sup>Aoyama Gakuin University, Japan

18:40 MoP-T07-9 Poster (120 min)

**Crystal Structure and Luminescence properties of the Novel KSrR(BO<sub>3</sub>)<sub>2</sub> with R = Y, Tb, Yb**

A. K. Bolatov<sup>1\*</sup>, A. E. Kokh<sup>2</sup>, N. G. Kononova<sup>2</sup>, V. S. Shevchenko<sup>2</sup>, Yu. V. Seryotkin<sup>2,3</sup>, Kh. A. Abdullin<sup>1</sup>, B. M. Uralbekov<sup>1</sup>, M. Burkitbayev<sup>1</sup>

<sup>1</sup>Al-Farabi Kazakh National University, Kazakhstan,

<sup>2</sup>V.S. Sobolev Institute of Geology and Mineralogy SB

RAS, Russia, <sup>3</sup>Novosibirsk state university, Russia

18:40 MoP-T07-10 Poster (120 min)

**Field-induced phase transition and electromechanical properties of PLZST antiferroelectric single crystal**

Q. Li<sup>1\*</sup>, J. H. Gao<sup>1</sup>, F. P. Zhuo<sup>1</sup>, Q. F. Yan<sup>1</sup>, Y. L. Zhang<sup>2</sup>

<sup>1</sup>Department of Chemistry, <sup>2</sup>State Key Laboratory of New Ceramics and Fine Processing, Tsinghua University,

China

18:40 MoP-T07-11 Poster (120 min)

**Multiscale investigation of electronic structures and optical properties induced by mc-Si defects on solar cell performance**

O. A. Al-Ani\*, J. P. Goss, A. M.A. Sabaawi, P. R. Briddon, M. J. Rayson, N. E. B. Cowern

*Newcastle University, UK*

18:40 MoP-T07-12 Poster (120 min)

**Growth and characteristics of β-Ga<sub>2</sub>O<sub>3</sub> single crystals by vertical Bridgman method in ambient air (I)**

T. Kobayashi<sup>1\*</sup>, E. Ohba<sup>1</sup>, J. Yanagisawa<sup>1</sup>, C. Miyagawa<sup>1</sup>, Y. Nakamura<sup>1</sup>, K. Hoshikawa<sup>2</sup>

<sup>1</sup>Fujikoshi Machinery Corp., Japan, <sup>2</sup>Shinshu University, Japan

## Tuesday, 9 August

### Award 3

Tuesday morning, 9 August, 8:30  
Shirotori Hall

8:30 IOCG Award Lecture (30 min)

#### [Frank Prize Lecture]

#### Thermodynamic Considerations for Epitaxial Growth of III/V Alloys

G. B. Stringfellow\*

University of Utah, USA

### Plenary 4

Tuesday morning, 9 August, 9:00  
Shirotori Hall

9:00 Plenary Lecture (40 min)

#### Research progress and prospect of UV nonlinear optical crystals

Zhanggui Hu\*, Chuangtian Chen

Chinese Academy of Sciences, China

### Coffee break

Tuesday morning, 9 August, 9:40  
Event Hall, Shirotori Hall

### Session Tu1

Tuesday morning, 9 August, 10:10  
G01, G02, G03, G04, G06, G07, G08, G10, T07, T09

### Tu1-G01

Fundamentals of Nucleation and Crystal Growth

Room: Oral 6

10:10 Tu1-G01-1 Invited oral (25 min)

#### Bio-inspired single-crystal composites: Growth Mechanisms and Properties

L.A. Estroff\*

Cornell University, USA

10:35 Tu1-G01-2 Oral (15 min)

#### Effect of type III antifreeze protein on the morphology and growth kinetics of ice crystals

D. A. Vorontsov<sup>1,2</sup>\*, G. Sasaki<sup>1</sup>, K. Nagashima<sup>1</sup>, K. Murata<sup>1</sup>, Y. Furukawa<sup>1</sup>

<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Lobachevsky State University of Nizhny Novgorod, Russia

10:50 Tu1-G01-3 Oral (15 min)

#### Effect of water on the growth shape of TiO<sub>2</sub> rutile crystals in the presence of glycolic acid

H. Nada<sup>1</sup>\*, M. Kobayashi<sup>2</sup>, M. Kakihana<sup>2</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and Technology, Japan, <sup>2</sup>Tohoku University, Japan

11:05 Tu1-G01-4 Oral (15 min)

#### Independence of nanowire length distribution from initial conditions

N. V. Sibirev<sup>1,2</sup>\*, Yu. S. Berdnikov<sup>1,2</sup>, V. G. Dubrovskii<sup>1,2</sup>

<sup>1</sup>St. Petersburg Academic University, Russia, <sup>2</sup>ITMO

University, Russia

11:20 Tu1-G01-5 Oral (15 min)

#### Optical Investigations of Nanoconfined NaClO<sub>3</sub> Crystal Growth

F. Kohler\*, D. K. Dysthe

University of Oslo, Norway

11:35 Tu1-G01-6 Oral (15 min)

#### Secondary Nucleation of Calcium Carbonate

X. Ma<sup>1</sup>\*, R. Beck<sup>2</sup>, J.-P. Andreassen<sup>1</sup>

<sup>1</sup>Norwegian University of Science and Technology, Norway, <sup>2</sup>Fjords Processing AS, Norway

11:50 Tu1-G01-7 Oral (15 min)

#### Crystal Growth in Se – Te Bulk Glasses and Thin Films

S. Martinková<sup>1</sup>\*, J. Barták<sup>1</sup>, J. Málek<sup>1</sup>, H. Segawa<sup>2</sup>

<sup>1</sup>University of Pardubice, Czech Republic, <sup>2</sup>National Institute for Materials Science, Japan

### Tu1-G02

Surfaces and Interfaces

Room: Oral 3

10:10 Tu1-G02-1 Invited oral (25 min)

#### Creation of atomically-ordered side-surfaces on the three-dimensionally patterned Si substrate

A. N. Hattori<sup>1,2</sup>\*, K. Hattori<sup>3</sup>, S. Takemoto<sup>3</sup>, H. Daimon<sup>3</sup>, H. Tanaka<sup>1</sup>

<sup>1</sup>Osaka University, Japan, <sup>2</sup>JST-PREST, Japan, <sup>3</sup>Nara Institute of Science and Technology, Japan

10:35 Tu1-G02-2 Oral (15 min)

#### Low temperature formation of Si(110)-16 × 2 through wet etching

M. Yano<sup>1</sup>\*, S. Suzuki<sup>1,2</sup>, Y. Uozumi<sup>1,3</sup>, H. Asaoka<sup>1</sup>

<sup>1</sup>Japan Atomic Energy Agency, Japan, <sup>2</sup>Ibaraki University, Japan, <sup>3</sup>Hitachi Power Solutions Co., Ltd., Japan

10:50 Tu1-G02-3 Oral (15 min)

#### Aluminum-induced Crystallization of sub-50nm Silicon Thin Films – Controlled Grain Morphology through Surface Roughness and Realization of Films on Flexible Substrates

M. F. Hainey, Jr.<sup>1</sup>\*, S. Hu<sup>2</sup>, J. Innocent-Dolor<sup>3</sup>, J. M. Redwing<sup>1</sup>

<sup>1</sup>Penn State University, USA, <sup>2</sup>University of Pennsylvania, USA, <sup>3</sup>Syracuse University, USA

11:05 Tu1-G02-4 Oral (15 min)

#### Investigation of Interaction of One Dimensional Tellurium Nanowires with BSA Templated Gold Quantum Clusters

R. Radha Perumal\*

Anna University, India

11:20 Tu1-G02-5 Oral (15 min)

### Lead-free

#### 0.96(K<sub>0.48</sub>Na<sub>0.52</sub>)(Nb<sub>0.95</sub>Sb<sub>0.05</sub>)O<sub>3</sub>-0.04Bi<sub>0.05</sub>(Na<sub>0.82</sub>K<sub>0.18</sub>)<sub>0.05</sub>ZrO<sub>3</sub> Nanofibers for Energy Harvesting

R. Zhu\*

Southeast University, China

11:35 Tu1-G02-6 Oral (15 min)

#### Physical confinement promotes crystalline interfaces in Cu<sub>2</sub>O nanorods with entrapped Au nanoparticles

E. Asenath-Smith<sup>1</sup>\*, J. M. Noble<sup>2</sup>, R. Hovden<sup>2</sup>, A. M.

Uhl<sup>1</sup>, A. DiCorato<sup>1</sup>, Y.-Y. Kim<sup>3</sup>, F. C. Meldrum<sup>3</sup>, L. F. Kourkoutis<sup>2,4</sup>, L. A. Estroff<sup>1,4</sup>

<sup>1</sup>Department of Materials Science and Engineering, <sup>2</sup>School of Applied and Engineering Physics, Cornell University, USA, <sup>3</sup>University of Leeds, UK, <sup>4</sup>Kavli Institute at Cornell for Nanoscale Science, Cornell University, USA

11:50 Tu1-G02-7 Oral (15 min)

**Phase transition process in DDAB supported lipid bilayer**

T. Isogai<sup>1,\*</sup>, S. Nakada<sup>1</sup>, N. Yoshida<sup>1</sup>, H. Sumi<sup>1</sup>, R. Tero<sup>2</sup>, S. Harada<sup>1,3</sup>, T. Ujihara<sup>1,3</sup>, M. Tagawa<sup>1,3</sup>

<sup>1</sup>Department of Materials Science and Engineering, Nagoya University, Japan, <sup>2</sup>Toyohashi University of Technology, Japan, <sup>3</sup>ImaSS, Nagoya University, Japan

**Tu1-G03**

*Nanomaterials and Low Dimensional Structures, Nanostructure - Fundamentals and Applications*  
Room: Oral 2

10:10 Tu1-G03-1 Invited oral (25 min)

**Growth of III-Nitride Quantum Dots by Metal Organic Chemical Vapour Deposition for Single Photon Emitters**

Y. Arakawa<sup>1,2,\*</sup>, M. Arita<sup>1</sup>, M. J. Holmes<sup>1</sup>

<sup>1</sup>Institute for Nano Quantum Information Electronics, <sup>2</sup>Institute of Industrial Science, The University of Tokyo, Japan

10:35 Tu1-G03-2 Oral (15 min)

**Kinetics of self-induced nucleation and optical properties of GaN nanowires grown by plasma-assisted molecular beam epitaxy on amorphous Al<sub>x</sub>O<sub>y</sub>**

Z. R. Zytkeiwicz<sup>1,\*</sup>, K. P. Korona<sup>2</sup>, M. Sobanska<sup>1</sup>, K. Klosek<sup>1</sup>, G. Tchutchulashvili<sup>1</sup>

<sup>1</sup>Institute of Physics, Polish Academy of Sciences, Poland, <sup>2</sup>University of Warsaw, Poland

10:50 Tu1-G03-3 Oral (15 min)

**Self-assembled growth of GaN nanowires on amorphous Al<sub>x</sub>O<sub>y</sub> and nitridated Si: comparison of nucleation and growth processes**

M. Sobanska<sup>1,\*</sup>, S. Fernández-Garrido<sup>2</sup>, Z. R. Zytkeiwicz<sup>1</sup>, G. Tchutchulashvili<sup>1</sup>, S. Gieraltowska<sup>1</sup>, K. Klosek<sup>1</sup>, O. Brandt<sup>2</sup>, L. Geelhaar<sup>2</sup>

<sup>1</sup>Institute of Physics, Polish Academy of Sciences, Poland, <sup>2</sup>Paul-Drude-Institut für Festkörperelektronik, Germany

11:05 Tu1-G03-4 Oral (15 min)

**Controlling the growth orientation, position, and composition of III-nitride nanowires with hydride vapor phase epitaxy**

K. Lekhal<sup>1,2,\*</sup>, S. Y. Bae<sup>1</sup>, H. J. Lee<sup>1</sup>, K. Nishi<sup>1</sup>, K. Saitoh<sup>1</sup>, M. Deki<sup>1,2</sup>, Y. Honda<sup>1,2</sup>, H. Amano<sup>1,2,3</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Institute of Materials and Systems for Sustainability, <sup>3</sup>Akasaki Research Center, Nagoya University, Japan

11:20 Tu1-G03-5 Oral (15 min)

**Growth of vertically oriented GaN nanostructures with a hafnium pre-orienting layer on Si substrates**

S.-Y. Bae<sup>1,\*</sup>, K. Lekhal<sup>1,2</sup>, H.-J. Lee<sup>1</sup>, T. Mitsunari<sup>1</sup>, J.-W. Min<sup>3</sup>, D.-S. Lee<sup>4</sup>, M. Deki<sup>2</sup>, Y. Honda<sup>2</sup>, H. Amano<sup>2,5</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University, Japan, <sup>3</sup>Department of Physics and Photon Science, <sup>4</sup>School of Information and Communications, Gwangju Institute of Science and Technology, Korea, <sup>5</sup>Akasaki Research Center, Nagoya University, Japan

11:35 Tu1-G03-6 Oral (15 min)

**Control of the coalescence degree of III-nitride nanowires with AlN buffer layer in PA-MBE for high indium composition of axial InGaN segments**

J.-W. Min<sup>1,\*</sup>, S.-Y. Bae<sup>2</sup>, H.-Y. Hwang<sup>3</sup>, E.-K. Kang<sup>3</sup>, C.-H. Kim<sup>3</sup>, S.-J. Kang<sup>3</sup>, G.-W. Ju<sup>3</sup>, K.-W. Park<sup>4</sup>, B.-H. Na<sup>5</sup>, C.-Y. Park<sup>5</sup>, Y.-D. Jho<sup>3</sup>, Y.-T. Lee<sup>3</sup>

<sup>1</sup>Department of Physics and Photon Science, Gwangju Institute of Science and Technology, Korea, <sup>2</sup>Nagoya University, Japan, <sup>3</sup>School of Information and Communications, Gwangju Institute of Science and Technology, Korea, <sup>4</sup>National Renewable Energy Laboratory, Golden, USA, <sup>5</sup>Samsung Advanced Institute of Technology, Korea

11:50 Tu1-G03-7 Oral (15 min)

**Si-based visible luminescent material grown on Si substrates by chemical reaction with Si powder**

T. Yamaguchi\*, H. Katsumata

Meiji University, Japan

**Tu1-G04**

*Thin Films and Epitaxial Growth*  
Room: Oral 4

10:10 Tu1-G04-1 Invited oral (25 min)

**Progress of homoepitaxial growth technique of thick β-Ga<sub>2</sub>O<sub>3</sub> layers by halide vapor phase epitaxy**

Y. Kumagai<sup>1,\*</sup>, K. Nomura<sup>1</sup>, K. Goto<sup>1,2,3</sup>, Q.-T. Thieu<sup>1</sup>, R. Togashi<sup>1</sup>, K. Sasaki<sup>2,3,4</sup>, K. Konishi<sup>4</sup>, H. Murakami<sup>1</sup>, A. Kuramata<sup>2,3</sup>, S. Yamakoshi<sup>2,3</sup>, B. Monemar<sup>1,5</sup>, A. Koukitu<sup>1</sup>, M. Higashiwaki<sup>4</sup>

<sup>1</sup>Tokyo University of Agriculture and Technology, Japan <sup>2</sup>Tamura Corporation, Japan, <sup>3</sup>Novel Crystal Technology, Inc., Japan, <sup>4</sup>National Institute of Information and Communications Technology, Japan, <sup>5</sup>Linköping University, Sweden

10:35 Tu1-G04-2 Oral (15 min)

**Epitaxial Growth of ε-Ga<sub>2</sub>O<sub>3</sub>**

F. Boschi<sup>1,2,\*</sup>, M. Bosi<sup>2</sup>, C. Ferrari<sup>2</sup>, E. Buffagni<sup>2</sup>, R. Fornari<sup>1,2</sup>

<sup>1</sup>Parma University, Italy, <sup>2</sup>IMEM-CNR Institute, Italy

10:50 Tu1-G04-3 Oral (15 min)

**Growth of nonpolar Zn<sub>1-x</sub>Mg<sub>x</sub>O films with high Mg content (0.45<x<0.90) on LiGaO<sub>2</sub> (100) substrate by molecular beam epitaxy**

T. Yan<sup>1,\*</sup>, L. Chang<sup>2</sup>, N. Ye<sup>1</sup>, J. Wang<sup>1</sup>

<sup>1</sup>Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, China, <sup>2</sup>National Sun Yat-Sen University, Taiwan

11:05 Tu1-G04-4 Oral (15 min)



**MBE growth of HgCdTe infrared materials on GaSb substrates for applications in next generation infrared detectors**

R. Gu\*, I. Madni, W. Lei, J. Antoszewski, M. Martyniuk, L. Faraone  
*The University of Western Australia, Australia*

11:20 Tu1-G04-5 Oral (15 min)

**Investigation of MBE grown polycrystalline CdTe films on the Medipix readout chip**

S. Schütt\*, A. Vogt, K. Frei, F. Fischer, M. Fiederle  
*Albert-Ludwigs University, Germany*

11:35 Tu1-G04-6 Oral (15 min)

**High efficient CdTe solar cells with through-thickness polycrystalline CdTe thin film**

K. Shen, Z. Bai, R. Yang, D. Wang, Q. Li, D. Wang\*  
*University of Science and Technology of China, China*

11:50 Tu1-G04-7 Oral (15 min)

**Enhanced Electrical and Optical Properties of CdS:Na Thin Films by Photochemical Deposition**

V. Nirmal Kumar<sup>1,2,3\*</sup>, R. Suriakarthick<sup>3</sup>, R. Gopalakrishnan<sup>3</sup>, Y. Hayakawa<sup>2</sup>  
<sup>1</sup>Graduate School of Science and Technology, <sup>2</sup>Research Institute of Electronics, Shizuoka University, Japan, <sup>3</sup>Anna University, India

12:05 Tu1-G04-8 Oral (15 min)

**A study of growth mechanism of ZnTe epitaxial film grown by the technique of Close-space sublimation**

G. Zha\*, J. Li, S. Xi, Y. Li, K. Cao, Q. Zhao, T. Wang, W. Jie  
*Northwestern Polytechnical University, China*

**Tu1-G06**

*Bulk Crystal Growth*

Room: Oral 10

10:10 Tu1-G06-1 Invited oral (25 min)

**Bulk GaN growth – new approaches and challenges**

M. Boćkowski\*  
*Institute of High Pressure Physics PAS, Poland*

10:35 Tu1-G06-2 Oral (15 min)

**Study of homoepitaxial non-polar and semi-polar growth of GaN by HVPE; influence of lateral growth on HVPE-GaN grown in the c-direction**

M. Amilusik<sup>1,2\*</sup>, T. Sochacki<sup>1,2</sup>, B. Lucznik<sup>1,2</sup>, M. Iwinska<sup>1</sup>, M. Fijalkowski<sup>1</sup>, I. Grzegory<sup>1</sup>, M. Bockowski<sup>1</sup>  
<sup>1</sup>Institute of High Pressure Physics PAS, Poland, <sup>2</sup>TopGaN Sp z o.o., Poland

10:50 Tu1-G06-3 Oral (15 min)

**Growth of GaN single crystal by Na flux method adding nitrogen-doped carbon additives**

Z. L. Liu<sup>1\*</sup>, G. Q. Ren<sup>1,2</sup>, X. J. Su<sup>1</sup>, J. F. Wang<sup>1,2</sup>, K. Xu<sup>1,2</sup>

<sup>1</sup>Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China, <sup>2</sup>Suzhou Nanowin Science and Technology Co., Ltd., China

11:05 Tu1-G06-4 Oral (15 min)

**Development of GaN substrate with large diameter and low orientation deviation**

T. Yoshida\*, T. Kitamura, K. Otaka, M. Shibata  
*SCIOCS, Japan*

11:20 Tu1-G06-5 Oral (15 min)

**Top seed growth of GaN single crystal by Na flux method**

X. Wu\*, H. Hao, Z. Li, S. Fan, Z. Xu  
*Xi'an Jiaotong University, China*

11:35 Tu1-G06-7 Oral (15 min)

**Numerical analysis of thermal-stress and dislocation-density distributions of large size multi-crystalline silicon ingot during the seeded growth process**

T. H. T. Nguyen<sup>1\*</sup>, J.-C. Chen<sup>1</sup>, C. Hu<sup>1</sup>, C.-H. Chen<sup>2</sup>, Y.-H. Huang<sup>2</sup>, C.-J. Yang<sup>2</sup>, H.-W. Lin<sup>2</sup>

<sup>1</sup>National Central University, Taiwan, R.O.C.,

<sup>2</sup>Sino-American Silicon Products Inc., Taiwan, R.O.C.

11:50 Tu1-G06-8 Oral (15 min)

**Improvement of crystallinity of semi-polar GaN single crystals by Na-flux point seed method**

D. H. Kim\*, M. Imanishi, T. Yamada, M. Honjo, K. Murakami, D. Matuo, H. Imabayashi, M. Maruyama, M. Imade, M. Yoshimura, Y. Mori  
*Osaka University, Japan*

**Tu1-G07**

*Defect Formation*

Room: Oral 5

10:10 Tu1-G07-1 Invited oral (25 min)

**Integration of diamond with GaN for ultra-high power electronic devices**

M. Kuball\*, J. W. Pomeroy, J. Anaya, R. B. Simon, H. Sun, Y. Zhou, D. Liu  
*University of Bristol, United Kingdom*

10:35 Tu1-G07-2 Invited oral (25 min)

**Point and extended structural defects in epitaxial and implanted SiC for power electronics.**

C. Ferrari<sup>1\*</sup>, M. Bosi<sup>1</sup>, R. Nipoti<sup>2</sup>, A. Parisini<sup>2</sup>  
<sup>1</sup>CNR-IMEM Institute, Italy, <sup>2</sup>CNR-IMM Institute of Bologna, Italy

11:00 Tu1-G07-3 Oral (15 min)

**The Generation Mechanism of Stacking Fault in Single Crystal Diamond under High Pressure and High Temperature process**

N. Tatsumi<sup>1\*</sup>, K. Harano<sup>1</sup>, K. Tamasaku<sup>2</sup>, H. Sumiya<sup>1</sup>  
<sup>1</sup>Sumitomo Electric Industries, LTD, Japan, <sup>2</sup>RIKEN Harima Institute, Japan

11:15 Tu1-G07-4 Oral (15 min)

**Determination of the Type of Stacking Faults of (111) HPHT Diamond Single Crystal with a Low Defect Density by Synchrotron X-ray Topography**

S. Masuya<sup>1\*</sup>, K. Hanada<sup>1</sup>, T. Moribayashi<sup>1</sup>, H. Sumiya<sup>2</sup>, M. Kasu<sup>1</sup>

<sup>1</sup>Saga University, Japan, <sup>2</sup>Sumitomo Electric Industries, LTD, Japan

11:30 Tu1-G07-5 Oral (15 min)

**Modeling of Dislocation Dynamics in germanium Czochralski growth**

O. Podkopaev<sup>1</sup>, V. Artemyev<sup>2\*</sup>, A. Smirnov<sup>2</sup>, V. Mamedov<sup>2</sup>, A. Sidko<sup>2</sup>, V. Kalaev<sup>2</sup>, E. Kravtsova<sup>3</sup>, A. Shimansky<sup>3</sup>

<sup>1</sup>JSC Germanium, Russia, <sup>2</sup>STR Group, Inc., Russia,

<sup>3</sup>Siberian Federal University, Russia

11:45 Tu1-G07-6 Oral (15 min)

**Dislocations and Their Propagation Mechanism in II-VI Semiconductors**

F. Xu\*, Y. Xu, L. Xu, G. Zha, T. Wang, W. Jie  
State Key Laboratory of Solidification Processing/Key Laboratory of Radiation Detection Materials and Devices, Northwestern Polytechnical University, China

12:00 Tu1-G07-7 Oral (15 min)

**Study of low Energy Ion Implant Damage in Single crystal by Rutherford Backscattering Spectrometry-Channeling**

G. R. Umamathy\*, S. Ojha, A. Das  
Inter university accelerator center, India

**Tu1-G08**

Advanced Growth Technologies

Room: Oral 7

10:10 Tu1-G08-1 Invited oral (25 min)

**Growth and characterization of single crystal helimagnetic oxides**

R. Fittipaldi<sup>1</sup>, V. Granata<sup>1</sup>, L. Rocco<sup>1</sup>, A. Ubaldini<sup>1</sup>, A. Vecchione<sup>1\*</sup>, G. Balakrishnan<sup>2</sup>, M. Ciomaga Hatnean<sup>2</sup>, M. R. Lees<sup>2</sup>  
<sup>1</sup>Università di Salerno, Italy, <sup>2</sup>University of Warwick, United Kingdom

10:35 Tu1-G08-2 Invited oral (25 min)

**Preparation of iron-based pnictide and chalcogenide crystals for the studies of properties**

Athena S. Sefat\*  
Oak Ridge National Laboratory, USA

11:00 Tu1-G08-3 Invited oral (25 min)

**Phase transitions induced by oxygen-vacancy-ordering found in a number of oxide crystals**

C.-C. Wang\*, C.-M. Lei, W. Ni, P. Liu  
Anhui University, China

11:25 Tu1-G08-4 Oral (15 min)

**Effect on Host during Crystallization - A Potential New Branch in Crystal Growth Science**

R. Radha Perumal\*  
Anna University, India

11:40 Tu1-G08-5 Oral (15 min)

**Development of 3 inch Si-doped GaAs crystals by a multi-crucible pulling-down method**

M. Jin<sup>1,2\*</sup>, J. Xu<sup>2</sup>, S. Fan<sup>2</sup>, Q. He<sup>3</sup>  
<sup>1</sup>Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, China, <sup>2</sup>School of Materials Science and Engineering, Shanghai Institute of Technology, China, <sup>3</sup>Kunshan Dingjing Gallium Crystal Material CO., LTD, China

11:55 Tu1-G08-6 Oral (15 min)

**Crystal morphology, crystal chemistry and charge/discharge properties of CaFe<sub>2</sub>O<sub>4</sub> type Na(Mn<sub>1-x</sub>Fe<sub>x</sub>)<sub>2</sub>O<sub>4</sub> synthesized in high pressure**

E. Hirose<sup>1\*</sup>, Y. Shirako<sup>1</sup>, K. Niwa<sup>1</sup>, M. Hasegawa<sup>1</sup>, R. Natsui<sup>2</sup>, K. Nakura<sup>2</sup>  
<sup>1</sup>Nagoya University, Japan, <sup>2</sup>Panasonic Corporation,

Japan

**Tu1-G10**

External Fields, Microgravity

Room: Oral 8

10:10 Tu1-G10-1 Invited oral (25 min)

**Magnetic Field-Induced Synthesis of Ferromagnetic Phase**

K. Koyama\*, Y. Mitsui  
Kagoshima University, Japan

10:35 Tu1-G10-2 Invited oral (25 min)

**Crystal growth under high electric field: a new tool for new materials design**

R. Haumont<sup>1,2\*</sup>, P. Hicher<sup>1</sup>, R. Saint-Martin<sup>1</sup>, X. Mininger<sup>3</sup>, P. Berthet<sup>1</sup>  
<sup>1</sup>CNRS-UMR8182, Université Paris Sud, France, <sup>2</sup>CNRS-UMR8580, Ecole Centrale Paris, France, <sup>3</sup>SUPELEC, CNRS-UMR 8507, Université Paris Sud, France

11:00 Tu1-G10-3 Oral (15 min)

**Crystallization of High-Quality Protein Crystals using an External Electric Field**

H. Koizumi<sup>1\*</sup>, S. Uda<sup>1</sup>, K. Fujiwara<sup>1</sup>, M. Tachibana<sup>2</sup>, K. Kojima<sup>3</sup>, J. Nozawa<sup>1</sup>  
<sup>1</sup>Tohoku University, Japan, <sup>2</sup>Yokohama City University, Japan, <sup>3</sup>Yokohama Soei University, Japan

11:15 Tu1-G10-4 Oral (15 min)

**Shear flow suppresses the volume of the nucleation precursor clusters in lysozyme solutions**

P. G. Vekilov<sup>1,2\*</sup>, M. C. Byington<sup>1</sup>, M. S. Safari<sup>1</sup>, J. C. Conrad<sup>1</sup>  
<sup>1</sup>Department of Chemical and Biomolecular Engineering, <sup>2</sup>Department of Chemistry, University of Houston, USA

11:30 Tu1-G10-5 Oral (15 min)

**Oscillatory Growth of Ice Crystal Observed in Supercooled Water Containing Antifreeze Glycoprotein**

Y. Furukawa<sup>1\*</sup>, K. Nagashima<sup>1</sup>, S. Nakatsubo<sup>1</sup>, H. Tamaru<sup>2</sup>, I. Yoshizaki<sup>2</sup>, T. Shimaoka<sup>3</sup>, T. Sone<sup>4</sup>, E. Yokoyama<sup>5</sup>, T. Maki<sup>6</sup>, A. Yamamoto<sup>6</sup>, H. Asakawa<sup>1</sup>, K. Murata<sup>1</sup>, G. Sazaki<sup>1</sup>  
<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Japan Aerospace Exploration Agency, Japan, <sup>3</sup>Japan Space Forum, Japan, <sup>4</sup>Japan Manned Space Systems Corporation, Japan, <sup>5</sup>Gakushuin University, Japan, <sup>6</sup>Olympus Corporation, Japan

11:45 Tu1-G10-6 Oral (15 min)

**Analysis of the Effects of a Rotating Magnetic Field on the Growth of Cadmium Zinc Telluride by the Traveling Heater Method under Different Gravity Conditions**

Z. Li<sup>1,2\*</sup>, J. H. Peterson<sup>2</sup>, A. Yeckel<sup>2</sup>, J. J. Derby<sup>2</sup>  
<sup>1</sup>Xi'an Jiaotong University, China, <sup>2</sup>University of Minnesota, USA

12:00 Tu1-G10-7 Oral (15 min)

**Numerical study of the influence of electromagnetic stirring on the impurities transport in a silicon directional solidification process**

D. Vizman\*, A. Popescu

West University of Timisoara, Romania

## Tu1-T07

Materials for Electron Devices

Room: Oral 9

10:10 Tu1-T07-1 Invited oral (25 min)

### Magnetically Modulated Heterostructures of Topological Insulators

M. Kawasaki<sup>1,2\*</sup>

<sup>1</sup>QPEC, The University of Tokyo, Japan, <sup>2</sup>RIKEN Center for Emergent Matter Science (CEMS), Japan

10:35 Tu1-T07-2 Invited oral (25 min)

### Novel MBE Techniques for Complex Oxide-based Devices

S. Raghavan, T. Schumann, S. Stemmer\*

University of California, Santa Barbara, USA

11:00 Tu1-T07-3 Oral (15 min)

### Atomic Layer Deposition of Al<sub>x</sub>Mg<sub>1-x</sub>O<sub>y</sub> Nanolayers and Their Excellent Surface Passivation for Crystalline Silicon Solar Cells

H. Lee\*, T. Kamioka, D. Zhang, N. Iwata, Y. Ohshita

Toyota Technological Institute, Japan

11:15 Tu1-T07-4 Oral (15 min)

### Relaxor properties of barium titanate crystals grown by Remeika method

M. Roth\*, E. Tiagunov, E. Dul'kin, E. Mojaev

The Hebrew University of Jerusalem, Israel

11:30 Tu1-T07-5 Oral (15 min)

### Determination of the most suitable physicochemical conditions for hexagonal GeO<sub>2</sub> growth from high temperature solution

M. Arzakantsyan<sup>1\*</sup>, A. Pena<sup>1</sup>, P. Armand<sup>2</sup>, P. Papet<sup>2</sup>, B. Menaert<sup>1</sup>

<sup>1</sup>University Grenoble Alpes, France, <sup>2</sup>Univ Montpellier 2, France

11:45 Tu1-T07-6 Oral (15 min)

### Effects of IR irradiation on the transport properties through deep-level defects in CdZnTe crystals studied by thermally stimulated current

L. Xu<sup>1,2\*</sup>, X. Fu<sup>1,2</sup>, G. Zha<sup>1,2</sup>, T. Wang<sup>1,2</sup>, Y. Xu<sup>1,2</sup>, W. Jie<sup>1,2</sup>

<sup>1</sup>State Key Laboratory of Solidification Processing, <sup>2</sup>Key Laboratory of Radiation Detection Materials and Devices, Ministry of Industry and Information Technology, Northwestern Polytechnical University, China

12:00 Tu1-T07-7 Oral (15 min)

### Crystal growth of Mg<sub>2</sub>Si for IR-detector

T. Tokairin<sup>1</sup>, J. Ikeda<sup>2</sup>, H. Udono<sup>3</sup>

<sup>1</sup>Graduate School of materials science, Ibaraki University, Japan, <sup>2</sup>Shinko Manufacturing Co., Ltd., Japan, <sup>3</sup>Department of electrical and electronic engineering, Ibaraki University, Japan

## Tu1-T09

Nitride Semiconductors

Room: Oral 1

10:10 Tu1-T09-1 Oral (15 min)

### Thermodynamic and *Ab initio* Analysis of the

### Properties of GaN(0001) Surface in MOVPE and HVPE Ambient

P. Kempisty\*, P. Strak, K. Sakowski, S. Krukowski

Institute of High Pressure Physics, PAS, Poland

10:25 Tu1-T09-2 Oral (15 min)

### In-situ curvature and thickness monitoring of GaN during hydride vapor phase epitaxy

J. Friedrich<sup>1,2\*</sup>, C. Schröter<sup>2</sup>, E. Meissner<sup>1,2</sup>, G. Leibiger<sup>3</sup>, F. Habel<sup>3</sup>, B. Weinert<sup>3</sup>, S. Eichler<sup>3</sup>

<sup>1</sup>Fraunhofer IISB, Germany, <sup>2</sup>Fraunhofer THM, Germany, <sup>3</sup>Freiberger Compound Materials, Germany

10:40 Tu1-T09-3 Oral (15 min)

### Highly conductive HVPE-GaN grown on native seeds

T. Sochacki<sup>1,2\*</sup>, M. Iwinska<sup>1</sup>, B. Lucznik<sup>1,2</sup>, M. Amilusik<sup>1,2</sup>, M. Fijalkowski<sup>1</sup>, I. Grzegory<sup>1</sup>, M. Bockowski<sup>1</sup>

<sup>1</sup>Institute of High Pressure Physics PAS, Poland, <sup>2</sup>TopGaN Sp z o.o., Poland

10:55 Tu1-T09-4 Oral (15 min)

### Growth of HVPE-GaN on Advanced Substrates obtained by Smart Cut™

M. Iwinska<sup>1\*</sup>, M. Amilusik<sup>1,2</sup>, M. Fijalkowski<sup>1</sup>, T. Sochacki<sup>1,2</sup>, B. Lucznik<sup>1,2</sup>, A. Nowakowska-Siwinska<sup>2</sup>, I. Grzegory<sup>1</sup>, E. Guiot<sup>3</sup>, R. Caulmilone<sup>3</sup>, M. Seiss<sup>4</sup>, T. Mrotzek<sup>4</sup>, M. Bockowski<sup>1,2</sup>

<sup>1</sup>Institute of High Pressure Physics PAS, Poland, <sup>2</sup>TopGaN Sp z o.o., Poland, <sup>3</sup>Soitec, France, <sup>4</sup>PLANSEE SE, Austria

11:10 Tu1-T09-5 Oral (15 min)

### Annealing effect on threading dislocations in a GaN grown on Si substrate

H. Kobayashi<sup>1</sup>, H. Iwata<sup>1</sup>, H. Saka<sup>1</sup>, N. Sawaki<sup>1\*</sup>, M. Irie<sup>2</sup>, Y. Honda<sup>2</sup>, H. Amano<sup>2</sup>

<sup>1</sup>Aichi Institute of Technology, Japan, <sup>2</sup>Nagoya University, Japan

11:25 Tu1-T09-6 Oral (15 min)

### Characterization of GaN layer using THz ellipsometry and its verification by cross-sectional observation

K. Tachi<sup>1\*</sup>, S. Asagami<sup>1</sup>, T. Fujii<sup>1,3</sup>, T. Nagashima<sup>2</sup>, T. Iwamoto<sup>3</sup>, Y. Sato<sup>3</sup>, N. Morita<sup>4</sup>, R. Sugie<sup>4</sup>, S. Kamiyama<sup>5</sup>, T. Araki<sup>1</sup>, Y. Nanishi<sup>1</sup>

<sup>1</sup>Ritsumeikan University, Japan, <sup>2</sup>Setsunan University, Japan, <sup>3</sup>Nippo Precision Co., Ltd, Japan, <sup>4</sup>Toray Research Center, Inc, Japan, <sup>5</sup>Meijo University, Japan

11:40 Tu1-T09-7 Invited oral (25 min)

### HVPE-GaN growth – on the road to bulk GaN and high quality wafers

M. Boćkowski\*

Institute of High Pressure Physics PAS, Poland

### Lunch

Tuesday afternoon, 9 August, 12:05

Shirotori Hall

### IOCG Executive Committee Meeting

Tuesday afternoon, 9 August, 12:10

Bldg. 4 Conference Room 431

**Session Tu2**

Tuesday afternoon, 9 August, :13:40

G01, G02, G03, G04, G06, G07, G08, J01, T07, T09

**Tu2-G01**

*Fundamentals of Nucleation and Crystal Growth*

Room: Oral 6

13:40 Tu2-G01-1 Invited oral (25 min)

**Modeling Solid-State Wetting and Dewetting**

A. Tripathi<sup>1</sup>, M. Ignacio<sup>1</sup>, A. Chame<sup>2</sup>, P. Smereka, Y. Saito<sup>3</sup>, O. Pierre-Louis<sup>1\*</sup>

<sup>1</sup>Université de Lyon, France, <sup>2</sup>Univ. Fed. Fluminense, Brazil, <sup>3</sup>Keio University, Japan

14:05 Tu2-G01-2 Oral (15 min)

**Inhibition of Crystal Growth: Faceting Diagram for Sticky Steps**

Noriko Akutsu\*

Osaka Electro-Communication University, Japan

14:20 Tu2-G01-3 Oral (15 min)

**Instability of step meandering caused by nucleation during step-flow growth on vicinal 3C-SiC (0001) surfaces**

Y. Li, X.-J. Chen\*, J. Su

Xi'an Jiaotong University, China

14:35 Tu2-G01-4 Oral (15 min)

**Evolution of surface morphologies investigated by 2D cellular automata simulations of crystal growth**

F. Krzyżewski<sup>1\*</sup>, M. Załuska-Kotur<sup>1</sup>, H. Popova<sup>2</sup>, A. Krasteva<sup>3</sup>, V. Tonchev<sup>2</sup>

<sup>1</sup>Institute of Physics, PAS, Poland, <sup>2</sup>Institute of Physical Chemistry, <sup>3</sup>Institute of Electronics, Bulgarian Academy of Sciences, Bulgaria

14:50 Tu2-G01-5 Oral (15 min)

**Relation between the period of protrusions in a comb-like step pattern and the velocity of adatom source moving in front of the step**

M. Sato<sup>1\*</sup>, M. Uwaha<sup>2</sup>

<sup>1</sup>Kanazawa University, Japan, <sup>2</sup>Nagoya University, Japan

15:05 Tu2-G01-6 Oral (15 min)

**Thermo-Solutal Growth of an Anisotropic Dendrite in the Presence of Convection**

D. V. Alexandrov<sup>1\*</sup>, P. K. Galenko<sup>2</sup>

<sup>1</sup>Ural Federal University, Russia,

<sup>2</sup>Friedrich-Schiller-Universität Jena, Germany

15:20 Tu2-G01-7 Oral (15 min)

**Threshold sensitive dynamical transition in crystal growth mode induced by fluidity of thin solution film**

Y. Yamazaki\*, H. Yoshino, M. Kikuchi, S. Kashiwase

Waseda University, Japan

15:35 Tu2-G01-8 Oral (15 min) \*Late News

**Size evolution of ( $n \times 3$ ) reconstructed areas on growing InAs-GaAs(001) surface**

T. Konishi<sup>1\*</sup>, S. Tsukamoto<sup>1</sup>, T. Ito<sup>2</sup>, T. Akiyama<sup>2</sup>, R. Kaida<sup>2</sup>

<sup>1</sup>National Institute of Technology, Anan College, Japan,

<sup>2</sup>Mie University, Japan

**Tu2-G02**

*Surfaces and Interfaces*

Room: Oral 3

13:40 Tu2-G02-1 Invited oral (25 min)

**Dependence of Hydration Structure above Calcite Surface on Mg<sup>2+</sup> Concentration Probed by FM-AFM**

Y. Araki<sup>1\*</sup>, H. Onishi<sup>2</sup>, K. Kobayashi<sup>3</sup>, H. Yamada<sup>1</sup>

<sup>1</sup>Graduate School of Engineering, Kyoto University, Japan, <sup>2</sup>Kobe University, Japan, <sup>3</sup>The Hakubi Center for Advanced Research, Kyoto University, Japan

14:05 Tu2-G02-2 Oral (15 min)

**Crystal orientation dependence of precipitate structure of electrodeposited Li metal on Cu current collectors**

K. Ishikawa<sup>1\*</sup>, Y. Ito<sup>2</sup>, S. Harada<sup>1,3</sup>, M. Tagawa<sup>1,3</sup>, T. Ujihara<sup>1,3</sup>

<sup>1</sup>Department of Materials Science and Engineering,

<sup>2</sup>Department of Mechanical Science and Engineering,

<sup>3</sup>IMaSS, Nagoya University, Japan

14:20 Tu2-G02-3 Oral (15 min)

**Creeping: an efficient way to determine the anticaking ability of additives for sodium chloride**

E. R. Townsend<sup>1\*</sup>, F. Swennenhuis<sup>1</sup>, W. J. P. van Enckevort<sup>1</sup>, J. A.M. Meijer<sup>2</sup>, E. Vlieg<sup>1</sup>

<sup>1</sup>Radboud University Nijmegen, The Netherlands, <sup>2</sup>Akzo Nobel Industrial Chemicals, Salt and Crystallization, The Netherlands

14:35 Tu2-G02-4 Oral (15 min)

**Specific surface free energy of the fluorite and periodic bond chain theory**

A. Tsukagoshi\*, T. Suzuki

Shinshu University, Japan

14:50 Tu2-G02-5 Oral (15 min)

**Negative step free energy on ruby single crystal**

A. Endou\*, T. Suzuki

Shishu University, Japan

15:05 Tu2-G02-6 Oral (15 min)

**Anti-Freezing/Icing Energetic of Superhydrophobic Surfaces**

Z. Zhang\*, X.-Y. Liu

Xiamen University, China/National University of Singapore, Singapore.

15:20 Tu2-G02-7 Oral (15 min)

**Direct Visualization of Quasi-Liquid Layers on Ice Crystal Surfaces Induced by Hydrogen Chloride Gas**

K. Nagashima<sup>1\*</sup>, G. Sazaki<sup>1</sup>, T. Hama<sup>1</sup>, H. Asakawa<sup>1,2</sup>, K. Murata<sup>1</sup>, Y. Furukawa<sup>1</sup>

<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Present address: Anan National College of Technology, Japan

**Tu2-G03**

*Nanomaterials and Low Dimensional Structures,*

*Nanostructure - Fundamentals and Applications*

Room: Oral 2

13:40 Tu2-G03-1 Invited oral (25 min)

**Temperature programmed synthesis of single-crystalline quasi free-standing graphene on Ni(111)**

K. N. Eltsov\*, S. L. Kovalenko, T. V. Pavlova, B. V.

Andryushechkin

A. M. Prokhorov General Physics Institute RAS, Russia

14:05 Tu2-G03-2 Oral (15 min)

**Graphene quantum dots prepared from graphene hydrogels**

H. Y. Qin<sup>1</sup>\*, Y. H. Jin<sup>1</sup>, Y. J. Cho<sup>2</sup>, C. M. Shin<sup>2</sup>, C. G. Lee<sup>1,2</sup>, T. S. Kim<sup>1,2</sup>

<sup>1</sup>SKKU Advanced Institute of Nano Technology, <sup>2</sup>School of Mechanical Engineering, Sungkyunkwan University, Korea

14:20 Tu2-G03-3 Oral (15 min)

**Effects of fabrication methods of Al<sub>2</sub>O<sub>3</sub> buffer layers on single-walled carbon nanotube growth from Rh catalysts by alcohol gas source method**

H. Kiribayashi<sup>1</sup>\*, S. Ogawa<sup>1</sup>, A. Kozawa<sup>1</sup>, T. Saida<sup>2</sup>, S. Naritsuka<sup>1</sup>, T. Maruyama<sup>1,2</sup>

<sup>1</sup>Dept. Materials Science and Engineering, <sup>2</sup>Dept. Applied Chemistry, Meijo University, Japan

14:35 Tu2-G03-4 Oral (15 min)

**Dispersing Perylene Diimide/SWCNT Hybrids: Structural Insights at the Molecular Level and Fabricating Advanced Materials**

H. Weissman<sup>1</sup>\*, Y. Tsarfati<sup>1</sup>, V. Strauss<sup>2</sup>, S. Kuhri<sup>2</sup>, E. Krieg<sup>1</sup>, E. Shimoni<sup>3</sup>, J. Baram<sup>1</sup>, D. M. Guldi<sup>2</sup>, B. Rytchinski<sup>1</sup>

<sup>1</sup>Department of Organic Chemistry, Weizmann Institute of Science, Israel, <sup>2</sup>Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany, <sup>3</sup>Department of Chemical Research Support, Weizmann Institute of Science, Israel

14:50 Tu2-G03-5 Oral (15 min)

**Solution Growth of ZnO Nanorods on Patterned Substrates**

J. Grym\*, R. Yatskiv, J. Vaniš, I. Nahálka, A. Schenk Institute of Photonics and Electronics of the CAS, Czech Republic

15:05 Tu2-G03-7 Oral (15 min)

**Synthesis and Applications of Defect-Rich Hierarchical ZnO Architectures**

J. Wang\*, Y. Xia, R. Chen, L. Xiang Tsinghua University, China

15:20 Tu2-G03-8 Oral (15 min)

**Low temperature deposition of gallium oxide by metalorganic chemical vapor deposition**

Y. Takiguchi\*, S. Miyajima Tokyo Institute of Technology, Japan

**Tu2-G04**

Thin Films and Epitaxial Growth

Room: Oral 4

13:40 Tu2-G04-1 Invited oral (25 min)

**Epitaxial Engineered Substrates within Silicon CMOS Process Flows to Enable Future Integrated Circuits**

E. A. Fitzgerald<sup>1,2</sup>\*

<sup>1</sup>Singapore MIT Alliance for Research and Technology, Singapore, <sup>2</sup>MIT, USA

14:05 Tu2-G04-2 Invited oral (25 min)

**In situ control over modification of Si(100) and single-domain GaP heteroepitaxy**

O. Supplie, M. M. May, A. Paszuk, A. Nägelein, P.

Kleinschmidt, S. Brückner, T. Hannappel\*

Technische Universität Ilmenau, Germany

14:30 Tu2-G04-3 Oral (15 min)

**Developing growth method for heterostructures**

A. Kushkhov, O. Rabinovich\*, S. Legotin, S. Didenko, I. Fedorchenko, Yu. Osipov

NUST MISiS, Russia

14:45 Tu2-G04-4 Oral (15 min)

**Ge thin film growth on Si and SiO<sub>2</sub> using t-C<sub>4</sub>H<sub>9</sub>GeH<sub>3</sub>**

R. Katayama<sup>1</sup>\*, N. Kojima<sup>1</sup>, K. Suda<sup>2</sup>, H. Machida<sup>3</sup>, M. Ishikawa<sup>3</sup>, H. Sudo<sup>3</sup>, A. Ogura<sup>2</sup>, Y. Ohshita<sup>1</sup>

<sup>1</sup>Toyota Technological Institute, Japan, <sup>2</sup>Meiji University, Japan, <sup>3</sup>Gas-Phase Growth Ltd., Japan

15:00 Tu2-G04-5 Oral (15 min)

**Strain Relaxation and Phase Separation during growth of InGaAs/GaAs(001)**

R. Deki<sup>1</sup>, T. Sasaki<sup>2</sup>, M. Takahashi<sup>1,2</sup>\*

<sup>1</sup>University of Hyogo, Japan, <sup>2</sup>National Institutes for Quantum and Radiological Science and Technology, Japan

15:15 Tu2-G04-6 Oral (15 min)

**Enhanced Incorporation of P into Tensile-Strained GaAs<sub>1-y</sub>Py Layers Grown by Metal-Organic Vapor Phase Epitaxy at Very Low Temperatures**

Y. Guan<sup>1</sup>, K. Forghani<sup>2</sup>, K. Schulte<sup>2</sup>, S. E. Babcock<sup>1</sup>, L. J. Mawst<sup>3</sup>, T. F. Kuech<sup>2</sup>\*

<sup>1</sup>Dept. of Materials Science and Engineering, <sup>2</sup>Dept. of Chemical and Biological Engineering, <sup>3</sup>Dept. of Electrical and Computer Engineering, University of Wisconsin – Madison, USA

15:30 Tu2-G04-7 Oral (15 min)

**Effect of substrate on the structural and magnetic properties of dc sputtered Co<sub>2</sub>FeSi full Heusler alloy thin films**

J. Kumar<sup>1</sup>\*, R. Mohankumar<sup>1</sup>, M. Manivel Raja<sup>2</sup>

<sup>1</sup>Anna University, India, <sup>2</sup>Defence Metallurgical Research Laboratory, India

**Tu2-G06**

Bulk Crystal Growth

Room: Oral 10

13:40 Tu2-G06-1 Oral (15 min)

**Intermetallic compounds for heterogeneous catalysis grown by the Czochralski method from high-temperature solutions**

P. Gille<sup>1</sup>\*, M. Hahne<sup>1</sup>, J. Schwerin<sup>1</sup>, M. Wencka<sup>2</sup>

<sup>1</sup>Ludwig-Maximilians-Universität München, Germany, <sup>2</sup>Institute of Molecular Physics, Polish Academy of Sciences, Poland

13:55 Tu2-G06-2 Oral (15 min)

**Inclined Rotary Bridgman method for forced convection in growing FeSb<sub>2</sub> and CoSb<sub>3</sub> from Sb-rich solutions**

M. Pillaca<sup>1</sup>, W. Miller<sup>2</sup>, P. Gille<sup>1</sup>\*

<sup>1</sup>Ludwig-Maximilians-Universität München, Germany, <sup>2</sup>Leibniz Institute for Crystal Growth (IKZ), Germany

14:10 Tu2-G06-3 Oral (15 min)

**High-pressure and ambient gas effect on the optical floating zone crystal growth of novel oxide and**

<b>intermetallic compounds</b>		
P. Sass*, R. Schöndube <i>SciDre GmbH –Scientific Instruments Dresden, Germany</i>		
14:25	Tu2-G06-5	Oral (15 min)
<b>Investigations on growth and physical characterizations on CdGa<sub>2</sub>Se<sub>4</sub> single crystal by vertical Bridgman method</b>		
P. Vijayakumar*, M. Magesh, P. Ramasamy <i>SSN College of Engineering, India</i>		
14:40	Tu2-G06-6	Oral (15 min)
<b>Investigations on synthesis, growth and physical characterizations on CdIn<sub>2</sub>S<sub>2</sub>Se<sub>2</sub> single crystal by vertical Bridgman method</b>		
P. Vijayakumar*, M. Magesh, P. Ramasamy <i>SSN College of Engineering, India</i>		
14:55	Tu2-G06-7	Oral (15 min)
<b>Single crystal growth of ZnAl<sub>2</sub>O<sub>4</sub> by the micro-pulling down method</b>		
K. Kamada <sup>1,2</sup> *, Y. Shouji <sup>2,3</sup> , S. Kurosawa <sup>1,3</sup> , Y. Yokota <sup>1</sup> , Y. Ohashi <sup>3</sup> , V. V. Kochurikhin <sup>2,4</sup> , A. Yoshikawa <sup>1,2,3</sup> <i><sup>1</sup>New Industry Creation Hatchery Center, Tohoku University, Japan, <sup>2</sup>C&amp;A corporation, Japan, <sup>3</sup>Institute for Material Reseach, Tohoku University, Japan, <sup>4</sup>General Physics Institute, Russian Academy of Sciences, Russia</i>		
<b>Tu2-G07</b>		
<i>Defect Formation</i>		
Room: Oral 5		
13:40	Tu2-G07-1	Invited oral (25 min)
<b>Structural and optical properties of dislocations in group III-nitrides</b>		
M. Albrecht <sup>1</sup> *, L. Lymperakis <sup>2</sup> , J. Neugebauer <sup>2</sup> <i><sup>1</sup>Leibniz-Institut für Kristallzüchtung, Germany, <sup>2</sup>Max-Planck-Institut für Eisenforschung, Germany</i>		
14:05	Tu2-G07-2	Oral (15 min)
<b>In situ stoichiometry control - an old topic that remains current</b>		
P. Rudolph* <i>Crystal Technology Consulting, Germany</i>		
14:20	Tu2-G07-3	Oral (15 min)
<b>Donor deactivating defects above equilibrium doping limit in GaAs:Te,Ge and GaAs:Te studied by annealing and Hall effect under pressure</b>		
T. Slupinski* <i>University of Warsaw, Poland</i>		
14:35	Tu2-G07-4	Oral (15 min)
<b>Analysis of Second-Phase Particle Migration via Temperature Gradient Zone Melting</b>		
K. Wang*, J. J. Derby <i>University of Minnesota, USA</i>		
14:50	Tu2-G07-5	Oral (15 min)
<b>Studies on the deep-level defects in CdZnTe crystals grown by Travelling Heater Method</b>		
B. Zhou*, W. Jie, T. Wang, L. Xu, F. Yang, L. Yin, X. Fu <i>Northwestern Polytechnical University, China</i>		
15:05	Tu2-G07-6	Oral (15 min)

**Defect structure of ZnGeP<sub>2</sub> nonlinear optical compound**

C. Yang<sup>1</sup>, A. O. Okunev<sup>2</sup>, G. A. Verozubova<sup>3</sup>\*  
*<sup>1</sup>Harbin Institute of Technology, China, <sup>2</sup>Yaroslav-the-Wise Novgorod State University, Russia, <sup>3</sup>Institute of Monitoring of Climatic and Ecological System SB RAS, Russia*

**Tu2-G08**

*Advanced Growth Technologies*

Room: Oral 7

13:40 Tu2-G08-1 Invited oral (25 min)

**Recent developments on piezoelectric single crystals**

S.-J. Zhang<sup>1,2</sup>\*, F. Li<sup>2</sup>, F. Yu<sup>3</sup>, J. Luo<sup>4</sup>, T. R. Shrout<sup>2</sup>  
*<sup>1</sup>University of Wollongong, Australia, <sup>2</sup>Pennsylvania State University, USA, <sup>3</sup>Shandong University, China, <sup>4</sup>TRS Technologies Inc., USA*

14:05 Tu2-G08-2 Invited oral (25 min)

**Fabrication and Application of Perovskite Single Crystals Doped with Donor or Acceptor: BaTiO<sub>3</sub> and PMN-PT [Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-PbTiO<sub>3</sub>]**

H. -T. Oh<sup>1</sup>, J. -Y. Lee<sup>1</sup>, H. -Y. Lee<sup>1,2</sup>\*  
*<sup>1</sup>Ceracomp Co., Ltd., Korea, <sup>2</sup>Sunmoon University, Korea*

14:30 Tu2-G08-3 Oral (15 min)

**Single Crystal Growth and Characterization of Monoclinic BIBO Crystals for Piezoelectric Application**

F. F. Chen<sup>1</sup>\*, F. P. Yu<sup>1</sup>, H. W. Wang<sup>1</sup>, X. F. Cheng<sup>1</sup>, Q. M. Lu<sup>2</sup>, X. Zhao<sup>1</sup>  
*<sup>1</sup>State Key Laboratory of Crystal Materials, <sup>2</sup>School of Chemistry and Chemical Engineering, Shandong University, China*

14:45 Tu2-G08-4 Oral (15 min)

**Orientation-Controlled Growth of The LiNi<sub>0.5</sub>Mn<sub>1.5</sub>O<sub>4</sub> Crystal Layers by Using Flux-coating Approaches and Studies of Their Electrochemical Properties**

N. Zettsu<sup>1,2</sup>\*, T. Imabori<sup>2</sup>, Y. Saito<sup>2</sup>, K. Teshima<sup>1,2</sup>  
*<sup>1</sup>Center for Energy and Environmental Science, <sup>2</sup>Department of Chemistry & Materials Engineering, Faculty of Engineering, Shinshu University, Japan*

15:00 Tu2-G08-5 Oral (15 min)

**Single crystal growth from light, volatile, and reactive materials using lithium and calcium flux**

A. Jesche<sup>1</sup>\*, M. Fix<sup>1</sup>, P. Höhn<sup>2</sup>, P. C. Canfield<sup>3</sup>  
*<sup>1</sup>Augsburg University, Germany, <sup>2</sup>Max Planck Institute for Chemical Physics of Solids, Germany, <sup>3</sup>Iowa State University, USA*

15:15 Tu2-G08-6 Oral (15 min)

**Polymeric Additives Induced Change in Crystal Habit of 2,6-diamino-3,5-dinitropyrazine-1-oxide**

X.-Q. Zhou\*, Q. Zhang, R.-P. Bu, H.-Z. Li  
*Institute of Chemical Materials, China Academy of Engineering Physics, China*

**Tu2-J01**

*Growth Simulation and Practice*

Room: Oral 8

13:40 Tu2-J01-1 Invited oral (25 min)

**Advanced Modeling of MOVPE Processes**

E. V. Yakovlev\*, S. Yu. Karpov, A. V. Lobanova, A. S. Segal, R. A. Talalaev  
STR Group – Soft-Impact Ltd., Russia

14:05 Tu2-J01-2 Oral (15 min)

**Purge and geometry improvement in MOCVD vertical reactor to prevent parasitic growth on the reactor wall by numerical model**

W.-J. Lin\*, C. Hu, J.-C. Chen  
National Central University, Taiwan

14:20 Tu2-J01-3 Oral (15 min)

**Computational fluid dynamic approach coupled with thermodynamic analysis of driving force for deposition in GaN MOVPE**

K. Yoshimatsu<sup>1</sup>\*, N. Okamoto<sup>2</sup>, Y. Kangawa<sup>3</sup>, K. Kakimoto<sup>3</sup>, K. Shiraiishi<sup>1</sup>  
<sup>1</sup>Institute of Materials and Systems for Sustainability,  
<sup>2</sup>Center for Computational Science, Nagoya University,  
Japan, <sup>3</sup>Kyushu University, Japan

14:35 Tu2-J01-4 Oral (15 min)

**Numerical investigation of high purity silica growth by CVD technique**

Y.-S. Huang<sup>1</sup>, H. Zhang<sup>2</sup>, L. Zheng<sup>1</sup> \*  
<sup>1</sup>School of Aerospace, <sup>2</sup>Department of Engineering  
Physics, Tsinghua University, China

14:50 Tu2-J01-5 Oral (15 min)

**3D modeling of dopant transport in gas and melt in floating zone growth of silicon crystals**

A. Sabanskis\*, K. Surovovs, J. Virbulis  
University of Latvia, Latvia

15:05 Tu2-J01-6 Oral (15 min)

**A niching genetic algorithm applied to optimize a SiC-bulk crystal growth system**

J. Su<sup>1</sup>\*, X.-J. Chen<sup>1</sup>, Y. Li<sup>1</sup>, M. Pons<sup>2,3</sup>, E. Blanquet<sup>2,3</sup>  
<sup>1</sup>Xi'an Jiaotong University, China, <sup>2</sup>SIMaP, University of  
Grenoble Alps, France, <sup>3</sup>SIMaP, CNRS, France

15:20 Tu2-J01-7 Oral (15 min)

**Axial inflection point temperature profiles for the engineering of convex crystal growth interfaces in Bridgman systems**

J. H. Peterson<sup>1</sup>\*, D. Perrodin<sup>2</sup>, G. A. Bizarri<sup>2</sup>, E. D. Bourret<sup>2</sup>, J. J. Derby<sup>1</sup>

<sup>1</sup>University of Minnesota, USA, <sup>2</sup>Lawrence Berkeley  
National Laboratory, USA

**Tu2-T07**

Materials for Electron Devices

Room: Oral 9

13:40 Tu2-T07-1 Invited oral (25 min)

**Strain engineering for electronic devices: modeling capabilities**

S. Yu. Karpov\*, M. E. Rudinsky, A. V. Lobanova, E. V. Yakovlev, R. A. Talalaev

STR Group – Soft-Impact, Ltd., Russia

14:05 Tu2-T07-2 Oral (15 min)

**Growth and Characterization of Ca<sub>3</sub>TaGa<sub>3-x</sub>Al<sub>x</sub>Si<sub>2</sub>O<sub>14</sub> Single Crystals for High Temperature Piezoelectric Sensors**

X. W. Fu<sup>1,2</sup>\*, E. G. Vllora<sup>1</sup>, Y. Kitanaka<sup>3</sup>, Y. Noguchi<sup>3</sup>,

M. Miyayama<sup>3</sup>, K. Shimamura<sup>1,2</sup>, N. Ohashi<sup>1,4</sup>

<sup>1</sup>National Institute for Materials Science, Japan,

<sup>2</sup>Waseda University, Japan, <sup>3</sup>The University of Tokyo,

Japan, <sup>4</sup>Tokyo Institute of Technology, Japan

14:20 Tu2-T07-3 Oral (15 min)

**Poling Induced Phase Transitions and Shift of Morphotropic Phase Boundary in PMN-xPT Single Crystals**

C. Xu<sup>1</sup>\*, Q. Li<sup>1</sup>, Q.-F. Yan<sup>1</sup>, Y.-L. Zhang<sup>2</sup>, X.-C. Chu<sup>2</sup>  
<sup>1</sup>Department of Chemistry, <sup>2</sup>State Key Laboratory of New  
Ceramics and Fine Processing, Tsinghua University,  
China

14:35 Tu2-T07-4 Oral (15 min)

**Growth and characteristics of β-Ga<sub>2</sub>O<sub>3</sub> single crystals by vertical Bridgman method in ambient air (II)**

E. Ohba<sup>1</sup>\*, T. Kobayashi<sup>1</sup>, J. Yanagisawa<sup>1</sup>, C. Miyagawa<sup>1</sup>, Y. Nakamura<sup>1</sup>, K. Hoshikawa<sup>2</sup>  
<sup>1</sup>Fujikoshi Machinery Corp., Japan, <sup>2</sup>Shinshu University,  
Japan

14:50 Tu2-T07-5 Oral (15 min)

**The growth, thermal, dielectric, elastic and piezoelectric properties of fersnoite Ba<sub>2</sub>TiSi<sub>2</sub>O<sub>8</sub> single crystals**

C. Y. Shen<sup>1</sup>\*, H. J. Zhang<sup>2</sup>, J. Y. Zhang<sup>2</sup>  
<sup>1</sup>Qufu Normal University, China, <sup>2</sup>Shandong University,  
China

15:05 Tu2-T07-6 Oral (15 min)

**Growth, electrical and mechanical characterization of gehlenite based solid solution single crystals**

H. Takeda<sup>1</sup>\*, K. Yoshida<sup>1</sup>, H. Okudera<sup>2</sup>, L. Kheirreddine<sup>3</sup>, T. Hoshina<sup>1</sup>, T. Tsurumi<sup>1</sup>

<sup>1</sup>Tokyo Institute of Technology, Japan, <sup>2</sup>Kanazawa  
University, Japan, <sup>3</sup>University of Lyon, France

**Tu2-T09**

Nitride Semiconductors

Room: Oral 1

13:40 Tu2-T09-1 Invited oral (25 min)

**Growth of Bulk GaN Crystals by the Na-Flux Point Seed Technique**

M. Imade\*, M. Imanishi, M. Maruyama, M. Yoshimura,  
Y. Mori

Osaka University, Japan

14:05 Tu2-T09-2 Oral (15 min)

**Interface and dislocation structures in Na flux GaN grown on MOCVD-GaN**

S. Takeuchi<sup>1</sup>\*, H. Asazu<sup>1</sup>, Y. Mizuta<sup>1</sup>, M. Imanishi<sup>2</sup>, M. Imade<sup>2</sup>, Y. Mori<sup>2</sup>, A. Sakai<sup>1</sup>

<sup>1</sup>Graduate School of Engineering Science, <sup>2</sup>Graduate  
School of Engineering, Osaka University, Japan

14:20 Tu2-T09-3 Oral (15 min)

**Enhancement of Lateral Growth of the GaN Crystal with Extremely Low Dislocation Density during the Na-flux Growth on a Point Seed**

M. Hayashi\*, M. Imanishi, T. Yamada, D. Matsuo, K. Murakami, M. Maruyama, M. Imade, M. Yoshimura, Y. Mori

Osaka University, Japan

14:35 Tu2-T09-4 Oral (15 min)



**Lattice-Matched Growth of AlInGaN/GaN**

**heterostructures Grown by MOCVD**

R. Loganathan<sup>1\*</sup>, K. Prabakaran<sup>1</sup>, B. Kuppulingam<sup>1</sup>, S. Surender<sup>1</sup>, S. Pradeep<sup>1</sup>, S. Sankaranarayanan<sup>1</sup>, S. Singh<sup>1</sup>, K. Baskar<sup>1,2</sup>

<sup>1</sup>Anna University, India, <sup>2</sup>Manonmaniam Sundaranar University, India

14:50 Tu2-T09-5 Oral (15 min)

**Metalorganic vapor phase epitaxy of pseudomorphic m-plane Al<sub>1-x</sub>In<sub>x</sub>N alloy films on a low defect density m-plane GaN substrate**

S. F. Chichibu\*, K. Kojima, Y. Yamazaki, K. Furusawa  
Tohoku University, Japan

15:05 Tu2-T09-6 Oral (15 min)

**Stable Structure of GaN(0001) under the OVPE Growth Conditions**

T. Kawamura<sup>1,2\*</sup>, A. Kitamoto<sup>2</sup>, M. Imade<sup>2</sup>, M. Yoshimura<sup>2</sup>, Y. Mori<sup>2</sup>, Y. Morikawa<sup>2</sup>, Y. Kangawa<sup>3</sup>, K. Kakimoto<sup>3</sup>

<sup>1</sup>Mie University, Japan, <sup>2</sup>Osaka University, Japan, <sup>3</sup>Kyushu University, Japan

15:20 Tu2-T09-7 Oral (15 min)

**Study on nitridation of α-(AlGa)<sub>2</sub>O<sub>3</sub> using rf plasma for AlGaIn growth**

A. Buma<sup>1\*</sup>, N. Masuda<sup>1</sup>, T. Araki<sup>1</sup>, Y. Nanishi<sup>1</sup>, M. Oda<sup>2</sup>, T. Hitora<sup>2</sup>

<sup>1</sup>Ritsumeikan University, Japan, <sup>2</sup>FLOSFIA, Japan

15:35 Tu2-T09-8 Oral (15 min)

**Evaluation of mechanical properties for w-BN using nanoindentation**

M. Deura<sup>1\*</sup>, K. Kutsukake<sup>1</sup>, Y. Ohno<sup>1</sup>, I. Yonenaga<sup>1</sup>, T. Taniguchi<sup>2</sup>

<sup>1</sup>Tohoku University, Japan, <sup>2</sup>National Institute for Materials Science, Japan

**Coffee break**

Tuesday afternoon, 9 August, 15:40  
Event Hall, Shirotori Hall

**Session Tu3**

Tuesday afternoon, 9 August, 16:10  
G01, G03, G04, G05, G06, G07, J01, T01, T06, T09

**Tu3-G01**

*Fundamentals of Nucleation and Crystal Growth*

Room: Oral 6

16:10 Tu3-G01-1 Invited oral (25 min)

**Crystallization Routes to Single Chirality: Tricks and Mechanisms**

E. Vlieg\*, H. Meekes, R. R. E. Steendam, L. Spix, A. H. J. Engwerda, F. P. J. T. Rutjes

Radboud University, The Netherlands

16:35 Tu3-G01-2 Oral (15 min)

**Role of chiral clusters in the chirality conversion by temperature cycling**

H. Katsuno<sup>1\*</sup>, M. Uwaha<sup>2</sup>

<sup>1</sup>Ritsumeikan University, Japan, <sup>2</sup>Nagoya University, Japan

16:50 Tu3-G01-3 Oral (15 min)

**Evolution of grains during solidification of silicon – attempts of numerical simulations for an understanding**

W. Miller<sup>1\*</sup>, X. F. Qi<sup>1,2</sup>, A. Popescu<sup>3</sup>

<sup>1</sup>Leibniz Institute of Crystal Growth (IKZ), Germany,

<sup>2</sup>Xi'an Jiaotong University, China, <sup>3</sup>West University of Timisoara, Romania

17:05 Tu3-G01-4 Oral (15 min)

**A fundamental analysis of particle engulfment dynamics during crystal growth**

Y. Tao, J. J. Derby\*

University of Minnesota, USA

17:20 Tu3-G01-5 Oral (15 min)

**Oxygen Partitioning during Growth of Oxide Materials from Melt**

S. Uda\*, C. Koyama, J. Okada

Tohoku University, Japan

17:35 Tu3-G01-6 Oral (15 min)

**Control of solute boundary layer for the growth of large size KDP crystal**

K. Hu<sup>1\*</sup>, L. Zheng<sup>1</sup>, H. Zhang<sup>2</sup>

<sup>1</sup>School of Aerospace Engineering, <sup>2</sup>Department of Engineering Physics, Tsinghua University, China

17:50 Tu3-G01-7 Oral (15 min)

**Modelling and experiments for the convecto-diffusive removal of impurities from the solidification front**

J. Altenberend<sup>1,2\*</sup>, Y. Delannoy<sup>1</sup>, A. Nehari<sup>1,2</sup>, G.

Chichignoud, K. Zaidat<sup>1</sup>

<sup>1</sup>Université Grenoble Alpes, France, <sup>2</sup>CNRS Alpes, France

18:05 Tu3-G01-8 Oral (15 min)

**Growth Kinetics and Bulk Growth of Inversely Soluble Lithium Sulfate Monohydrate Single Crystals and its Optical Characterization**

A. Silambarasan\*, P. Rajesh, P. Ramasamy  
SSN College of Engineering, India

**Tu3-G03**

*Nanomaterials and Low Dimensional Structures, Nanostructure - Fundamentals and Applications*

Room: Oral 2

16:10 Tu3-G03-1 Invited oral (25 min)

**Epitaxial Ferromagnetic Semiconductor Heterostructures: Control of Ferromagnetism by Wavefunction Engineering**

M. Tanaka<sup>1,2\*</sup>, L. Duc Anh<sup>1</sup>, P. Nam Hai<sup>1,3</sup>

<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>Tokyo Institute of Technology, Japan

16:35 Tu3-G03-2 Oral (15 min)

**Fabrication and Dispersion of Fe<sub>3</sub>O<sub>4</sub> Nanopowder using Co-Precipitation Method for Magnetic Fluid Preparation**

J.-K. Park\*, S.-B. Baeg, Y.-I. Song, S.-J. Suh  
Sungkyunkwan University, Korea

16:50 Tu3-G03-3 Oral (15 min)

**Elucidating Reaction Mechanisms of the Hydrothermal Growth of Phase-Pure, Nanostructured Bismuth Ferrites**



A. R. Goldman\*, J. L. Fredricks, L. A. Estroff  
*Cornell University, USA*

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17:05 Tu3-G03-4 Oral (15 min)

**Structural, magnetic and electrical properties of Tb and Co co-substituted multiferroic BiFeO<sub>3</sub> nanoparticles**  
 D. Rajan Babu\*, M. Gowrishankar  
*VIT University, India*

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17:20 Tu3-G03-5 Oral (15 min)

**VO<sub>2</sub> nano-composite coatings for smart windows: preparation and optical performances optimization**  
 Z. Chen\*, Y.-F. Gao  
*Shanghai University, China*

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17:35 Tu3-G03-6 Oral (15 min)

**Hydrothermal Synthesis of Rutile-type Titania with Uncommon Shapes**  
 M. Kobayashi\*, S. Lee, H. Kato, M. Kakihana  
*Tohoku University, Japan*

### **Tu3-G04**

*Thin Films and Epitaxial Growth*

Room: Oral 4

16:10 Tu3-G04-1 Invited oral (25 min)

**600-nm-emission InGaN-based multiple quantum wells with strain-compensating AlGaIn barrier**  
 D. Iida\*, K. Akitaya, S. Lu, K. Ohkawa  
*Tokyo University of Science, Japan*

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16:35 Tu3-G04-2 Oral (15 min)

**HVPE of aluminum nitride, film evaluation and multiscale modeling of the epitaxial growth process.**  
 M. Pons<sup>1,2</sup>\*, M. Chubarov<sup>1,2</sup>, J. Su<sup>3</sup>, R. Boichot<sup>1,2</sup>, F. Mercier<sup>1,2</sup>, E. Blanquet<sup>1,2</sup>, G. Gusti<sup>4</sup>, D. Pique<sup>4</sup>  
<sup>1</sup>*SIMaP, University of Grenoble Alps, France*, <sup>2</sup>*SIMaP, CNRS, France*, <sup>3</sup>*Xi'an Jiaotong University, China*, <sup>4</sup>*SIL' TRONIX-ST, France*

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16:50 Tu3-G04-3 Oral (15 min)

**Studies on High Temperature Vapor Phase Epitaxy (HTVPE) of GaN**  
 T. Schneider<sup>1</sup>\*, G. Lukin<sup>1</sup>, M. Barchuk<sup>2</sup>, F. Zimmermann<sup>3</sup>, E. Niederschlag<sup>1</sup>, O. Pätzold<sup>1</sup>, M. Stelter<sup>1</sup>  
<sup>1</sup>*Institut für NE-Metallurgie und Reinstoffe, TU Bergakademie Freiberg, Germany*, <sup>2</sup>*Institut für Werkstoffwissenschaft, TU Bergakademie Freiberg, Germany*, <sup>3</sup>*Institut für Angewandte Physik, TU Bergakademie Freiberg, Germany*

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17:05 Tu3-G04-4 Oral (15 min)

**Quantum Chemical Study on Gas Reaction Path in GaN/AlN MOVPE Growth**  
 R. Zuo<sup>1</sup>\*, B. L. Wang<sup>1</sup>, S. C. Meng<sup>2</sup>, P. Chen<sup>3</sup>, R. Zhang<sup>3</sup>  
<sup>1</sup>*School of Energy and Power*, <sup>2</sup>*School of Chemistry and Chemical Engineering, Jiangsu University, China*, <sup>3</sup>*Nanjing University, China*

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17:20 Tu3-G04-5 Oral (15 min)

**Effect of Patterned-Si Substrate on Crystalline Quality of AlN Template**  
 B. Tinh Tran<sup>1</sup>\*, H. Hirayama<sup>1</sup>, N. Maeda<sup>1</sup>, M. Jo<sup>1</sup>, D. Inoue<sup>2</sup>, T. Kikitsu<sup>2</sup>  
<sup>1</sup>*Quantum Optodevice Laboratory*, <sup>2</sup>*Materials*

*Characterization Support Unit, Center for Emergent Matter Science, RIKEN, Japan*

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17:35 Tu3-G04-6 Oral (15 min)

**Study of nucleation and growth evolution of BN thin films**  
 A. Henry<sup>1</sup>\*, L. Souqui<sup>1</sup>, M. Chubarov<sup>2</sup>, H. Pedersen<sup>1</sup>, H. Högberg<sup>1</sup>,  
<sup>1</sup>*Linköping University, Sweden*, <sup>2</sup>*SiMAP, France*

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17:50 Tu3-G04-7 Oral (15 min)

**Crystal growth of ultrathin films of NbN and Nb<sub>1-x</sub>Ti<sub>x</sub>N**  
 N. Tsavdaris<sup>1,2</sup>, G. Renou<sup>1,2</sup>, E. Sarigiannidou<sup>3,4</sup>, S. Coindeau<sup>1,2</sup>, E. Blanquet<sup>1,2</sup>, F. Mercier<sup>1,2</sup>\*  
<sup>1</sup>*SIMaP, University of Grenoble Alps, France*, <sup>2</sup>*SIMaP, CNRS, France*, <sup>3</sup>*LMGP, University of Grenoble Alps, France*, <sup>4</sup>*LMGP, CNRS, France*

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18:05 Tu3-G04-8 Oral (15 min)

**CFD Analysis of the Coupling Effect of Susceptor Rotation and Wafer Rotation on the Uniformity of HVPE-GaN Thin Film**  
 X.-F. Han<sup>1,2</sup>\*, Kyung-Woo Yi<sup>1</sup>  
<sup>1</sup>*Seoul National University, Korea*, <sup>2</sup>*Kyushu University, Japan*

### **Tu3-G05**

*Organic and Biological Crystallization*

Room: Oral 3

16:10 Tu3-G05-1 Invited oral (25 min)

**On the Role of Pre-Nucleation Clusters in Crystallization**  
 D. Gebauer  
*University of Konstanz, Germany*

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16:35 Tu3-G05-2 Invited oral (25 min)

**Bio-crystallization from highly heterogeneous solutions**  
 A. E. S. Van Driessche  
*Univ. Grenoble Alpes, CNRS, France*

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17:00 Tu3-G05-3 Oral (15 min)

**Mechanisms of inhabitation of hematin crystallization by antimalarials**  
 K. N. Olafson<sup>1</sup>, T. Nguyen<sup>1</sup>, J. D. Rimer<sup>1</sup>, P. G. Vekilov<sup>1,2</sup>\*  
<sup>1</sup>*Department of Chemical and Biomolecular Engineering*, <sup>2</sup>*Department of Chemistry, University of Houston, USA*

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17:15 Tu3-G05-4 Oral (15 min)

**Crystallization of barium sulfate and calcium carbonate in simulated seawater**  
 M. Boon, F. Jones\*  
*Curtin University, Australia*

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17:30 Tu3-G05-5 Oral (15 min)

**Influence of tetrasodium pyrophosphate on carbonate apatite formation**  
 M. Olszynski<sup>1</sup>\*, J. Prywer<sup>1</sup>, E. Mielniczek - Brzóska<sup>2</sup>  
<sup>1</sup>*Institute of Physics, Lodz University of Technology, Poland*, <sup>2</sup>*Institute of Chemistry, Environmental Protection and Biotechnology, Jan Długosz University of Częstochowa, Poland*

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17:45 Tu3-G05-6 Oral (15 min)

**Precursor formation in the melt crystallization of triacylglyceride molecular compound system**

K. Taguchi<sup>1</sup>\*, R. Ikoma<sup>1</sup>, A. Toda<sup>1</sup>, S. Ueno<sup>2</sup>, K. Sato<sup>2</sup>  
<sup>1</sup>Graduate School of Integrated Arts and Sciences,  
<sup>2</sup>Graduate School of Biosphere Science, Hiroshima University, Japan

18:00 Tu3-G05-7 Oral (15 min)

**Preferential Orientation of  $\beta$ -phase Triacylglycerol on Graphite Surface**

F. Kaneko<sup>1</sup>\*, S. Yoshikawa<sup>2</sup>, H. Kida<sup>2</sup>, K. Sato<sup>3</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>Fuji Oil Co., Ltd., Japan,  
<sup>3</sup>Hiroshima University, Japan

**Tu3-G06**

Bulk Crystal Growth

Room: Oral 10

16:10 Tu3-G06-1 Invited oral (25 min)

**Growth and Scintillation Properties of 2inch diameter SrI<sub>2</sub>(Eu) single crystal**

Y. Shoji<sup>1,2</sup>\*, S. Kurosawa<sup>3</sup>, Y. Yokota<sup>3</sup>, S. Hayasaka<sup>1</sup>, K. Kamada<sup>1,3</sup>, Y. Ohashi<sup>2</sup>, A. Yoshikawa<sup>1,2,3</sup>  
<sup>1</sup>C&A corporation, Japan, <sup>2</sup>IMR, <sup>3</sup>NICHE, Tohoku University, Japan

16:35 Tu3-G06-2 Oral (15 min)

**Study on the crystal growth and thermal properties of (Gd,Lu)<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>**

R. Murakami<sup>1,3</sup>\*, S. Kurosawa<sup>2</sup>, Y. Ohashi<sup>1</sup>, Y. Shoji<sup>1,3</sup>, T. Horiai<sup>1</sup>, Y. Yokota<sup>2</sup>, K. Kamada<sup>2,3</sup>, A. Yoshikawa<sup>1,2,3</sup>  
<sup>1</sup>Institute for Materials Research, <sup>2</sup>New Industry Creation Hatchery Center, Tohoku University, Japan,  
<sup>3</sup>C&A Corp., Japan

16:50 Tu3-G06-3 Oral (15 min)

**Bridgman growth and properties of Dy-doped Bi<sub>4</sub>Si<sub>3</sub>O<sub>12</sub> crystals**

B. B. Yang<sup>1,2</sup>\*, J. Y. Xu<sup>1,2</sup>, Y. Zhang<sup>1,2</sup>, Y. Q. Chu<sup>1,2</sup>, H. Shen<sup>1,2</sup>, T. Tian<sup>1,2</sup>, M. L. Wang<sup>1,2</sup>, Y. X. Wen<sup>1,2</sup>  
<sup>1</sup>Institute of Crystal Growth, School of Materials Science and Engineering, <sup>2</sup>School of Science, Shanghai Institute of Technology, China

17:05 Tu3-G06-4 Oral (15 min)

**Crystal Growth and Luminescent Properties of Hafnium Chloride Scintillator**

S. Kurosawa<sup>1</sup>\*, T. Horiai<sup>2</sup>, R. Murakami<sup>2</sup>, Y. Shoji<sup>2,3</sup>, Y. Ohashi<sup>2</sup>, Y. Yokota<sup>1</sup>, K. Kamada<sup>1,3</sup>, A. Yoshikawa<sup>1,2,3</sup>, M. Nikl<sup>4</sup>  
<sup>1</sup>New Industry Creation Hatchery Center, <sup>2</sup>Institute for Materials Research, Tohoku University, Japan, <sup>3</sup>C&A Corp., Japan, <sup>4</sup>Institute of Physics ASCR, Czech Republic

17:20 Tu3-G06-5 Oral (15 min)

**Growth of CeBr<sub>3</sub> single crystal by micro-pulling-down method and the scintillation properties**

T. Ito<sup>1</sup>\*, Y. Yokota<sup>2</sup>, S. Kurosawa<sup>1,2</sup>, K. Kamada<sup>2,3</sup>, Y. Ohashi<sup>1</sup>, A. Yoshikawa<sup>1,2,3</sup>  
<sup>1</sup>Institute for Materials Research, Tohoku University, Japan, <sup>2</sup>New Industry Creation Hatchery Center, Japan,  
<sup>3</sup>C&A Corporation, Japan

17:35 Tu3-G06-6 Oral (15 min)

**Synthesis, Growth and Characterization of Doped KY<sub>3</sub>F<sub>10</sub> Crystals**

Q. Cui\*, J. Xu, H. Shen, T. Tian  
 Shanghai Institute of Technology, China

17:50 Tu3-G06-7 Oral (15 min)

**Crystal growth of Ce- and Pr-doped aluminum garnets and influence of stoichiometry and Mg codoping on their luminescence and scintillation properties**

J. Pejchal<sup>1</sup>\*, V. Babin<sup>1</sup>, M. Bury<sup>1</sup>, A. Beitlerova<sup>1</sup>, P. Prusa<sup>1</sup>, D. Panek<sup>2</sup>, T. Parkman<sup>2</sup>, K. Kamada<sup>3</sup>, A. Yoshikawa<sup>3,4</sup>, M. Nikl<sup>1</sup>  
<sup>1</sup>Institute of Physics CAS, Czech Republic, <sup>2</sup>Czech Technical University in Prague, Czech Republic, <sup>3</sup>NICHE, <sup>4</sup>Institute for Materials Research, Tohoku University, Japan

18:05 Tu3-G06-8 Oral (15 min)

**Effect of Rochelle salt on the growth, piezoelectric, optical, mechanical and Photoluminescence properties of the Triglycine Sulphate Single Crystal**

P. Rajesh\*, G. Babu Rao, P. Ramasamy  
 SSN College of Engineering, India

**Tu3-G07**

Defect Formation

Room: Oral 5

16:10 Tu3-G07-1 Oral (15 min)

**Relationship between Curie Temperature and Point Defects in Lithium Niobate**

C. Koyama\*, J. Nozawa, K. Fujiwara, S. Uda  
 Tohoku University, Japan

16:25 Tu3-G07-2 Oral (15 min)

**Growth, Characterization and Domain Configuration of (Li,Na,K)(Ta,Nb)O<sub>3</sub> Single Crystals**

H. R. Liu<sup>1,2</sup>\*, P. Veber<sup>1</sup>, A. Zintler<sup>2</sup>, J. Koruza<sup>2</sup>, L. Molina-Luna<sup>2</sup>, D. Rytz<sup>3</sup>, J. Rödel<sup>2</sup>, M. Maglione<sup>1</sup>  
<sup>1</sup>CNRS-ICMCB, France, <sup>2</sup>Technische Universität Darmstadt, Germany, <sup>3</sup>Forschungsinstitut für mineralische und metallische Werkstoffe, Germany

16:40 Tu3-G07-3 Oral (15 min)

**LGT crystal quality effects on the resonance frequency stability of Bulk Acoustic Waves Resonators**

M. Allani<sup>1,2</sup>\*, N. Batis<sup>2</sup>, T. Laroche<sup>3</sup>, A. Nehari<sup>4</sup>, H. Cabane<sup>4</sup>, K. Lebbou<sup>4</sup>, C. Pecheyran<sup>5</sup>, X. Vacheret<sup>1</sup>, C. K. Rivenbark<sup>6</sup>, J. J. Boyl<sup>1</sup>  
<sup>1</sup>FEMTO-ST Institute, UFC, CNRS, ENSMM, UTBM, France, <sup>2</sup>INSAT, Tunisie, <sup>3</sup>Freq/n/sys, TEMIS Innovation, France, <sup>4</sup>Université Lyon1, France, <sup>5</sup>Université de Pau, France, <sup>6</sup>CKR Consulting, USA

16:55 Tu3-G07-4 Oral (15 min)

**Cation-Stoichiometry of LRE<sub>1-x</sub>Ba<sub>2-x</sub>Cu<sub>3</sub>O<sub>y</sub> Oxides Tuned by Oxygen Vacancy via Thermodynamics and Kinetics Approaches**

X. Yao\*  
 Shanghai Jiao Tong University, China

17:10 Tu3-G07-5 Oral (15 min)

**Origin of optical distortions in DKDP crystals**

J. Piquard<sup>1,2</sup>\*, J. Zaccaro<sup>2,3</sup>, B. Pintault<sup>1</sup>, M. Groisil, F.

Guillet <sup>1</sup> , A. Ibanez <sup>2,3</sup> <sup>1</sup> CEA/DAM, Le Ripault, France, <sup>2</sup> Univ. Grenoble Alpes, France, <sup>3</sup> CNRS, Institut Néel, France	17:25	Tu3-G07-6	Oral (15 min)
<b>Growth and Characterization of pure and Ce doped KCl Single Crystal Grown by Czochralski Method</b> S. Kumar <sup>1</sup> *, N. Sinha <sup>2</sup> , B. Kumar <sup>1</sup> <sup>1</sup> Department of Physics and Astrophysics, <sup>2</sup> Department of Electronic, University of Delhi, India	17:40	Tu3-G07-7	Oral (15 min)
<b>Influence of Pressure of gas on Formation of Fluid Inclusions</b> E. Bobo, G. Coquerel* University of Rouen, France			
<b>Tu3-J01</b> Growth Simulation and Practice Room: Oral 8			
16:10 Tu3-J01-1 Invited oral (25 min) <b>Atomistic and Macroscopic Approach for Epitaxial Growth</b> K. Shiraishi <sup>1,2</sup> * <sup>1</sup> Institute of Materials and Systems for Sustainability, <sup>2</sup> Graduate School of Engineering, Nagoya University, Japan	16:35	Tu3-J01-2	Oral (15 min)
<b>Simulation Study of Epitaxial Growth of GaN(0001) using Inputs from <i>ab initio</i> Calculations</b> M. Chugh*, M. Ranganathan Indian Institute of Technology Kanpur, India	16:50	Tu3-J01-3	Oral (15 min)
<b>Theoretical study for misfit dislocation formation at InAs/GaAs(001) interface</b> R. Kaida*, T. Akiyama, K. Nakamura, T. Ito Mie University, Japan	17:05	Tu3-J01-4	Oral (15 min)
<b>The Thermodynamic Scale of Inorganic Crystalline Metastability</b> W. Sun <sup>1,4</sup> *, S. Dacek <sup>1</sup> , S. P. Ong <sup>2</sup> , G. Hautier <sup>3</sup> , A. Jain <sup>4</sup> , W. Richards <sup>1</sup> , K. A. Persson <sup>4,5</sup> , G. Ceder <sup>4,5</sup> <sup>1</sup> Massachusetts Institute of Technology, USA, <sup>2</sup> University of California, USA, <sup>3</sup> Université Catholique de Louvain, Belgium, <sup>4</sup> Lawrence Berkeley National Laboratory, USA, <sup>5</sup> University of California, Berkeley, USA	17:20	Tu3-J01-5	Oral (15 min)
<b>Numerical modeling of grain evolution in directional solidification of silicon</b> X. F. Qi <sup>1,2</sup> *, W. Miller <sup>2</sup> , L. J. Liu <sup>1</sup> <sup>1</sup> Xi'an Jiaotong University, China, <sup>2</sup> Leibniz Institute for Crystal Growth (IKZ), Germany	17:35	Tu3-J01-6	Oral (15 min)
<b>Phase Field Modeling of Grain Boundary Evolution during Directional Solidification of Silicon Film</b> H.-K. Lin, T. Jain*, C.-W. Lan National Taiwan University, Taiwan	17:50	Tu3-J01-7	Oral (15 min) *Late News
<b>Direct interpretation of interface shape, segregation, and melt flow during Bridgman crystal growth via computational modeling and neutron imaging</b>			

J. H. Peterson<sup>1</sup>, Y. Wu<sup>1</sup>, C. Zhang<sup>1</sup>, A. S. Tremsin<sup>2</sup>, D. Perrodin<sup>3</sup>, G. A. Bizarri<sup>3</sup>, E. D. Bourret<sup>3</sup>, A. S. Losko<sup>4</sup>, S. Vogel<sup>4</sup>, M. Bourke<sup>4</sup>, J. J. Derby<sup>1</sup>\*  
<sup>1</sup>University of Minnesota, USA, <sup>2</sup>University of California at Berkeley, USA, <sup>3</sup>Lawrence Berkeley National Laboratory, USA, <sup>4</sup>Los Alamos National Laboratory, USA

## Tu3-T01

III-V Semiconductors

Room: Oral 9

16:10 Tu3-T01-1 Invited oral (25 min)

**Improvement of GaAs VGF growth process by using travelling magnetic fields**

Ch. Frank-Rotsch\*, N. Dropka, K. Giziewicz, A. Glacki, U. Juda

Leibniz Institute for Crystal Growth, Germany

16:35 Tu3-T01-2 Oral (15 min)

**Effects of Si Gas Flow Sequence on Electrical Characteristics of GaAsN Films Grown by Atomic Layer Epitaxy**

Y. Yokoyama\*, M. Horikiri, T. Haraguchi, T. Yamauchi, H. Suzuki, T. Ikari, A. Fukuyama

University of Miyazaki, Japan

16:50 Tu3-T01-3 Oral (15 min)

**Study of Detached Growth of Dilute Nitride of Indium Antimonide**

M. Deshpande<sup>1</sup>\*, D. Maske<sup>2</sup>, B. Arora<sup>3</sup>, D. Gadkari<sup>1</sup>

<sup>1</sup>Mithibai college, India, <sup>2</sup>Ruparel College, India, <sup>3</sup>I. I. T B. Mumbai, India

17:05 Tu3-T01-4 Oral (15 min)

**Red LED Grown by High-Pressure MOVPE**

A. Tamura<sup>1</sup>\*, R. Miyagoshi<sup>1</sup>, T. Yamamoto<sup>1</sup>, D. Sato<sup>1</sup>, T. Nishitani<sup>2</sup>, Y. Honda<sup>3</sup>, H. Amano<sup>3,4</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Synchrotron Radiation Research Center,

<sup>3</sup>Center for Integrated Research of Future Electronics, <sup>4</sup>Akasaka Research Center, Nagoya University, Japan

17:20 Tu3-T01-5 Invited Oral (25 min)

**Mass Production of GaAs by Melt Growth**

S. Eichler\*

Freiberger Compound Materials GmbH, Germany

## Tu3-T06

Materials for Optical Devices

Room: Oral 7

16:10 Tu3-T06-1 Invited oral (25 min)

**Deep-UV Nonlinear Optical Boratoberyllate Crystals**

N. Ye<sup>1</sup>\*, G. Peng<sup>1</sup>, M. Luo<sup>1</sup>, Z.-H. Lin<sup>2</sup>

<sup>1</sup>Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, China, <sup>2</sup>Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China

16:35 Tu3-T06-2 Oral (15 min)

**Design and synthesis of NLO crystals**

S.-L. Pan\*

Xinjiang Technical Institute of Physics & Chemistry, Chinese Academy of Sciences, China

16:50 Tu3-T06-3 Oral (15 min)

**Ultraviolet Nonlinear Optical Crystal  $K_3B_6O_{10}Br$**   
M.-J. Xia\*, B. Xu, Z.-Y. Hou, L. Liu, X.-Y. Wang, R.-K. Li, C.-T. Chen

*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China*

17:05 Tu3-T06-4 Oral (15 min)

**Growth of high-quality  $CsLiB_6O_{10}$  crystal and its application to high-power 355 nm UV generation**

K. Ueda<sup>1\*</sup>, Y. Orii<sup>2</sup>, M. Yoshimura<sup>1,3,4</sup>, Y. Takahashi<sup>1,3,4</sup>, G. Okada<sup>2</sup>, H. Adachi<sup>1,3,4</sup>, Y. Mori<sup>1,3,4</sup>

<sup>1</sup>Osaka Univ., Japan, <sup>2</sup>Spectronix Co., Japan, <sup>3</sup>SOSHO Inc., <sup>4</sup>SOSHO CHOKO Inc., Japan

17:20 Tu3-T06-5 Oral (15 min)

**Growth, nonlinear optical and thermal properties of  $NaSr_3Be_3B_3O_9F_4$  crystal**

Z. Fang<sup>1,2</sup>, L. Liu<sup>1\*</sup>, Z.-Y. Hou<sup>1,2</sup>, K. Li<sup>1</sup>, X.-Y. Wang<sup>1</sup>, C.-T. Chen<sup>1</sup>

<sup>1</sup>Technical Institute of Physics and Chemistry, Chinese Academy of Science, China, <sup>2</sup>University of Chinese Academy of Science, China

17:35 Tu3-T06-7 Oral (15 min)

**Twinned borate crystal growth on curved crystal/liquid interface**

K. Maeda<sup>1\*</sup>, T. Kaji<sup>1</sup>, S. Uda<sup>2</sup>, K. Fujiwara<sup>2</sup>, Y. Oyama<sup>1</sup>

<sup>1</sup>Department of materials science, <sup>2</sup>Institute for Materials Research (IMR), Tohoku University, Japan

## Tu3-T09

*Nitride Semiconductors*

Room: Oral 1

16:10 Tu3-T09-1 Invited oral (25 min)

**High-Speed Growth of Thick InGaN Ternary Alloy by Tri-Halide Vapor Phase Epitaxy**

H. Murakami<sup>1\*</sup>, T. Hirasaki<sup>1</sup>, M. Meguro<sup>1</sup>, Q.-T. Thieu<sup>1</sup>, R. Togashi<sup>1</sup>, Y. Kumagai<sup>1</sup>, B. Monemar<sup>1,2</sup>, A. Koukitu<sup>1</sup>

<sup>1</sup>Tokyo University of Agriculture and Technology, Japan, <sup>2</sup>Linköping University, Sweden

16:35 Tu3-T09-2 Oral (15 min)

**MOVPE Growth and XRD characterization of InGaN layers, quantum wells and wires**

M. Leszczynski<sup>1,2\*</sup>, M. Sarzynski<sup>1,2</sup>, R. Czernecki<sup>1,2</sup>, G. Targowski<sup>1</sup>, J. Plesiewicz<sup>1</sup>, E. Grzanka<sup>1,2</sup>, J. Domagala<sup>3</sup>, J. Smalc-Koziorowska<sup>1,2</sup>, S. Grzanka<sup>1,2</sup>, P. Perlin<sup>1,2</sup>, M. Krysko<sup>1</sup>, S. Krukowski<sup>1</sup>, T. Suski<sup>1</sup>

<sup>1</sup>Institute of High Pressure Physics PAS, Poland,

<sup>2</sup>TopGaN Ltd., Poland, <sup>3</sup>Institute of Physics PAS, Poland

16:50 Tu3-T09-3 Oral (15 min)

**The role of GaN-substrate off-cut for InGaN/GaN quantum structures**

M. Sarzyński<sup>1,2\*</sup>, R. Targowski<sup>2</sup>, E. Grzanka<sup>1,2</sup>, S. Grzanka<sup>1,2</sup>, A. Reszka<sup>3</sup>, M. Leszczyński<sup>1,2</sup>, T. Suski<sup>1</sup>

<sup>1</sup>Institute of High Pressure Physics PAS, Poland,

<sup>2</sup>TopGaN Ltd., Poland, <sup>3</sup>Institute of Physics PAS, Poland

17:05 Tu3-T09-4 Oral (15 min)

**InGaN/GaN Multi-Quantum-Well and Light-Emitting Diode Based on V-pit-Shaped GaN Grown on Patterned Sapphire Substrate**

L. Wang\*, X. Meng, D. Yang, Z.-L. Wang, Z.-B. Hao, Y. Luo, C.-Z. Sun, Y.-J. Han, B. Xiong, J. Wang, H.-T. Li

*Tsinghua University, China*

17:20 Tu3-T09-5 Oral (15 min)

**Strain Relaxation Analysis Using In-situ X-ray Reciprocal Space Mapping Measurements in RF-MBE Growth of GaInN**

T. Yamaguchi<sup>1\*</sup>, T. Sasaki<sup>2</sup>, M. Takahashi<sup>2</sup>, T. Onuma<sup>1</sup>, T. Honda<sup>1</sup>, Y. Nanishi<sup>3</sup>

<sup>1</sup>Kogakuin University, Japan, <sup>2</sup>Japan Atomic Energy Agency, Japan, <sup>3</sup>R-GIRO, Ritsumeikan University, Japan

17:35 Tu3-T09-6 Oral (15 min)

**Using Eu emission to detect In segregation in  $In_xGa_{1-x}N$**

J. Takatsu\*, A. Koizumi, S. Yamanaka, M. Matsuda, T. Kojima, Y. Fujiwara

*Osaka University, Japan*

17:50 Tu3-T09-7 Oral (15 min)

**Thermodynamic analysis of InN metalorganic vapor phase epitaxy: influence of growth orientation and surface reconstruction**

A. Kusaba<sup>1\*</sup>, Y. Kangawa<sup>1,2</sup>, K. Kakimoto<sup>1,2</sup>, K. Shiraishi<sup>3</sup>, H. Amano<sup>3</sup>, A. Koukitu<sup>4</sup>

<sup>1</sup>Dept. Aeronautics and Astronautics, <sup>2</sup>RIAM, Kyushu University, Japan, <sup>3</sup>IMaSS, Nagoya University, Japan,

<sup>4</sup>Tokyo University of Agriculture and Technology, Japan

18:05 Tu3-T09-8 Oral (15 min) \*Late News

**Study on the range of alpha particles in GaN diodes**

T. Nakano<sup>1\*</sup>, T. Arikawa<sup>1</sup>, K. Mochizuki<sup>1</sup>, M. Sugiura<sup>1</sup>, H. Nakagawa<sup>2</sup>, S. Usami<sup>3</sup>, M. Kushimoto<sup>3</sup>, Y. Honda<sup>3</sup>, H. Amano<sup>3,4</sup>, S. Schütt<sup>5</sup>, A. Vogt<sup>5</sup>, M. Fiederle<sup>5</sup>, H. Mimura<sup>6</sup>, Y. Inoue<sup>1</sup>, T. Aoki<sup>6</sup>

<sup>1</sup>Dept. of Electronics and Materials Science, <sup>2</sup>Dept. of Informatics, Shizuoka Univ., Japan, <sup>3</sup>Dept. of Engineering and Institute of Materials and Systems for Sustainability, <sup>4</sup>Akasaka Research Center, Nagoya Univ., Japan, <sup>5</sup>Univ. of Freiburg, Germany, <sup>6</sup>Research Institute of Electronics, Shizuoka Univ., Japan

## Poster 2

Tuesday afternoon, 9 August, 18:10

Event Hall

G05, G06, G10, J01, T01, T06, T09

## TuP-G05

*Organic and Biological Crystallization*

18:10 TuP-G05-1 Poster (120 min)

**Calcium oxalate crystal growth modification; investigations with confocal Raman spectroscopy**

C. J. McMulkin\*, M. Massi, F. Jones

*Curtin University, Australia*

18:10 TuP-G05-2 Poster (120 min)

**Bulk crystal growth and physio-chemical characterization of organic nonlinear optical material: 2-amino-5-chloropyridinium hydrogen succinate single crystal**

K. Boopathi<sup>1,2\*</sup>, P. Ramasamy<sup>2</sup>, R. Gopalakrishnan<sup>1</sup>

<sup>1</sup>Anna University, India, <sup>2</sup>SSN College of Engineering, India

18:10 TuP-G05-3 Poster (120 min)

**An investigation of the effect of mechanical vibration**

**on protein crystal quality**

Q.-Q. Lu\*, B. Zhang, L. Tao, L. Xu, D.-C. Yin  
*Northwestern Polytechnical University, China*

18:10 TuP-G05-4 Poster (120 min)

**Bacterially induced struvite crystallization - unique morphology, surface and bulk properties**

Jolanta Prywer\*

*Lodz University of Technology, Poland*

18:10 TuP-G05-5 Poster (120 min)

**Green tea and struvite and carbonate apatite formation - the role of (-)- epicatechin**

J. Prywer<sup>1</sup>, M. Olszynski<sup>1\*</sup>, E. Mielniczek - Brzóska<sup>2</sup>  
<sup>1</sup>*Lodz University of Technology, Poland*, <sup>2</sup>*Jan Długosz University of Częstochowa, Poland*

18:10 TuP-G05-6 Poster (120 min)

**Crystal Growth, Structure, Morphology, Optical, Dielectric and SHG Properties of Organic 2-Amino-5-Nitropyridinium p-Toluenesulfonate (2A5NPT) Single Crystals for Nonlinear Optical (NLO) Applications**

V. Sivasubramani\*, M. Senthil Pandian, P. Ramasamy  
*SSN College of Engineering, India*

18:10 TuP-G05-7 Poster (120 min)

**On the origin of impurities at crystallization of proteins**

S. S. Baskakova<sup>1\*</sup>, V. V. Volkov<sup>1</sup>, T. V. Laptinskaya<sup>2</sup>, M. S. Lyasnikova<sup>1</sup>, A. E. Voloshin<sup>1</sup>, M. V. Kovalchuk<sup>1,3</sup>  
<sup>1</sup>*Shubnikov Institute of Crystallography of Russian Academy of Sciences, Russia*, <sup>2</sup>*Lomonosov Moscow State University, Russia*, <sup>3</sup>*National Research Center "Kurchatov Institute", Russia*

18:10 TuP-G05-8 Poster (120 min)

**New Pt(II) complex: synthesis, crystal structure and nanosize films for OLED application**

I. Taydakov<sup>1,2</sup>, R. Saifutyarov<sup>1</sup>, R. Avetisov<sup>1</sup>, E. Mozhevitina<sup>1</sup>, A. Khomyakov<sup>1</sup>, I. Avetisov<sup>1\*</sup>  
<sup>1</sup>*D. Mendeleev University of Chemical Technology of Russia, Russia*, <sup>2</sup>*P.N. Lebedev Institute of Physics of RAS, Russia*

18:10 TuP-G05-9 Poster (120 min)

**Evaluation of intermolecular interactions by macrobond and EET analyses and hydration effects in protein crystals**

Y. Sugawara<sup>1\*</sup>, Y. Hirano<sup>1</sup>, S. Yamamura<sup>1</sup>, S. Endo<sup>1</sup>, T. Takahashi<sup>2</sup>, M. Ootaki<sup>3</sup>, N. Matsumoto<sup>3</sup>

<sup>1</sup>*Kitasato University, Japan*, <sup>2</sup>*Ritsumeikan University, Japan*, <sup>3</sup>*St. Marianna University School of Medicine, Japan*

18:10 TuP-G05-10 Poster (120 min)

**In situ observation of crystal growth of disodium uridine 5'-monophosphate heptahydrate and disodium inosine 5'-monophosphate octahydrate**

M. Ootaki<sup>1\*</sup>, Y. Ohta<sup>1</sup>, M. Watanabe<sup>1,2</sup>, Y. Takeba<sup>1</sup>, T. Iiri<sup>1</sup>, N. Matsumoto<sup>1</sup>, Y. Sugawara<sup>3</sup>

<sup>1</sup>*Department of Pharmacology, St. Marianna University School of Medicine, Japan*, <sup>2</sup>*Institute for Animal Experimentation, St. Marianna University Graduate School of Medicine, Japan*, <sup>3</sup>*Kitasato University, Japan*

18:10 TuP-G05-11 Poster (120 min)

**Promotion of Protein Crystal Growth by Spatiotemporally Switching Crystal Growth Mode via Femtosecond Laser Ablation**

H. Y. Yoshikawa<sup>1,2\*</sup>, Y. Tominaga<sup>2</sup>, M. Maruyama<sup>2</sup>, M. Yoshimura<sup>2</sup>, S. Sugiyama<sup>3</sup>, H. Adachi<sup>2,4</sup>, K. Tsukamoto<sup>2</sup>, H. Matsumura<sup>4,5</sup>, K. Takano<sup>4,6</sup>, S. Murakami<sup>4,7</sup>, T. Inoue<sup>2,4</sup>, Y. Mori<sup>2,4</sup>

<sup>1</sup>*Saitama University, Japan*, <sup>2</sup>*Graduate School of Engineering, Saitama University, Japan*, <sup>3</sup>*Graduate School of Science, Osaka University, Japan*, <sup>4</sup>*SOSHO Inc., Japan*, <sup>5</sup>*Ritsumeikan University, Japan*, <sup>6</sup>*Kyoto Prefectural University, Japan*, <sup>7</sup>*Tokyo Institute of Technology, Japan*

18:10 TuP-G05-12 Poster (120 min)

**Development of a New Microscopy System Toward In-Situ Observation of Laser-Induced Crystal Growth Dynamics**

D. Suzuki\*, S. Nakabayashi, H. Y. Yoshikawa  
*Saitama University, Japan*

18:10 TuP-G05-13 Poster (120 min)

**Field-assisted crystallisation of organic charge-transfer complexes**

J. C. Walton<sup>1,2</sup>, S. R. Hall<sup>1</sup>

<sup>1</sup>*School of Chemistry, Bristol Centre for Functional Nanomaterials, University of Bristol, UK*

18:10 TuP-G05-14 Poster (120 min)

**Controlled Transformation of Amorphous Calcium Carbonate on Some Crystalline Mineral Surfaces**

I. W. Kim\*, T. Y. Jeon

*Soongsil University, Korea*

18:10 TuP-G05-16 Poster (120 min)

**Temporal stability improvement of the metastable phase of acetaminophen using low supersaturated solution growth**

K. Nii<sup>1\*</sup>, M. Maruyama<sup>1</sup>, Y. Takahashi<sup>1,2</sup>, H. Yoshikawa<sup>1,3</sup>, S. Okada<sup>2</sup>, H. Adachi<sup>1,2</sup>, S. Sugiyama<sup>4</sup>, K. Takano<sup>2,5</sup>, S. Murakami<sup>2,6</sup>, H. Matsumura<sup>2,7</sup>, T. Inoue<sup>1,2</sup>, K. Tsukamoto<sup>1,8</sup>, M. Yoshimura<sup>1</sup>, Yu. Mori<sup>1,2</sup>

<sup>1</sup>*Grad. Sch. of Eng., Osaka Univ., Japan*, <sup>2</sup>*SOSHO Inc., Japan*, <sup>3</sup>*Dept. of Chemistry, Saitama Univ., Japan*, <sup>4</sup>*Grad. Sch. of Sci., Osaka Univ., Japan*, <sup>5</sup>*Kyoto Pref. Univ., Japan*, <sup>6</sup>*Tokyo Inst. of Tech., Japan*, <sup>7</sup>*Ritsumeikan Univ., Japan*, <sup>8</sup>*Tohoku Univ., Japan*

18:10 TuP-G05-17 Poster (120 min)

**Gel immobilized colloidal crystals and their application for strain sensing**

S. Nishikawa\*, A. Toyotama, T. Okuzono, J. Yamanaka  
*Nagoya City Univ., Japan*

18:10 TuP-G05-18 Poster (120 min)

**Characterization of grown-in dislocation in high quality glucose isomerase crystals by synchrotron X-ray topography**

R. Suzuki<sup>1\*</sup>, T. Kishi<sup>1</sup>, H. Koizumi<sup>2</sup>, K. Tsukamoto<sup>3</sup>, Y. Arai<sup>4</sup>, S. Fukuyama<sup>5</sup>, Y. Suzuki<sup>6</sup>, K. Kojima<sup>7</sup>, M. Tachibana<sup>1</sup>

<sup>1</sup>*Yokohama City University, Japan*, <sup>2</sup>*Tohoku University, Japan*, <sup>3</sup>*Osaka University, Japan*, <sup>4</sup>*Japan Aerospace Exploration Agency, Japan*, <sup>5</sup>*Advanced Engineering Services Co., Ltd., Japan*, <sup>6</sup>*The University of Tokushima, Japan*, <sup>7</sup>*Yokohama Soei University, Japan*

18:10	TuP-G05-19	Poster (120 min)
<b>Step velocities of glucose isomerase crystals in the presence of hen egg-white lysozyme in solution</b>		
T. Fujiwara <sup>1</sup> *, D. Nakahashi <sup>2</sup> , S. Yanagiya <sup>3</sup> , Y. Suzuki <sup>3</sup> <sup>1</sup> Institute of Scio-Arts and Sciences, <sup>2</sup> Graduate School of Advanced Technology and Science, <sup>3</sup> Institute of Technology and Science, Tokushima University, Japan		
18:10	TuP-G05-20	Poster (120 min)
<b>Influence of ACR on PVC Crystallinity and Foamed PVC Composite</b>		
P.-Y. Ma <sup>1</sup> *, H.-Y. Chen <sup>1</sup> , Y.-H. Zhang <sup>2</sup> , L. Xiang <sup>1</sup> <sup>1</sup> Tsinghua University, China, <sup>2</sup> Sichuan University, China		
18:10	TuP-G05-21	Poster (120 min)*Late News
<b>An investigation on the effect of surface roughness of crystallization plate on protein crystallization</b>		
H. Hou*, S. Y. Hu, M. Y. Wang, D. C. Yin Northwestern Polytechnical University, China		
<b>TuP-G06</b>		
<i>Bulk Crystal Growth</i>		
18:10	TuP-G06-1	Poster (120 min)
<b>Crystal Growth and Characterization of a New Polar Crystal — Cs<sub>2</sub>TeW<sub>3</sub>O<sub>12</sub></b>		
P. Zhao*, Z. L. Gao, Y. X. Sun, C. Q. Zhang, X. T. Tao Shandong University, China		
18:10	TuP-G06-2	Poster (120 min)
<b>Components and phase homogeneity analysis of ZnGeP<sub>2</sub> single crystal</b>		
D.-H. Yang*, B.-J. Zhao, S.-F. Zhu, B.-J. Chen, Z.-Y. He, Z.-R. Zhao, S.-S. Fu, Y.-F. Zhao Sichuan University, China		
18:10	TuP-G06-3	Poster (120 min)
<b>Detached ingot growth in terrestrial lab (on Earth), bulk growths: the high quality single crystals by VDS</b>		
D. Gadhari <sup>1</sup> *, D. Maske <sup>2</sup> , M. Deshpande <sup>3</sup> , B. M. Arora <sup>4</sup> <sup>1</sup> Mithibai College, India, <sup>2</sup> Ruparel College, India, <sup>3</sup> Jai Hind College, India, <sup>4</sup> I. I. T. B., India		
18:10	TuP-G06-4	Poster (120 min)
<b>Solid solution Li<sub>2</sub>MoO<sub>4</sub>-Li<sub>2</sub>WO<sub>4</sub> crystal growth and characterization</b>		
O. Barinova <sup>1</sup> , A. Sadovskiy <sup>1</sup> , I. Ermochenkova <sup>1</sup> , S. Kirsanova <sup>1</sup> , A. Khomyakov <sup>1,2</sup> , I. Avetissov <sup>1</sup> * <sup>1</sup> D. Mendeleev University of Chemical Technology of Russia, Russia, <sup>2</sup> ARMOLED Ltd., Russia		
18:10	TuP-G06-5	Poster (120 min)
<b>Influence of growth temperature on rapid growth DKDP crystal</b>		
L. Zhang <sup>1,2</sup> *, F. Liu <sup>1,2</sup> , S.-Y. Wang <sup>1,2</sup> , M.-X. Xu <sup>1,2</sup> , B.-A. Liu <sup>1,2</sup> , Z.-P. Wang <sup>1,2</sup> , X.-G. Xu <sup>1,2</sup> , X. Sun <sup>1,2</sup> <sup>1</sup> State Key Laboratory of Crystal Materials, <sup>2</sup> Key Laboratory of Functional Crystal Materials and Device, Shandong University, China, <sup>3</sup> University of Science and Technology Beijing, China.		
18:10	TuP-G06-6	Poster (120 min)
<b>Bulk Single Crystal Growth and Mechanical Properties of the Energetic Molecular Crystal 2,4,6,8,10,12-hexanitrohexaazaisowurtzitan</b>		
R. Xu*, X.-Q. Zhou, S.-L. Hao, H.-Z. Li		

<i>Institute of Chemical Materials, China Academy of Engineering Physics, China</i>		
18:10	TuP-G06-7	Poster (120 min)
<b>Morphological Stability of Solid-Liquid Interface during Crystal Growth of Fluorides under High-Frequency Heating</b>		
P. P. Fedorov <sup>1</sup> *, S. N. Ushakov <sup>2</sup> , M. A. Uslamina <sup>2</sup> , S. V. Kuznetsov <sup>1</sup> , K. N. Nishchev <sup>2</sup> , V. V. Osiko <sup>1</sup> <sup>1</sup> Prokhorov General Physics Institute, Russian Academy of Sciences, Russia, <sup>2</sup> Ogarev Mordovia State University, Russia		
18:10	TuP-G06-8	Poster (120 min)
<b>Bulk crystal growth of <math>\alpha</math>- and <math>\beta</math>-BaTeMo<sub>2</sub>O<sub>9</sub> and the dual-phase BaTeMo<sub>2</sub>O<sub>9</sub></b>		
Q. Wu*, Z. L. Gao, Y. X. Sun, X. T. Tao Shandong University, China		
18:10	TuP-G06-9	Poster (120 min)
<b>Investigation double salt K<sub>2</sub>Ba(NO<sub>3</sub>)<sub>4</sub> crystals</b>		
K. E. Zarubina <sup>1,2</sup> *, L. I. Isaenko <sup>1,2</sup> , B. I. Kidyarov <sup>3</sup> , A. F. Rozhkov <sup>2</sup> , S. V. Goryainov <sup>2</sup> <sup>1</sup> Novosibirsk State University, Russia, <sup>2</sup> Institute of Geology and Mineralogy Siberian branch Russian Academy of Sciences, Russia, <sup>3</sup> Institute of Semiconductor Physics Siberian branch Russian Academy of Sciences, Russia		
18:10	TuP-G06-10	Poster (120 min)
<b>Influence of Temperature Gradient in Vertical Bridgman Growth of Ga-doped Germanium Crystals</b>		
V. S. Sidorov, E. N. Korobeinikova, V. I. Strellov, G. N. Kozhemyakin* Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia		
18:10	TuP-G06-11	Poster (120 min)
<b>Structural Characteristics and Large Electric-Field-Induced Strains in Zr and Mn-Doped 92.5%(Bi<sub>0.5</sub>Na<sub>0.5</sub>)TiO<sub>3</sub>-7.5%BaTiO<sub>3</sub> Single Crystals</b>		
C.-S. Chen <sup>1</sup> *, P.-Y. Chen <sup>2</sup> , M.-Q. Lyu <sup>2</sup> , Y.-P. Syu <sup>2</sup> , C.-S. Tu <sup>3</sup> <sup>1</sup> Hwa Hsia University of Technology, Taiwan, <sup>2</sup> Ming Chi University of Technology, Taiwan, <sup>3</sup> Fu Jen Catholic University, Taiwan		
18:10	TuP-G06-12	Poster (120 min)
<b>Growth and piezoelectric properties of Ca<sub>2</sub>Nb(A<sub>10.5</sub>Ga<sub>0.5</sub>)<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> crystals with langasite structure</b>		
K.-N. Xiong*, Y.-Q. Zheng, X.-N. Tu, B.-H. Jiang, S.-L. Cao, E. Shi Shanghai Institute of Ceramics, Chinese Academy of Sciences, China		
18:10	TuP-G06-13	Poster (120 min)
<b>Optical and Scintillation Characteristics of Gd<sub>2</sub>YAl<sub>2</sub>Ga<sub>3</sub>O<sub>12</sub>:Ce and Lu<sub>2</sub>YAl<sub>2</sub>Ga<sub>3</sub>O<sub>12</sub>:Ce Single Crystals</b>		
W. R. Chewpraditkul <sup>1</sup> *, O. Sakthong <sup>1</sup> , N. Pattanaboonmee <sup>1</sup> , W. Chewpraditkul <sup>1</sup> , T. Szczesniak <sup>2</sup> , L. Swiderski <sup>2</sup> , M. Moszynski <sup>2</sup> , K. Kamada <sup>3</sup> , A. Yoshikawa <sup>3</sup> , M. Nikl <sup>4</sup> <sup>1</sup> King Mongkut's University of Technology Thonburi, Thailand, <sup>2</sup> National Centre for Nuclear Research,		

- Poland, <sup>3</sup>Tohoku University, Japan, <sup>4</sup>Institute of Physics, AS CR, Czech Republic
- 
- 18:10 TuP-G06-14 Poster (120 min)
- Comparison of Luminescence, Energy Resolution and Light Loss Coefficient of  $\text{La}_{0.2}\text{Gd}_{1.8}\text{Si}_2\text{O}_7\text{:Ce}$  and  $\text{Lu}_{1.9}\text{Y}_{0.1}\text{SiO}_5\text{:Ce}$  Scintillators**
- W. Chewpraditkul<sup>1</sup>\*, N. Yawai<sup>1</sup>, S. Kurosawa<sup>2</sup>, A. Yoshikawa<sup>2,3</sup>, M. Nikl<sup>4</sup>
- <sup>1</sup>King Mongkut's University of Technology Thonburi, Thailand, <sup>2</sup>Institute for Materials Research, <sup>3</sup>New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>4</sup>Institute of Physics, AS CR, Czech Republic
- 
- 18:10 TuP-G06-15 Poster (120 min)
- Growth and piezoelectric properties of large size  $\text{ReCa}_4\text{O}(\text{BO}_3)_3$  (Re=Y, Sm) crystals**
- K.-N.n Xiong\*, Y.-Q. Zheng, X.-N. Tu, B.-H. Jiang, S.-L. Cao, E. Shi
- Shanghai Institute of Ceramics, Chinese Academy of Sciences, China
- 
- 18:10 TuP-G06-16 Poster (120 min)
- Growth from the melt of the crystals of  $(\text{ZrO}_2)_{1-x-y}(\text{Sc}_2\text{O}_3)_x(\text{Y}_2\text{O}_3)_y$  solid solutions**
- A. V. Kulebyakin<sup>1</sup>\*, M. A. Borik<sup>1</sup>, S. I. Bredikhin<sup>2</sup>, V. T. Bublik<sup>3</sup>, I. E. Kuritsyna<sup>2</sup>, E. E. Lomonova<sup>1</sup>, F. O. Milovich<sup>3</sup>, V. A. Myzina<sup>1</sup>, V. V. Osiko<sup>1</sup>, P. A. Ryabochkina<sup>4</sup>, S. V. Seryakov<sup>3</sup>, N. Yu. Tabachkova<sup>3</sup>
- <sup>1</sup>Prokhorov General Physics Institute RAS, Russia, <sup>2</sup>Institute of Solid State Physics RAS, Russia, <sup>3</sup>National University of Science and Technology «MISIS», Russia, <sup>4</sup>Ogarev Mordovia State University, Russia
- 
- 18:10 TuP-G06-17 Poster (120 min)
- Growth of KDP Single Crystal in Second Harmonic Generation direction by modified Sankaranarayanan-Ramasamy Method**
- F. Barati and H. Rezagholipour Dizaji\*
- Semnan University, Iran
- 
- 18:10 TuP-G06-18 Poster (120 min)
- The Effect of Seed Arrangements on the Ingot Quality of N-type Mono-like Silicon Grown by Directional Solidification**
- Y. C. Wu<sup>1</sup>, A. Lan<sup>1</sup>, C. F. Yang<sup>1</sup>\*, C. Hsu<sup>2</sup>, C. M. Lu<sup>3</sup>, A. Yang<sup>3</sup>, C. W. Lan<sup>1</sup>
- <sup>1</sup>National Taiwan University, Taiwan, <sup>2</sup>Sino-American Silicon Productions Inc., Taiwan, <sup>3</sup>Solartech Energy Inc., Taiwan
- 
- 18:10 TuP-G06-19 Poster (120 min)
- Effects of Na co-doping on optical and scintillation properties for  $\text{Eu:LiCaAlF}_6$  neutron scintillator crystals**
- C. Tanaka<sup>1</sup>\*, Y. Yokota<sup>2</sup>, S. Kurosawa<sup>2</sup>, A. Yamaji<sup>1</sup>, Y. Ohashi<sup>1</sup>, K. Kamada<sup>2,3</sup>, M. Nikl<sup>4</sup>, A. Yoshikawa<sup>1,2,3</sup>
- <sup>1</sup>Institute for Materials Research, <sup>2</sup>New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>3</sup>C&A corporation, Japan, <sup>4</sup>Institute of Physics AS CR, Czech Republic
- 
- 18:10 TuP-G06-20 Poster (120 min)
- Structure, Growth and Characterization of 4-dimethylaminopyridinium pyridine-2-carboxylate single crystals**
- A. Arunkumar<sup>1</sup>\*, R. Jagan<sup>2</sup>, P. Ramasamy<sup>3</sup>
- 1Agni College of Technology, India, <sup>2</sup>Sophisticated Analytical Instruments facility, India, <sup>3</sup>SSN college of Engineering, India
- 
- 18:10 TuP-G06-21 Poster (120 min)
- YAG and LuAG single crystal fiber growth by micro pulling down method**
- Y. Li\*, Z.-T. Jia, D.-S. Yuan, X.-T. Tao
- Shandong University, China
- 
- 18:10 TuP-G06-22 Poster (120 min)
- Czochralski growth of rare earth-doped  $\text{Gd}_3(\text{Al,Ga})_5\text{O}_{12}$  single crystals and their optical characterization**
- M. Głowacki<sup>1</sup>\*, P. Solarz<sup>2</sup>, W. Ryba-Romanowski<sup>2</sup>, M. Berkowski<sup>1</sup>
- <sup>1</sup>Institute of Physics, Polish Academy of Sciences, <sup>2</sup>Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Poland
- 
- 18:10 TuP-G06-23 Poster (120 min)
- Growth of Pr doped  $\text{SrI}_2$  Single Crystals and their Optical and Scintillation Properties**
- Y. Yokota<sup>1</sup>\*, S. Kurosawa<sup>1</sup>, Y. Ohashi<sup>2</sup>, K. Kamada<sup>1,3</sup>, A. Yoshikawa<sup>1,2,3</sup>
- <sup>1</sup>New Industry Creation Hatchery Center (NICHe), <sup>2</sup>Institute for Materials Research, Tohoku University, Japan, <sup>3</sup>C&A Corporation, Japan
- 
- 18:10 TuP-G06-24 Poster (120 min)
- $\text{NaGd}(\text{WO}_4)_2$  Single Crystals Grown by Czochralski from Stoichiometric and Non-stoichiometric Melts**
- K. A. Subbotin<sup>1</sup>\*, D. A. Lis<sup>1</sup>, V. V. Slavkina<sup>2</sup>, V. V. Voronov<sup>1</sup>, R. R. Sayfutyarov<sup>2</sup>, V. G. Senin<sup>3</sup>, A. I. Titov<sup>2</sup>, E. V. Zharikov<sup>1,2</sup>
- <sup>1</sup>A. M. Prokhorov General Physics Institute RAS, Russia, <sup>2</sup>D. I. Mendeleev University of Chemical Technology of Russia, Russia, <sup>3</sup>Vernadsky Institute of Geochemistry and Analytical Chemistry RAS, Russia
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- 18:10 TuP-G06-25 Poster (120 min)
- Floating zone growth and characterization of  $12(\text{Ca}_{1-x}\text{Ln}_x\text{O})_7\text{Al}_2\text{O}_3$  ( $\text{Ln}^{3+} = \text{Y}^{3+}, \text{Ho}^{3+}, \text{Nd}^{3+}, \text{Eu}^{3+}$ ) single crystals**
- Md. Mozahar Ali\*, M. Nagao, S. Watauchi, I. Tanaka
- University of Yamanashi, Japan
- 
- 18:10 TuP-G06-26 Poster (120 min)
- Mechanical Properties and stress distribution of  $\text{LiNbO}_3$  Crystals**
- Y.-Y. Dong, Y. Zhang\*, J.-Y. Xu, Y.-Q. Chu
- Shanghai Institute of Technology, China
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- 18:10 TuP-G06-27 Poster (120 min)
- Growth and Electrical Properties Characterization of  $\text{Pb}(\text{In}_{1/2}\text{Nb}_{1/2})\text{O}_3\text{-PbTiO}_3$  Tetragonal Single Crystal by Modified Bridgeman Method**
- K. Song\*, Z.-R. Li, Z. Xu, S. Fan
- Xi'an Jiaotong University, China
- 
- 18:10 TuP-G06-28 Poster (120 min)
- Light Yield and Light Loss Coefficient of  $\text{LuAG:Ce}$  and  $\text{LuAG:Pr}$  Under Excitation with  $\alpha$ - and  $\gamma$ - rays**
- K. Sreebunpeng<sup>1</sup>\*, W. Chewpraditkul<sup>1</sup>, M. Nikl<sup>2</sup>
- <sup>1</sup>King Mongkut's University of Technology Thonburi,



Thailand, <sup>2</sup>Institute of Physics, AS CR, Czech Republic

18:10 TuP-G06-29 Poster (120 min)

**Enhanced optical, mechanical and dielectric behavior in dye doped potassium acid phthalate (KAP) single crystals**

G. Babu Rao\*, P. Rajesh, P. Ramasamy  
SSN College of Engineering, India

18:10 TuP-G06-30 Poster (120 min)

**Scintillation Timing Characteristics of (La,Gd)<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>:Ce and Gd<sub>2</sub>SiO<sub>5</sub>:Ce**

**Single Crystal Scintillators: A Comparative Study**

O. Sakthong<sup>1</sup>\*, W. R. Chewpraditkul<sup>1</sup>, N. Yawai<sup>1</sup>, W. Chewpraditkul<sup>1</sup>, T. Szczesniak<sup>2</sup>, L. Swiderski<sup>2</sup>, M. Moszynski<sup>2</sup>, S. Kurosawa<sup>3</sup>, A. Yoshikawa<sup>3,4</sup>, M. Nikl<sup>5</sup>  
<sup>1</sup>King Mongkut's University of Technology Thonburi, Thailand, <sup>2</sup>National Centre for Nuclear Research, Poland, <sup>3</sup>Institute for Materials Research, <sup>4</sup>New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>5</sup>Institute of Physics, AS CR, Czech Republic

18:10 TuP-G06-31 Poster (120 min)

**Scintillation Characteristics of Lu<sub>1.8</sub>Gd<sub>0.2</sub>SiO<sub>5</sub>:Ce and Gd<sub>2</sub>SiO<sub>5</sub>:Ce Single Crystals in  $\alpha$ - and  $\gamma$ - rays Spectrometry**

N. Yawai<sup>1</sup>\*, K. Wantong<sup>1</sup>, W. Chewpraditkul<sup>1</sup>, M. Nikl<sup>2</sup>  
<sup>1</sup>King Mongkut's University of Technology Thonburi, Thailand, <sup>2</sup>Institute of Physics, AS CR, Czech Republic

18:10 TuP-G06-32 Poster (120 min)

**Growth and Properties of Ce:LaBr<sub>3</sub> Scintillation Crystal**

H. L. Wang\*, J. R. Chen, T. Y. Tian, and C. X. Huang  
Beijing Sinoma Synthetic Crystals Co. Ltd., China

18:10 TuP-G06-33 Poster (120 min)

**Recent advances in disordered crystals**

H.-H. Yu\*, Z.-B. Pan, H.-J. Zhang, J. Wang  
Shandong University, China

18:10 TuP-G06-34 Poster (120 min)

**Luminescence and Light Yield of Gd<sub>2</sub>YGa<sub>3</sub>Al<sub>2</sub>O<sub>12</sub>:Pr<sup>3+</sup> Single Crystal Scintillators**

P. Lertloypanyachai<sup>1</sup>\*, K. Sreebunpeng<sup>1</sup>, N. Pattanaboonmee<sup>1</sup>, W. Chewpraditkul<sup>1</sup>, K. Kamada<sup>2,3</sup>, A. Yoshikawa<sup>2,3</sup>, M. Nikl<sup>4</sup>  
<sup>1</sup>King Mongkut's University of Technology Thonburi, Thailand, <sup>2</sup>Institute for Materials Research, <sup>3</sup>New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>4</sup>Institute of Physics, AS CR, Czech Republic

18:10 TuP-G06-35 Poster (120 min)

**Vertical Gradient Freeze Growth of Mg<sub>2</sub>Si crystals using Liquid Encapsulated Liquefied Process**

H. Wada<sup>1</sup>\*, H. Syono<sup>1</sup>, H. Katsumata<sup>1</sup>, S. Sakuragi<sup>2</sup>  
<sup>1</sup>Meiji University, Japan, <sup>2</sup>Union Materials Inc., Japan

18:10 TuP-G06-36 Poster (120 min)

**Ba, Sr –fluoride borates with new type of anionic isomorphism and X-ray sensitivity**

T. B. Bekker<sup>1,2</sup>\*, V. P. Solntsev<sup>1</sup>, A. P. Yelissev<sup>1</sup>, S. V. Rashchenko<sup>1,2</sup>, P. P. Fedorov<sup>3</sup>  
<sup>1</sup>Sobolev Institute of Geology and Mineralogy, Russia, <sup>2</sup>Novosibirsk State University, Russia, <sup>3</sup>Prokhorov General Physics Institute, Russia

## TuP-G10

*External Fields, Microgravity*

18:10 TuP-G10-1 Poster (120 min)

**Crystal Growth of Bi<sub>x</sub>Sb<sub>1-x</sub> Solid Solutions by Stepanov method with Ultrasound Presence**

G. N. Kozhemyakin\*  
Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia

18:10 TuP-G10-2 Poster (120 min)

**Impurities segregation controlled by electromagnetic field: Application to Silicon for PV**

K. Zaidat<sup>1</sup>\*, M. Cablea<sup>1</sup>, A. Gagnoud<sup>1,2</sup>, Y. Delannoy<sup>1</sup>  
<sup>1</sup>University of Grenoble Alpes, France, <sup>2</sup>CNRS – SIMAP, France

18:10 TuP-G10-3 Poster (120 min)

**Solidification process of metallic alloy: Experiments on the influence of the travelling magnetic field**

K. Zaidat<sup>1</sup>\*, L. Hachani<sup>2</sup>, Y. Fautrelle<sup>1</sup>  
<sup>1</sup>University of Grenoble Alpes, France, <sup>2</sup>University of Amar Telidji of Laghouat, Algeria

18:10 TuP-G10-4 Poster (120 min)

**Influence of Lower Frequency Electromagnetic Field on the Dendritic Crystal Growth in Special Alloys**

E.-G. Wang\*, Y. Xu, T. Wang, F. Wang  
Northeastern University, China

18:10 TuP-G10-5 Poster (120 min)

**Segregation Effects during Growth of N-Type Multicrystalline Silicon Using Travelling Magnetic Fields**

I. Buchovska\*, N. Dropka, S. Kayser, F. M. Kiessling  
Leibniz Institute for Crystal Growth, Germany

18:10 TuP-G10-6 Poster (120 min)

**Formation of side branches of dendrites of ice crystals in microgravity**

E. Yokoyama<sup>1</sup>, Y. Furukawa<sup>2</sup>  
<sup>1</sup>Gakushuin University, Japan, <sup>2</sup>Hokkaido University, Japan

18:10 TuP-G10-7 Poster (120 min)

**A Numerical Study on the Growth Process of InGaSb Crystals under Microgravity Onboard the International Space Station**

X. Jin<sup>1</sup>\*, T. Yamamoto<sup>1</sup>, Y. Takagi<sup>1</sup>, Y. Okano<sup>1,2,4,5</sup>, Y. Inatomi<sup>2,3</sup>, Y. Hayakawa<sup>4</sup>, S. Dost<sup>5</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>ISAS, Japan Aerospace Exploration Agency, Japan, <sup>3</sup>SOKEKENDAI, Japan, <sup>4</sup>Shizuoka University, Japan, <sup>5</sup>University of Victoria, Canada

18:10 TuP-G10-8 Poster (120 min)

**In-situ Observation Techniques for Studying the Protein Crystal Growth in Space**

T. Yamazaki<sup>1</sup>\*, K. Tsukamoto<sup>2,3</sup>, I. Yoshizaki<sup>4</sup>, S. Fukuyama<sup>5</sup>, H. Miura<sup>6</sup>, T. Shimaoka<sup>7</sup>, T. Maki<sup>8</sup>, K. Oshi<sup>2</sup>, Y. Kimura<sup>1</sup>  
<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Tohoku University, Japan, <sup>3</sup>Osaka University, Japan, <sup>4</sup>Japan Aerospace Exploration Agency (JAXA), Japan, <sup>5</sup>Advanced Engineering Services Co., LTD., Japan, <sup>6</sup>Nagoya City University, Japan, <sup>7</sup>Japan Space Forum, Japan, <sup>8</sup>Olympus Optical Co.,



Japan

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- 18:10 TuP-G10-9 Poster (120 min)  
**Effect of Thermo-solutal Marangoni Convection on Azimuthal Wave Number in a Liquid Bridge**  
 H. Minakuchi<sup>1</sup>\*, Y. Okano<sup>2</sup>, S. Dost<sup>3</sup>  
<sup>1</sup>University of the Ryukyus, Japan, <sup>2</sup>Osaka University, Japan, <sup>3</sup>University of Victoria, Canada
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- 18:10 TuP-G10-10 Poster (120 min)  
**Axial Vibration Control technique for crystal growth from the melt: analysis of vibrational flows' behavior**  
 V. Kostikov<sup>1</sup>, E. Sukhanova<sup>1,2</sup>, A. Sadovskiy<sup>1</sup>, E. Zharikov<sup>1</sup>, I. Avetissov<sup>1,2</sup>\*  
<sup>1</sup>D.Mendeleev University of Chemical Technology of Russia, <sup>2</sup>ARMOLED Ltd., Russia
- 
- TuP-J01**  
*Growth Simulation and Practice*
- 
- 18:10 TuP-J01-1 Poster (120 min)  
**Oscillatory flow and the interface inversion process during Czochralski growth of semitransparent oxide crystals**  
 R. Faiez\*, Y. Rezaei  
*Laser & Optics Research School, Iran*
- 
- 18:10 TuP-J01-2 Poster (120 min)  
**First principles and thermodynamic analysis of trimethylgallium (TMG) decomposition during MOVPE growth of GaN**  
 K. Sekiguchi<sup>1</sup>\*, H. Shirakawa<sup>1</sup>, Y. Yamamoto<sup>1</sup>, M. Araidai<sup>1,2</sup>, Y. Kangawa<sup>3</sup>, K. Kakimoto<sup>3</sup>, K. Shiraishi<sup>1,2</sup>  
<sup>1</sup>Graduate School of Engineering, <sup>2</sup>Institute for Materials and Sustainability, Nagoya University, Japan, <sup>3</sup>Kyushu University, Japan
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- 18:10 TuP-J01-3 Poster (120 min)  
**Phase-field Modeling of Twin-related Faceted Dendrite Growth**  
 G.-Y. Chen, C. W. Lan  
*National Taiwan University, Taiwan*
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- 18:10 TuP-J01-4 Poster (120 min)  
**A Simplified Finite Element Model for Numerical Simulation of Temperature Field and Optimization of Parameters in Single Crystal Growth by Optical Float Zone Technique**  
 Y.-Z. Yan, M.J. Shi, Y.-J. Jiang  
*Beijing University of Technology, China*
- 
- 18:10 TuP-J01-5 Poster (120 min)  
**Numerical investigation on Effect of the Schmidt number on the diffusion of impurities and dopants in molten silicon during directional solidification for PV applications**  
 M. Srinivasan\*, P. Ramasamy  
*SSN College of engineering, India*
- 
- 18:10 TuP-J01-6 Poster (120 min)  
**Numerical simulation and growth of Li<sub>2</sub>Zn<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub> single crystals by Cyropulos technique**  
 V. Sukharev<sup>1</sup>, E. Sukhanova<sup>1,2</sup>\*, A. Sadovskiy<sup>1</sup>, I. Avetissov<sup>1,2</sup>  
<sup>1</sup>D. Mendeleev University of Chemical Technology of Russia, <sup>2</sup>ARMOLED Ltd., Russia
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- 18:10 TuP-J01-7 Poster (120 min)

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- Numerical Analysis of melt-Crystal Interface and effect of annealing in mc-Si Ingot Grown by DS Process for PV application**  
 G. Aravindan\*, M. Srinivasan, K. Aravinth, P. Ramasamy  
*SSN College of Engineering, India*
- 
- 18:10 TuP-J01-8 Poster (120 min)  
**Simulation of industrial scale directional solidification furnace with bottom opening insulation to grow mc-Si ingot for PV applications**  
 S. G. Nagarajan\*, M. Srinivasan, K. Aravinth, P. Ramasamy  
*SSN College of Engineering, India*
- 
- 18:10 TuP-J01-9 Poster (120 min)  
**Numerical investigation of melt flow in a simulated Czochralski growth system under the influence of the rotational speed of the crystal**  
 N. Soltani<sup>1</sup>, S. Rahal<sup>1</sup>, H. Azoui<sup>2</sup>, D. Bahloul<sup>2</sup>\*  
<sup>1</sup>Department of Mechanical Engineering, <sup>2</sup>Département de Physique, Université Hadj Lakhdar de Batna, Algeria
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- 18:10 TuP-J01-10 Poster (120 min)  
**Effect of crystal orientation and process parameters on 3D anisotropic stress during FZ and CZ growth of silicon**  
 J. Virbulis\*, I. Drikis, M. Plate, J. Sennikovs  
*University of Latvia, Latvia*
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- 18:10 TuP-J01-11 Poster (120 min)  
**Uniformly valid asymptotic solutions of rod eutectic growth under directional solidification**  
 X.-M. Li\*, F. Xu  
*Kunming University of Science and Technology, China*
- 
- 18:10 TuP-J01-12 Poster (120 min)  
**Scale-up of Bridgman Growth of Scintillator Crystals for Advanced Detection**  
 C. Zhang<sup>1</sup>\*, J. H. Peterson<sup>1</sup>, D. Perrodin<sup>2</sup>, G. A. Bizarri<sup>2</sup>, E. D. Bourret<sup>2</sup>, J. J. Derby<sup>1</sup>  
<sup>1</sup>University of Minnesota, USA, <sup>2</sup>Lawrence Berkeley National Laboratory, USA
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- 18:10 TuP-J01-13 Poster (120 min)  
**Contribution of lattice constraint to indium incorporation during coherent growth of InGaN**  
 T. Tamura<sup>1</sup>\*, A. Kusaba<sup>1</sup>, Y. Kangawa<sup>1,2</sup>, T. Ito<sup>3</sup>, T. Suski<sup>4</sup>, K. Kakimoto<sup>1,2</sup>, A. Koukitsu<sup>5</sup>  
<sup>1</sup>Dept. Aeronautics and Astronautics, <sup>2</sup>RIAM, Kyushu University, Japan, <sup>3</sup>Mie University, Japan, <sup>4</sup>Institute of High Pressure Physics, PAS, Poland, <sup>5</sup>Tokyo University of Agriculture and Technology, Japan
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- 18:10 TuP-J01-14 Poster (120 min)  
**Modelling of L-Glutamic acid crystal nuclei formation from solution**  
 Y. Tahri<sup>2,3</sup>, Z. Kožíšek<sup>1</sup>\*, E. Gagnière<sup>2</sup>, E. Chabanon<sup>2</sup>, T. Bounahmidi<sup>3</sup>, D. Mangin<sup>2</sup>  
<sup>1</sup>Institute of Physic CAS, Czech Republic, <sup>2</sup>Université de Lyon, Université Claude Bernard Lyon 1, CNRS, France, <sup>3</sup>Université Mohammed V, Ecole Mohammadia d'Ingénieurs, LASPI, Morocco
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- 18:10 TuP-J01-15 Poster (120 min)  
**Designing of Ice Crystal Nucleation Promoting Surface Using Molecular Dynamics**

N. Imai\*, D. Suh, D. Takaiwa, K. Yasuoka  
*Keio University, Japan*  
 18:10 TuP-J01-16 Poster (120 min)  
**Effects of Furnace Pressure on Oxygen and Carbon Coupled Transport in an Industrial Directional Solidification Furnace**  
 X. F. Qi\*, L. J. Liu, W. C. Ma  
*Xi'an Jiaotong University, China*  
 18:10 TuP-J01-17 Poster (120 min)  
**Fast 3D prediction of the VB/VGF growth of CdZnTe by a mixed method**  
 A. Pestiaux<sup>1</sup>, X. H. Wang<sup>2</sup>, R. Rolinsky<sup>1</sup>, N. Van den Bogaert<sup>1</sup>, F. Dupret<sup>1,3</sup> \*  
<sup>1</sup>FEMAG S. A., Louvain-la-Neuve, Belgium, <sup>2</sup>CnTech Co., Ltd, China, <sup>3</sup>Universite catholique de Louvain, Belgium  
 18:10 TuP-J01-18 Poster (120 min)\*Late News  
**Prediction of solution flow combined with computational fluid dynamics simulation and sparse modeling**  
 N. Kokubo<sup>1</sup>\*, Y. Tsunooka<sup>1</sup>, S. Harada<sup>1,2</sup>, M. Tagawa<sup>1,2</sup>, T. Ujihara<sup>1,2</sup>  
<sup>1</sup>Department of Materials Science and Engineering, <sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University, Japan  
 18:10 TuP-J01-19 Poster (120 min)\*Late News  
**First-principles Study of Initial Stage of MoS<sub>2</sub> Crystal Growth**  
 K. Okada, H. Kageshima\*  
*Shimane University, Japan*  
**TuP-T01**  
*III-V Semiconductors*  
 18:10 TuP-T01-1 Poster (120 min)  
**Uncooled InAsSb Photoconductors with Cutoff Wavelengths Longer than 9 μm**  
 Y. Z. Gao<sup>1</sup>\*, X. L. Jia<sup>1</sup>, X. Y. Gong<sup>1</sup>, J. J. Li<sup>2</sup>, Y. B. Feng<sup>2</sup>, T. Makino<sup>3</sup>, H. Kan<sup>3</sup>, T. Koyama<sup>4</sup>, Y. Hayakawa<sup>4</sup>  
<sup>1</sup>Tongji University, China, <sup>2</sup>Huaxing Infrared Device Company, China, <sup>3</sup>Hamamatsu Photonics K. K., Japan, <sup>4</sup>Shizuoka University, Japan  
 18:10 TuP-T01-2 Poster (120 min)  
**Research into the influencing factor of resistivity on n type 4H-SiC by physical vapor transport**  
 X.-R. Hou\*, Y.-M. Wang, B. Li, R.-S. Wei, K.-L. Mao, X. Dai, K.-F. Ma  
*The Second Institute of China Electric Technology Group, China*  
 18:10 TuP-T01-3 Poster (120 min)  
**Growth and stress analysis of polycrystalline diamond films on GaN membranes**  
 T. Izak<sup>1</sup>\*, V. Jirásek<sup>1</sup>, G. Vanko<sup>2</sup>, J. Dzuba<sup>2</sup>, O. Babchenko<sup>2</sup>, A. Kromka<sup>1</sup>  
<sup>1</sup>Institute of Physics AS CR v.v.i., Czech Republic, <sup>2</sup>Institute of Electrical Engineering SAV, Slovakia  
 18:10 TuP-T01-4 Poster (120 min)  
**Effect of the operation parameters on the growth rate and the uniformity of the GaN epitaxial layer in the**

**vertical rotating-disk MOCVD reactor**  
 C. Hu\*, W.-J. Lin, J.-C. Chen  
*National Central University, Taiwan, R.O.C.*  
 18:10 TuP-T01-5 Poster (120 min)  
**Highly crystalline GaN thin film formed by GaN sputtering method**  
 M. Mesuda<sup>1</sup>\*, H. Kuramochi<sup>1</sup>, M. Shimizu<sup>2</sup>, T. Takahashi<sup>2</sup>  
<sup>1</sup>TOSOH Corporation, Japan, <sup>2</sup>National Institute of Advanced Industrial Science and Technology, Japan  
 18:10 TuP-T01-6 Poster (120 min)  
**Impact on 100 MeV Ni<sup>7+</sup> Ion Irradiated AlGaIn/GaN heterostructure grown by MOCVD**  
 R. Ramesh<sup>1</sup>\*, K. Prabakaran<sup>1</sup>, S. Singh<sup>1</sup>, K. Asokan<sup>3</sup>, K. Baskar<sup>1,2</sup>  
<sup>1</sup>Anna University, India, <sup>2</sup>Manonmanium Sundaranar University, India, <sup>3</sup>Inter University Accelerator Centre, India  
 18:10 TuP-T01-7 Poster (120 min)  
**Growth and Characterization of Aluminum Antimonides for Radiation Detectors**  
 K. Cheewajaroen<sup>1</sup>\*, P. Saengkaew<sup>1</sup>, S. Sanorpim<sup>2</sup>, V. Yordsri<sup>3</sup>, C. Thanachayanont<sup>3</sup>, N. Nuntawong<sup>4</sup>, W. Rathanasakulthong<sup>5</sup>  
<sup>1</sup>Department of Nuclear Engineering, <sup>2</sup>Department of Physics, Faculty of Science, Chulalongkorn University, Thailand, <sup>3</sup>National Metal and Materials Technology Center (MTEC), <sup>4</sup>National Electronic and Computer Technology Center (NECTEC), National Science and Technology Development Agency, Ministry of Science and Technology, Thailand, <sup>5</sup>Kasetsart University, Thailand  
 18:10 TuP-T01-8 Poster (120 min)  
**Nitride heterostructure optimization by simulation**  
 O. Rabinovich\*, S. Legotin, S. Didenko, I. Fedorchenko, Yu. Osipov  
*NUST MISiS, Russia*  
 18:10 TuP-T01-9 Poster (120 min)  
**MOCVD and CBE of GaAs<sub>1-x</sub>N<sub>x</sub> modeled by *ab initio* stabilities of (100) surfaces under As<sub>2</sub>, H<sub>2</sub>, and N<sub>2</sub>**  
 H. Valencia, Y. Kangawa, K. Kakimoto  
*Kyushu University, Japan*  
 18:10 TuP-T01-10 Poster (120 min)  
**N-H related defect playing the role of acceptor in GaAsN grown by chemical beam epitaxy**  
 O. Elleuch\*, L. Wang, K. H. Lee, K. Ikeda, N. Kojima, Y. Ohshita, M. Yamaguchi  
*Toyota Technological Institute, Japan*  
 18:10 TuP-T01-11 Poster (120 min)  
**Self-induced growth of InAs nanowires on InP Substrate by MOCVD**  
 B. Li<sup>1</sup>\*, X. Yan<sup>2</sup>, X. Zhang<sup>2</sup>, X.-M. Ren<sup>3</sup>  
<sup>1</sup>State Key Laboratory of Information Photonics and Optical Communications, <sup>2</sup>State Key Laboratory of Information Photonics and Optical Communications, <sup>3</sup>State Key Laboratory of Information Photonics and Optical Communications, Beijing University of Posts and Telecommunications, China  
 18:10 TuP-T01-12 Poster (120 min)

- Growth and properties of novel oxide semiconductor crystal In:  $\beta$ -Ga<sub>2</sub>O<sub>3</sub>**  
H.-L. Tang<sup>1</sup>\*, P. Luo<sup>1</sup>, F. Wu<sup>1</sup>, Q.-H. Wu<sup>2</sup>, J. Xu<sup>1</sup>  
<sup>1</sup>Tongji University, China, <sup>2</sup>Shanghai Institute of Ceramics, Chinese Academy of Sciences, China  
18:10 TuP-T01-13 Poster (120 min)
- 
- Selective Growth of GaN Nano-Columns on Free-Standing GaN**  
C.-H. Huang\*, K.-L. Wu, C.-C. Su, W.-I. Lee, Y.-C. Chou  
National Chia Tung University, Taiwan, ROC  
18:10 TuP-T01-14 Poster (120 min)
- 
- Growth and characterization of broad spectrum infrared emitting GaInAsP/InP heterostructures**  
V. Rakovics<sup>1</sup>\*, J. Nádas<sup>2</sup>, I. Réti<sup>1</sup>, C. Dücső<sup>1</sup>, G. Battistig<sup>1</sup>  
<sup>1</sup>Institute of Technical Physics and Materials Science, Centre for Energy Research, Hungarian Academy of Sciences, Hungary, <sup>2</sup>Óbuda University, Hungary  
18:10 TuP-T01-15 Poster (120 min)
- 
- Non-standard crystal orientations growth of gallium phosphide using gs-MBE for integration with photonic technologies**  
J.-B. Barakat<sup>1</sup>\*, S. Dadgostar<sup>1</sup>, O. Bierwagen<sup>2</sup>, A. Trampert<sup>3</sup>, W. T. Masselink<sup>1</sup>, F. Hatami<sup>1</sup>  
<sup>1</sup>Humboldt-University, Germany, <sup>2</sup>Department of Epitaxy, <sup>3</sup>Department of Microstructure, Paul-Drude-Institute for Solid State Electronics, Germany  
18:10 TuP-T01-16 Poster (120 min)
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- Suppression of Electron Overflow in 370-nm InGaN/AlGaIn Ultraviolet Light Emitting Diodes with Different Insert Layer Thicknesses**  
Y. W. Wang<sup>1</sup>\*, S. H. Chang<sup>1</sup>, Y. Z. Chiou<sup>2</sup>, C. K. Wang<sup>2</sup>  
<sup>1</sup>Department of Electro-Optical Engineering, <sup>2</sup>Department of Electronic Engineering, Southern Taiwan University of Science and Technology, Taiwan  
18:10 TuP-T01-17 Poster (120 min)
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- Suppressing Efficiency Droop Using Graded AlGaIn/InGaIn Superlattice Electron Blocking Layer for InGaIn-based Light-Emitting Diodes**  
K. C. Hung\*, C. K. Wang, Y. Z. Chiou  
Southern Taiwan University of Science and Technology, Taiwan  
18:10 TuP-T01-18 Poster (120 min)
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- Growth and characterization of free-standing GaN fabricated on GaAs substrate by HVPE**  
Y.-T. Cheng\*, J.-J. Wu, T. Han, T.-J. Yu, G.-Y. Zhang  
Peking University, China  
18:10 TuP-T01-19 Poster (120 min)
- 
- Morphology of AlN whiskers grown by reacting N<sub>2</sub> gas and Al vapor**  
M. Matsumoto<sup>1</sup>\*, H. Saitou<sup>1</sup>, Y. Takeuchi<sup>1</sup>, S. Harada<sup>1,2</sup>, M. Tagawa<sup>1,2</sup>, T. Ujihara<sup>1,2</sup>  
<sup>1</sup>Department of the Materials Science and Engineering, <sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University, Japan  
18:10 TuP-T01-20 Poster (120 min)
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- InAlGaAs/AlGaAs single quantum dots grown by MBE emitting in the red range – on the low-temperature broadening of single dot emission line**  
T. Slupinski\*, K. P. Korona, J. Borysiuk  
University of Warsaw, Poland  
18:10 TuP-T01-21 Poster (120 min)\*Late News
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- Research of influence of plasma chemical etching mode GaAs surface roughness on the etched area**  
O. A. Ageev, V. S. Klimin\*, A. V. Eskov, N. N. Petrov  
Southern Federal University, Russia
- 
- TuP-T06**  
*Materials for Optical Devices*
- 
- 18:10 TuP-T06-1 Poster (120 min)
- Structural-phase state of highly-doped Nd<sup>3+</sup>:Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> laser ceramics obtained by reactive sintering**  
D. Yu. Kosyanov<sup>1</sup>\*, R. P. Yavetskiy<sup>2</sup>, V. N. Baumer<sup>2</sup>, I. O. Vorona<sup>2</sup>, Yu. L. Kopylov<sup>3</sup>, V. B. Kravchenko<sup>3</sup>, V. L. Voznyy<sup>4</sup>, A. I. Cherednichenko<sup>1</sup>, V. I. Vovna<sup>1</sup>, A. V. Tolmachev<sup>2</sup>  
<sup>1</sup>Far Eastern Federal University, Russia, <sup>2</sup>Scientific and Technological Corporation "Institute for Single Crystals" of NAS of Ukraine, Ukraine, <sup>3</sup>Institute of Radioengineering and Electronics named after V.A. Kotelnikov (Fryazino Branch), Russian Academy of Sciences, Russia, <sup>4</sup>SE Holography Ltd., Ukraine  
18:10 TuP-T06-2 Poster (120 min)
- 
- Growth and optical characterization of Ho<sup>3+</sup>/Yb<sup>3+</sup>-codoped PbF<sub>2</sub> single crystal**  
P.-X. Zhang<sup>1,2</sup>\*, Z.-Q. Chen<sup>1,2</sup>, Z. Li<sup>1,2</sup>, A.-M. Li<sup>1,2</sup>, Y. Hang<sup>3</sup>  
<sup>1</sup>Guangdong Provincial Key Laboratory of Optical Fiber Sensing and Communications, China, <sup>2</sup>Jinan University, China, <sup>3</sup>Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China  
18:10 TuP-T06-3 Poster (120 min)
- 
- Growth and preparation of PbI<sub>2</sub> crystal for flexible X-ray detector application**  
H. Sun<sup>1,2</sup>\*, B.-J. Zhao<sup>1</sup>, S.-F. Zhu<sup>1</sup>, X.-H. Zhu<sup>2</sup>, Z.-Y. He<sup>1</sup>  
<sup>1</sup>Sichuan University, China, <sup>2</sup>Chengdu University of Information Technology, China  
18:10 TuP-T06-4 Poster (120 min)
- 
- Nanostructure for Hybrid Plasmonic-Photonic Crystal Formed on Gel-Immobilized Colloidal Crystal Observed by SEM after Solvent Exchange**  
S. Kawakami<sup>1</sup>, A. Mori<sup>2</sup>\*, K. Nagashima<sup>3</sup>, S. Hashimoto<sup>2</sup>, M. Haraguchi<sup>2</sup>, T. Okamoto<sup>2</sup>  
<sup>1</sup>Department of Optical System Engineering, <sup>2</sup>Institute of Technology and Science, Tokushima University, Japan, <sup>3</sup>Hokkaido University, Japan  
18:10 TuP-T06-5 Poster (120 min)
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- Conduction Type Control of RF Magnetron Sputtered GaSb Thin Films on Ge(100) by the Formation of Native Defects**  
N. Nishimoto<sup>1</sup>\*, J. Fujihara<sup>2</sup>, K. Yoshino<sup>1</sup>  
<sup>1</sup>Shimane Institute for Industrial Technology, Japan, <sup>2</sup>Shimane University, Japan

18:10	TuP-T06-6	Poster (120 min)	<b>Effect of amine and aliphatic acid capping on structural and morphological properties of Cu<sub>2</sub>ZnSnS<sub>4</sub> (CZTS) nanoparticles</b> C. Imla Mary, S. Anantha Kumar, S. Moorthy Babu* <i>Anna University, India</i>	<b>Float zone growth of Cr,Yb:Y<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> single crystals for potential use in solar-pumped solid state lasers</b> M. Higuchi <sup>1,2</sup> *, D. Ikutame <sup>1</sup> , T. Ogawa <sup>2</sup> , S. Wada <sup>2</sup> , K. Tadanaga <sup>1</sup> <sup>1</sup> <i>Hokkaido University, Japan</i> , <sup>2</sup> <i>RIKEN, Japan</i>
18:10	TuP-T06-7	Poster (120 min)	<b>Crystal growth mechanism and upconversion luminescent properties of KLu<sub>2</sub>F<sub>7</sub>:Yb,Er nanocrystals</b> D. K. Xu*, H. Lin, A. M. Li, S. H. Yang, Y. L. Zhang <i>Sun Yat-Sen University, China</i>	<b>Evolution of Cr<sup>4+</sup>, Cr<sup>3+</sup> and Cr<sup>2+</sup> Contents in Cr:Mg<sub>2</sub>SiO<sub>4</sub> Single Crystals During those Prolonged High-Temperature Oxidizing Annealing</b> K. A. Subbotin <sup>1</sup> , V. V. Slavkina <sup>2</sup> *, D. A. Lis <sup>1</sup> , O. N. Lis <sup>1</sup> , E. V. Zharikov <sup>1,2</sup> <sup>1</sup> <i>A. M. Prokhorov General Physics Institute, Russia</i> , <sup>2</sup> <i>D. I. Mendeleev University of Chemical Technology of Russia, Russia</i>
18:10	TuP-T06-8	Poster (120 min)	<b>Single-Crystal InI: New Material for IR Optics</b> P. P. Fedorov <sup>1</sup> *, S. V. Kuznetsov <sup>1</sup> , E. L. Chuvilina <sup>2</sup> , A. A. Gasanov <sup>3</sup> , V. G. Plotnichenko <sup>4</sup> , P. A. Popov <sup>5</sup> , V. V. Osiko <sup>1</sup> <sup>1</sup> <i>Prokhorov General Physics Institute, Russian Academy of Sciences, Russia</i> , <sup>2</sup> <i>LANHIT-LTD Moscow, Russia</i> , <sup>3</sup> <i>GIREDMET ASC "Rosatom" company, Russia</i> , <sup>4</sup> <i>Fiber Optics Research Center, Russian Academy of Sciences, Russia</i> , <sup>5</sup> <i>Petrovski Bryansk State University, Russia</i>	<b>Laser conditioning mechanism in improving damage performance of KDP</b> W. Fengrui*, H. Jin, L. Qingzhi, G. Decheng, J. Xiaodong, L. Hongjie, G. Feng <i>Laser Fusion Research Center, China Academy of Engineering Physics, China</i>
18:10	TuP-T06-9	Poster (120 min)	<b>Thermodynamic stability and electronic structure of Mg-IV-V<sub>2</sub> semiconductors: first-principles calculations</b> J.-P. Xiao <sup>1,2</sup> *, S.-F. Zhu <sup>1</sup> , B.-J. Zhao <sup>1</sup> , Z.-Y. He <sup>1</sup> , B.-J. Chen <sup>1</sup> , H. Liu <sup>1</sup> , G. Jiang <sup>3</sup> <sup>1</sup> <i>Department of Materials Science, Sichuan University, China</i> , <sup>2</sup> <i>Southwest University for Nationalities, China</i> , <sup>3</sup> <i>Institute of Atomic and Molecular Physics, Sichuan University, China</i>	<b>Medium Temperature Hydrothermal Growth of RbTiOPO<sub>4</sub> (RTP) for Electro-Optic Application</b> H.T. Zhou <sup>1</sup> *, Z.-G. Hu <sup>2</sup> , C.-L. Zhang <sup>1</sup> <sup>1</sup> <i>China Nonferrous Metals (Guilin) Geology and Mining Co., Ltd, China</i> , <sup>2</sup> <i>Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China</i>
18:10	TuP-T06-10	Poster (120 min)	<b>Deep Ultraviolet nonlinear optical crystal: NaBe<sub>2</sub>BO<sub>3</sub>F<sub>2</sub></b> S. Guo <sup>1,2</sup> , L.-J. Liu <sup>1</sup> *, X.-Y. Wang <sup>1</sup> , Q. Huang <sup>1,2</sup> , Z.-Y. Hou <sup>1,2</sup> , C.-T. Chen <sup>1</sup> <sup>1</sup> <i>Technical Institute of Physics and Chemistry, Chinese Academy of Science, China</i> , <sup>2</sup> <i>University of Chinese Academy of Sciences (UCAS), China</i>	<b>Synthesis of Cu<sub>2</sub>ZnSn<sub>1-x</sub>Ge<sub>x</sub>S<sub>4</sub> by solid state reaction: Structural properties</b> M. Tablaoui <sup>1</sup> *, M. Derbal <sup>2</sup> , K. Lebbou <sup>3</sup> <sup>1</sup> <i>Centre de Recherche en Technologie des Semi-conducteurs pour l'Energétique Algiers, Algeria</i> , <sup>2</sup> <i>LASICOM, Physics Dept., Blida1 University, Algeria</i> , <sup>3</sup> <i>Institut Lumière Matière, UMR5306 Université Lyon 1-CNRS, France</i>
18:10	TuP-T06-11	Poster (120 min)	<b>Influence of Non-Phosphine Solvents on Structural, Optical and Morphological Properties of Copper Tin Selenide (Cu<sub>2</sub>SnSe<sub>3</sub>) Nanoparticles</b> S. Ananthakumar*, J. Ramkumar, S. Moorthy Babu <i>Anna University, India</i>	<b>Growth of ZnGeP<sub>2</sub>, CdGeAs<sub>2</sub>, LiInSe<sub>2</sub> crystals for nonlinear optical devices</b> C.-H. Yang <sup>1</sup> *, Z.-T. Lei <sup>1</sup> , C.-Q. Zhu <sup>1</sup> , T.-H. Ma <sup>1</sup> , L.-C. Song <sup>1</sup> , G. Alex Verozubova <sup>2</sup> , A. O. Okunev <sup>3</sup> <sup>1</sup> <i>Harbin Institute of Technology, China</i> , <sup>2</sup> <i>Institute of Monitoring and Ecological System SB RAS, Russia</i> , <sup>3</sup> <i>Yaroslav-the-Wise Novgorod State University, Russia</i>
18:10	TuP-T06-12	Poster (120 min)	<b>High-Performance Photodetector Based on Organolead Halide Perovskite Bulk Single Crystal</b> J. Ding*, Z.-P. Lian, H.-J. Fang, Q.-F. Yan <i>Tsinghua University, China</i>	<b>Domain wall engineering contributes to the enhanced photovoltaic effect in the [011]c-oriented tetragonal PIN-PMN-PT:Mn single crystals</b> Y. M. Zhou <sup>1</sup> *, Q. Li <sup>1</sup> , C. Xu <sup>1</sup> , N. N. Luo <sup>1</sup> , Q. F. Yan <sup>1</sup> , Y. L. Zhang <sup>2</sup> , X. C. Chu <sup>2</sup> <sup>1</sup> <i>Department of Chemistry</i> , <sup>2</sup> <i>State Key Laboratory of New Ceramics and Fine Processing, Tsinghua University, China</i>
18:10	TuP-T06-13	Poster (120 min)	<b>Float zone growth of Yb:CaYAIO<sub>4</sub> single crystals for ultra-short pulse lasers</b> M. Narita <sup>1</sup> *, M. Higuchi <sup>2,3</sup> , T. Ogawa <sup>3</sup> , S. Wada <sup>3</sup> , K. Tadanaga <sup>2</sup> <sup>1</sup> <i>Graduate school of Chemical Science and Engineering</i> , <sup>2</sup> <i>Faculty of Engineering, Hokkaido University, Japan</i> , <sup>3</sup> <i>RIKEN, Japan</i>	<b>Electrodeposition of Si-film directly from reduction of the Silicon Dioxide Powder for the Application of Solar Cell</b> M. M. Islam*, K. Akimoto
18:10	TuP-T06-14	Poster (120 min)		

- University of Tsukuba, Japan
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- 18:10 TuP-T06-22 Poster (120 min)
- Preparation of Exfoliated CdZnTe Polycrystalline Thick Films Based on Stress Mismatch Mechanism**  
 X.-Y. Gao<sup>1,2</sup>\*, S.-F. Zhu<sup>1</sup>, B.-J. Zhao<sup>1</sup>, X.-H. Zhu<sup>2</sup>, H. Sun<sup>2</sup>, D.-Y. Yang<sup>2</sup>  
<sup>1</sup>Sichuan University, China, <sup>2</sup>Chengdu University of Information Technology, China
- 
- 18:10 TuP-T06-23 Poster (120 min)
- InSb Quantum Nanostructures on InGaAs/GaAs Substrates and Their Photoluminescence Properties**  
 S. Thainoi<sup>1</sup>, S. Kiravittaya<sup>2</sup>\*, S. Sopotpan<sup>3</sup>, S. Kanjanachuchai<sup>1</sup>, S. Ratanathamphan<sup>1</sup>, S. Panyakeow<sup>1</sup>  
<sup>1</sup>Chulalongkorn University, Thailand, <sup>2</sup>Naresuan University, Thailand, <sup>3</sup>Thailand Microelectronics Center (TMEC), National Science and Technology Development Agency (NSTDA), Thailand
- 
- 18:10 TuP-T06-24 Poster (120 min)
- Intense 2.89  $\mu\text{m}$  emission from Dy<sup>3+</sup>/Yb<sup>3+</sup> codoped PbF<sub>2</sub> crystal by 970 nm laser diode pumping**  
 P.-X. Zhang<sup>1,2</sup>\*, Z.-Q. Chen<sup>1,2</sup>, Z. Li<sup>1,2</sup>, A.-M. Li<sup>1,2</sup>, Y. Hang<sup>3</sup>  
<sup>1</sup>Guangdong Provincial Key Laboratory of Optical Fiber Sensing and Communications, China, <sup>2</sup>Jinan University, China, <sup>3</sup>Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China
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- 18:10 TuP-T06-25 Poster (120 min)
- Epitaxial Growth of Iron Disilicide Thin Film on 4H-SiC**  
 K. Akiyama<sup>1,2</sup>\*, T. Kadowaki<sup>1</sup>, Y. Hirabayashi<sup>1</sup>, Y. Matsumoto<sup>1</sup>, H. Funakubo<sup>2</sup>  
<sup>1</sup>Kanagawa Industrial Technology Center, Japan  
<sup>2</sup>Tokyo Institute of Technology, Japan
- 
- 18:10 TuP-T06-26 Poster (120 min)
- Optimization of the growth of erbium doped YAG and Er-Tm co-doped YAG fibers by the micro-pulling down technique**  
 A. Laidoune\*, D. Bahloul  
 Université Batna 1, Algeria
- 
- 18:10 TuP-T06-27 Poster (120 min)
- Fabrication of YH<sub>3</sub> thin film using Pd/Ni overlayer**  
 K. Yabuki<sup>1</sup>\*, M. Sakai<sup>1</sup>, K. Iizasa<sup>1</sup>, K. Higuchi<sup>2</sup>, A. Kitajima<sup>2</sup>, S. Hasegawa<sup>2</sup>, O. Nakamura<sup>3</sup>  
<sup>1</sup>Saitama University, Japan, <sup>2</sup>Osaka University, Japan, <sup>3</sup>Okayama University of Science, Japan
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- 18:10 TuP-T06-28 Poster (120 min)
- Third-order Nonlinear Optical Characteristics of KDP and DKDP Crystals**  
 D.-L. Wang<sup>1,2</sup>, T.-B. Li<sup>3</sup>, S.-L. Wang<sup>1,2</sup>\*, J. Wang<sup>1</sup>, J.-X. Ding<sup>4</sup>, W.-D. Li<sup>1</sup>, P.-P. Huang<sup>1,2</sup>  
<sup>1</sup>State Key Laboratory of Crystal Materials and Institute of Crystal Materials, <sup>2</sup>Key Laboratory of Functional Crystal Materials and Device, Shandong University, China, <sup>3</sup>Taishan University, China, <sup>4</sup>Shandong University of Science and Technology, China
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- 18:10 TuP-T06-29 Poster (120 min)
- Preparation and evaluation of Cu<sub>2</sub>ZnSnS<sub>4</sub> polycrystals**  
 M. Kotani<sup>1</sup>\*, H. Miura<sup>1</sup>, Y.-G. Shim<sup>2</sup>, K. Wakita<sup>1</sup>  
<sup>1</sup>Chiba Institute of Technology, Japan, <sup>2</sup>Osaka Prefecture University, Japan
- 
- 18:10 TuP-T06-30 Poster (120 min)
- Luminescent Properties of Cr-doped Alexandrite Crystal in the Red/Infrared Emission for Radiation Therapy**  
 S. Kurosawa<sup>1</sup>\*, A. Yamaji<sup>2</sup>, V. V. Kochurikhin<sup>3,4</sup>, T. Horiai<sup>2</sup>, Y. Shoji<sup>2,4</sup>, Y. Ohashi<sup>2</sup>, Y. Yokota<sup>1</sup>, K. Kamada<sup>1,4</sup>, A. Yoshikawa<sup>1,2,4</sup>  
<sup>1</sup>New Industry Creation Hatchery Center, <sup>2</sup>Institute for Materials Research, Tohoku University, Japan, <sup>3</sup>General Physics Institute, Russia, <sup>4</sup>C&A Corp., Japan
- 
- 18:10 TuP-T06-31 Poster (120 min)
- Recent progress in KBe<sub>2</sub>(BO<sub>3</sub>)F<sub>2</sub> crystal growth and applications**  
 X.-Y. Wang\*, K. Li, B. Xu, L.-J. Liu, F.-D. Fan, C.-T. Chen  
 Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China
- 
- 18:10 TuP-T06-32 Poster (120 min)
- Compositional control of epitaxial CuInS<sub>2</sub> films**  
 K. Kanamaru<sup>1</sup>\*, T. Po-Han<sup>1</sup>, K. Kyan<sup>1</sup>, Y.-G. Shim<sup>2</sup>, K. Wakita<sup>1</sup>  
<sup>1</sup>Chiba Institute of Technology, Japan, <sup>2</sup>Osaka Prefecture University, Japan
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- 18:10 TuP-T06-33 Poster (120 min)
- Fabrication and characterization of magneto-optic properties of rare-ions doped terbium gallium garnet single crystals**  
 Z. Chen\*, L. Yang, X. Ming, X.-Y. Wang, Y. Hang  
 Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China
- 
- 18:10 TuP-T06-34 Poster (120 min)
- Growth and optical properties of LiLuF<sub>4</sub> crystal co-doped with Ho<sup>3+</sup> and Pr<sup>3+</sup> at 2.9  $\mu\text{m}$**   
 Y. Hang<sup>1</sup>\*, P.-X. Zhang<sup>1,2</sup>, L.-H. Zhang<sup>1,2</sup>, J.-Q. Hong<sup>1,2</sup>, Z. Chen<sup>1,2</sup>, X.-Y. Wang<sup>1,2</sup>, Y. Wang<sup>1,2</sup>, G.-Z. Chen<sup>1,2</sup>  
<sup>1</sup>Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China, <sup>2</sup>Graduate School of Chinese Academy of Sciences, China
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- 18:10 TuP-T06-35 Poster (120 min)
- Deep-Ultraviolet Nonlinear Optical Phosphate Crystal: KBa<sub>2</sub>(PO<sub>3</sub>)<sub>5</sub>**  
 P. Shan<sup>1</sup>\*, T.-Q. Sun<sup>1</sup>, H.-D. Liu<sup>1</sup>, X.-W. Liu<sup>3</sup>, Y.-F. Kong<sup>1,2</sup>, J.-J. Xu<sup>1,2</sup>  
<sup>1</sup>Nankai University, China, <sup>2</sup>Nankai University, China, <sup>3</sup>Northeastern University at Qinhuangdao, China.
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- 18:10 TuP-T06-36 Poster (120 min)
- Structural and electronic properties of carbon impurity in barium zirconate**  
 Meaad AL-Hadidi, J. P. Goss, Oras A. Al-Ani\*, P. R. Briddon, M. J. Rayson  
 Newcastle University, UK
- 
- 18:10 TuP-T06-37 Poster (120 min)
- Synthesis and characterization of Bifunctional Fe<sub>3</sub>O<sub>4</sub>/SiO<sub>2</sub>/CsLa(WO<sub>4</sub>)<sub>2</sub>:Eu<sup>3+</sup> Nanocomposites with core-shell structure for Biomedical application**  
 D. Balaji, S. Moorthy Babu\*

<i>Anna University, India</i>			
18:10	TuP-T06-38	Poster (120 min)*	<i>Late News</i>
<b>Sol-gel Synthesis and Magnetic characterization on NaFe(WO<sub>4</sub>)<sub>2</sub> Sub-micron Rods</b>			
A. Durairajan <sup>1,2</sup> , M. A. Valente <sup>2</sup> , S. Moorthy Babu <sup>1</sup> *			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>University of Aveiro, Portugal</i>			
18:10	TuP-T06-39	Poster (120 min)	
<b>Crystal Growth and Optical Characteristics of Non-Centrosymmetric Polyphosphate CsLa(PO<sub>3</sub>)<sub>4</sub> and KLa(PO<sub>3</sub>)<sub>4</sub> with Deep-Ultraviolet Transparency</b>			
T.-Q. Sun <sup>1</sup> *, P. Shan <sup>1</sup> , H. Chen <sup>1</sup> , H.-D. Liu <sup>1</sup> , S.-L. Chen <sup>1,2</sup> , X.-W. Liu <sup>3</sup> , Y.-F. Kong <sup>1,2</sup> J.-J. Xu <sup>1,2</sup>			
<sup>1</sup> <i>The MOE Key Laboratory of Weak-Light Nonlinear Photonics and School of Physics, </i> <sup>2</sup> <i>Teda Institute of Applied Physics, Nankai University, China, </i> <sup>3</sup> <i>Northeastern University at Qinhuangdao, China</i>			
<b>TuP-T09</b>			
<i>Nitride Semiconductors</i>			
18:10	TuP-T09-1	Poster (120 min)	
<b>Epitaxial growth of a self-separated GaN crystal by using a novel high temperature annealing porous template</b>			
L. Zhang*, Y.-L. Shao, Y.-Z. Wu, X.-P. Hao			
<i>Jinan, Shandong, China</i>			
18:10	TuP-T09-2	Poster (120 min)	
<b>Investigation on morphology, growth mode and indium incorporation of MOCVD grown InGaN/n-GaN heterostructures</b>			
K. Prabakaran <sup>1</sup> *, S. Surender <sup>1</sup> , S. Pradeep <sup>1</sup> , R. Loganathan, P. Arivazhagan <sup>1</sup> , R. Ramesh <sup>1</sup> , Shubra Singh <sup>1</sup> , K. Baskar <sup>1,2</sup>			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>Manonmaniam Sundaranar University, India</i>			
18:10	TuP-T09-3	Poster (120 min)	
<b>Effect of growth temperature on InGaN/GaN Heterostructures grown by Metal Organic Chemical Vapor Deposition (MOCVD)</b>			
S. Surender <sup>1</sup> *, K. Prabakaran <sup>1</sup> , R. Ramesh <sup>1</sup> , R. Loganathan <sup>1</sup> , S. Pradeep <sup>1</sup> , Shubra Singh <sup>1</sup> , K. Baskar <sup>1,2</sup>			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>Manonmaniam Sundaranar University, India.</i>			
18:10	TuP-T09-4	Poster (120 min)	
<b>Self - catalytic growth of AlN microrods on sapphire substrate</b>			
B. Kuppulingam <sup>1</sup> *, Shubra Singh <sup>1</sup> , K. Baskar <sup>1</sup> , 2			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>Manonmaniam Sundaranar University, India</i>			
18:10	TuP-T09-5	Poster (120 min)	
<b>Effect of AlN interlayer in AlGaIn/GaN heterostructures grown by MOCVD</b>			
S. Sankaranarayanan <sup>1</sup> *, R. Loganathan <sup>1</sup> , K. Prabakaran <sup>1</sup> , B. Kuppulingam <sup>1</sup> , S. Surender <sup>1</sup> , S. Pradeep <sup>1</sup> , Shubra Singh <sup>1</sup> , K. Baskar <sup>1,2</sup>			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>Manonmaniam Sundaranar University, India</i>			
18:10	TuP-T09-6	Poster (120 min)	
<b>Strain of M-plane GaN epitaxial layer grown on</b>			
<b>β-LiGaO<sub>2</sub>(100) Byplasma-assisted molecular beam epitaxy</b>			
S.-T. You <sup>1</sup> *, I. Lo <sup>1</sup> , H.-C. Shih <sup>1</sup> , M. Chou <sup>2</sup> , H.-C. Huang <sup>2</sup>			
<sup>1</sup> <i>Department of Physics, Center for Nanoscience and Nanotechnology, </i> <sup>2</sup> <i>Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan</i>			
18:10	TuP-T09-7	Poster (120 min)	
<b>Si<sup>9+</sup> swift heavy ions irradiation studies on AlGaIn based double heterostructures</b>			
P. Arivazhagan <sup>1</sup> *, R. Ramesh <sup>1</sup> , S. Singh <sup>1</sup> , K. Asokan <sup>2</sup> , K. Baskar <sup>1,3</sup>			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>Inter-University Accelerator Centre (IUAC), India, </i> <sup>3</sup> <i>Manonmaniam Sundaranar University, India</i>			
18:10	TuP-T09-8	Poster (120 min)	
<b>Formation of Eu,Si codoped AlN thin films on Si substrate by reactive co-sputtering for heterojunction visible light emitting diode</b>			
K. Iwade*, H. Katsumata			
<i>Meiji University, Japan</i>			
18:10	TuP-T09-9	Poster (120 min)	
<b>Growth of InAlN/GaN heterostructures by MOCVD</b>			
S. Pradeep <sup>1</sup> *, S. Surender <sup>1</sup> , K. Prabakaran <sup>1</sup> , S. Sanjay <sup>1</sup> , S. Sankara Narayanan <sup>1</sup> , R. Loganathan <sup>1</sup> , R. Ramesh <sup>1</sup> , Shubra Singh <sup>1</sup> , K. Baskar <sup>1,2</sup>			
<sup>1</sup> <i>Anna University, India, </i> <sup>2</sup> <i>Manonmaniam Sundaranar University, India</i>			
18:10	TuP-T09-10	Poster (120 min)	
<b>Controlling Impurities and Doping Characteristics of Si- and Mg-doped AlGaIn with High Al Content</b>			
A. Mishima <sup>1</sup> *, K. Ikenaga <sup>1</sup> , Y. Yano <sup>1</sup> , C.-L. Tsai <sup>2</sup> , Y.-K. Fu <sup>2</sup> , T. Tabuchi <sup>1</sup> , K. Matsumoto <sup>1</sup>			
<sup>1</sup> <i>Taiyo Nippon Sanso Corporation, Japan, </i> <sup>2</sup> <i>Industrial Technology Research Institute, Taiwan, R.O.C.</i>			
18:10	TuP-T09-11	Poster (120 min)	
<b>Si concentration dependence of laser oscillation characteristics in AlGaIn multiple quantum well active layer</b>			
T. Senga <sup>1</sup> *, N. Nagata <sup>1</sup> , M. Iwaya <sup>1</sup> , T. Takeuchi <sup>1</sup> , S. Kamiyama <sup>1</sup> , I. Akasaki <sup>2</sup>			
<sup>1</sup> <i>Meijo Univ., Japan, </i> <sup>2</sup> <i>Akasaki Research Center, Nagoya Univ., Japan</i>			
18:10	TuP-T09-12	Poster (120 min)	
<b>Epitaxy of InGaIn/GaN Multiple Quantum Wells on GaN Hexagonal Pyramids Template</b>			
X. Q. Xiu*, S. Y. Zhang, X. M. Hua, Z. L. Xie, R. Zhang, P. Han, P. Chen, D. J. Chen, Y. D. Zheng			
<i>Nanjing University, China</i>			
18:10	TuP-T09-13	Poster (120 min)	
<b>Surface nitridation of r-plane sapphire substrate and Ga-Al solution growth of AlN on the substrate</b>			
M. Adachi, H. Fukuyama			
<i>Tohoku University, Japan</i>			
18:10	TuP-T09-14	Poster (120 min)	
<b>GaN Growth on a-plane SiC Substrate with an Ultrathin Interlayer</b>			
Z. Sun <sup>1</sup> *, K. Nagamatsu <sup>1</sup> , M. Deki <sup>1</sup> , S. Nitta <sup>1</sup> , Y. Honda <sup>1</sup> ,			

H. Amano<sup>1,2,3</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Akasaki Research Center, <sup>3</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University, Japan

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18:10 TuP-T09-15 Poster (120 min)

**Investigation on temperature gradient evolution of 2-inch AlN bulk crystal growth by numerical simulations**

Z. H. Wang\*, K. Cao, L. X Liu, L. Wu

Shanghai University, China

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18:10 TuP-T09-16 Poster (120 min)

**Dependence of Flux Composition on Void Formation in the Coalescence Growth of GaN Crystals by the Na-flux Method**

M. Honjo\*, M. Imanishi, H. Imabayashi, K. Nakamura, K. Murakami, D. Matsuo, M. Maruyama, M. Imade, M. Yoshimura, Y. Mori

Osaka University, Japan

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18:10 TuP-T09-17 Poster (120 min)

**Emission Efficiency Improvement of Deep Ultraviolet Light-Emitting AlGaIn Multiple Quantum Wells Grown on N-AlGaIn Underlying Layers**

L. Li\*, Y. Miyachi, M. Miyoshi, T. Egawa

Nagoya Institute of Technology, Japan

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18:10 TuP-T09-18 Poster (120 min)

**Improvement of reproducibility of GaN LAIMCE by MOMBE using a low-pressure microplasma treatment**

Y. Kusakabe<sup>1</sup>\*, Y. Nagatsu<sup>1</sup>, S. Suzuki<sup>1</sup>, T. Maruyama<sup>1</sup>, K. Shimizu<sup>2</sup>, S. Naritsuka<sup>1</sup>

<sup>1</sup>Meijo University, Japan, <sup>2</sup>Shizuoka University, Japan

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18:10 TuP-T09-19 Poster (120 min)

**Growth of GaN on trench patterned non-polar bulk GaN substrates**

S. Okada<sup>1</sup>\*, H. Iwai<sup>1</sup>, H. Miyake<sup>1,2</sup>, K. Hiramatsu<sup>1</sup>

<sup>1</sup>Department of Electrical and Electronic Engineering,

<sup>2</sup>Graduate School of Regional Innovation Studies, Mie University, Japan

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18:10 TuP-T09-20 Poster (120 min)

**Effect of buffer-layer growth temperature and thermal annealing conditions on a-plane AlN films grown on r-plane sapphire**

C.-H. Lin<sup>1</sup>\*, Y. Yamashita<sup>1</sup>, H. Miyake<sup>1,2</sup>, K. Hiramatsu<sup>1</sup>

<sup>1</sup>Graduate School of Engineering, <sup>2</sup>Graduate School of Regional Innovation Studies, Mie University, Japan

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18:10 TuP-T09-21 Poster (120 min)

**N-Polar Eu-doped GaN Grown by Organometallic Vapor Phase Epitaxy**

R. Fuji\*, A. Koizumi, T. Inaba, Y. Fujiwara

Osaka University, Japan

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18:10 TuP-T09-22 Poster (120 min)

**Effect of NH<sub>3</sub> flow rate on Microchannel Epitaxy of GaN by Liquid Phase Electroepitaxy using mesa shaped GaN template substrate**

D. Kambayashi\*, Y. Mizuno, T. Maruyama, S. Naritsuka

Meijo University, Japan

## Wednesday, 10 August

### Plenary 5

Wednesday morning, 10 August, 8:30  
Shirotori Hall

8:30 Plenary Lecture (40 min)

#### Growth of nitride crystals to solve global issues

Hiroshi Amano\*  
Nagoya University, Japan

### Coffee break

Wednesday morning, 10 August, 9:10  
Event Hall, Shirotori Hall

### Session We1

Wednesday morning, 10 August, 9:40  
G01, G03, G05, G06, J01, T01, T04, T06, T09

### We1-G01

*Fundamentals of Nucleation and Crystal Growth*  
Room: Oral 6

9:40 We1-G01-1 Invited oral (25 min)

#### Imaging crystalline evolution in organic and protein systems

B. Rybtchinski\*  
Weizmann Institute of Science, Israel

10:05 We1-G01-2 Oral (15 min)

#### Crystal Networks in Fibrous Soft Materials: From Hierarchical Structure to Ultra-Performance

X. Y. Liu\*  
National University of Singapore, Singapore/Research Institute for Biomimetics and Soft Matter, Xiamen University, China

10:20 We1-G01-3 Oral (15 min)

#### The Study for Metastable Zone and Crystal Growth of CL-20 in Ethylacetate/toluene System by Solventing-out Crystallization

H.-Z. Li<sup>1</sup>\*, H.-F. Xu<sup>1,2</sup>, X.-H. Duan<sup>2</sup>, R. Xu<sup>1</sup>  
<sup>1</sup>Institute of Chemical Materials, China Academy of Engineering Physics, China, <sup>2</sup>Southwest University of Science and Technology, China

10:35 We1-G01-4 Oral (15 min)

#### Investigation on the bulk growth of inversely soluble $\alpha$ -LiIO<sub>3</sub> single crystals and the influence of pH on its structural, morphological and optical characteristics

P. Rajesh<sup>1</sup>\*, A. Silambarasan<sup>1</sup>, P. Ramasamy<sup>1</sup>, A. K. Karnal<sup>2</sup>, Rajeev Bhatt<sup>2</sup>, Indranil Bhaumik<sup>2</sup>, P. K. Gupta<sup>2</sup>  
<sup>1</sup>SSN College of Engineering, India, <sup>2</sup>Raja Ramanna Centre for Advanced Technology, India

10:50 We1-G01-5 Oral (15 min)

#### Evolutionary behaviour of the polymorphic mole fractions during crystallisation of pure and glycine-doped L-glutamic acid

M. Rusin<sup>1</sup>, R. Ristic<sup>1</sup>\*, T. Gnutzmann<sup>2</sup>, F. Emmerling<sup>2</sup>  
<sup>1</sup>The University of Sheffield, UK, <sup>2</sup>BAM Federal Institute for Materials Research and Testing, Germany

11:05 We1-G01-6 Oral (15 min)

#### A study on nucleation kinetics, growth and characterization of hydrated borate Na<sub>2</sub>B<sub>4</sub>O<sub>5</sub>(OH)<sub>4</sub>·H<sub>2</sub>O single crystal – A third order NLO material

C. Ramki\*, R. Ezhil Vizhi  
VIT University, India

11:20 We1-G01-7 Oral (15 min)

#### Laser-Heated Pedestal Growth and optical properties of 50 at % (Ho<sup>3+</sup>) - doped YAG

B. Rezik<sup>1</sup>\*, K. Lebbou<sup>2</sup>  
<sup>1</sup>University of Blida 1, Algeria, <sup>2</sup>UMR5306 Université Lyon1-CNRS, Université de Lyon, France

11:35 We1-G01-8 Oral (15 min)

#### Growth and characterization of Sodium Sulphate oxalate single crystal - metal organic non-linear optical material

D. S. Ajisha, R. Ezhil Vizhi\*  
VIT University, India

### We1-G03

*Nanomaterials and Low Dimensional Structures, Nanostructure - Fundamentals and Applications*  
Room: Oral 2

9:40 We1-G03-1 Invited oral (25 min)

#### Droplet epitaxy of complex III-V nanostructures

Stefano Sanguinetti\*, S. Bietti  
Universita' di Milano Bicocca, Italy

10:05 We1-G03-2 Oral (15 min)

#### Synthesis of Nanocrystalline TiO<sub>2</sub> Nanorods via Hydrothermal Method: An Efficient Photoanode Material for Dye Sensitized Solar Cells

R. Govindaraj\*, N. Santhosh, M. Senthil Pandian, P. Ramasamy  
SSN College of Engineering, India

10:20 We1-G03-3 Oral (15 min)

#### Influence of CaSO<sub>4</sub>-CaCO<sub>3</sub> hierarchical whiskers on PVC composite

H.-Y. Chen, P.-Y. Ma\*, J. Liang, L. Xiang  
Tsinghua University, China

10:35 We1-G03-4 Oral (15 min)

#### Influence of Alkyl Trimethyl Ammonium Bromides on Hydrothermal Formation of $\alpha$ -CaSO<sub>4</sub>·0.5H<sub>2</sub>O Whiskers with High Aspect Ratios

R.-S. Chen\*, S.-C. Hou, L. Xiang  
Tsinghua University, China

10:50 We1-G03-5 Oral (15 min)

#### Urea assisted SnO<sub>2</sub> structures for dye sensitized solar cell application

M. Tarini\*, N. Mani, Y. Hayakawa  
Shizuoka University, Japan.

11:05 We1-G03-6 Oral (15 min)

#### Synthesis of $\alpha$ -In<sub>2</sub>S<sub>3</sub>/In<sub>2</sub>O<sub>3</sub> nanowire heterostructures with enhanced photo-induced charge separation efficiency

L.-C. Tien\*, J.-L. Shih  
National Dong Hwa University, Taiwan

11:20 We1-G03-7 Oral (15 min)

#### Flux growth of titanate-based crystals and their application to Li ion recovery



F. Hayashi<sup>1,2</sup>\*, K. Ogawa<sup>1</sup>, X. Xiao<sup>2,3</sup>, S. Selcuk<sup>4</sup>, A. Selloni<sup>4</sup>, K. Teshima<sup>1,2,5</sup>

<sup>1</sup>Department of Chemistry and Materials Engineering,  
<sup>2</sup>Global Aqua Innovation Center, <sup>3</sup>Department of  
Materials Science and Engineering, Interdisciplinary  
Graduate School of Science and Technology, Shinshu  
University, Japan, <sup>4</sup>Princeton University, USA, <sup>5</sup>Center  
for Energy and Environmental Science, Shinshu  
University, Japan

## **We1-G05**

Organic and Biological Crystallization

Room: Oral 3

9:40 We1-G05-1 Invited oral (25 min)

### **Biogenic and Biomimetic Arrayed Nanocrystals**

H. Imai<sup>1</sup>\*, M. Suzuki<sup>1</sup>, K. Nakamura<sup>1</sup>, K. Nakajima<sup>1</sup>, Y. Nagai<sup>1</sup>, Y. Oaki<sup>1</sup>, Y. Nagai<sup>2</sup>, T. Toyofuku<sup>2</sup>

<sup>1</sup>Keio University, Japan, <sup>2</sup>Japan Agency for  
Marine-Earth Science and Technology, Japan

10:05 We1-G05-2 Invited oral (25 min)

### **Growth of high-quality and large protein crystals by new seeding techniques**

S. Sugiyama<sup>1,2</sup>\*, N. Shimizu<sup>3</sup>, K. Kakinouchi<sup>4</sup>, M. Maruyama<sup>3</sup>, H. Matsumura<sup>4,5</sup>, H.Y. Yoshikawa<sup>6</sup>, Y. Takahashi<sup>3</sup>, M. Yoshimura<sup>3</sup>, H. Adachi<sup>4</sup>, K. Takano<sup>4,7</sup>, S. Murakami<sup>4,8</sup>, T. Inoue<sup>3,4</sup>, M. Murata<sup>1,2</sup>, Y. Mori<sup>3,4</sup>

<sup>1</sup>Graduate School of Science, Osaka University, Japan,  
<sup>2</sup>JST, ERATO, Japan, <sup>3</sup>Graduate School of Engineering,  
Osaka University, Japan, <sup>4</sup>SOSHO Inc., Japan,  
<sup>5</sup>Ritsumeikan University, Japan, <sup>6</sup>Saitama University,  
Japan, <sup>7</sup>Kyoto Prefectural University, Japan, <sup>8</sup>Tokyo  
Institute of Technology, Japan

10:30 We1-G05-3 Oral (15 min)

### **Large-volume protein crystal growth**

M. Gonik<sup>1</sup>\*, E. Rogulin<sup>2</sup>

<sup>1</sup>Centre for Material Researches (PHOTON), Russia,  
<sup>2</sup>Max von Pettenkofer-Institute (LMU), Germany

10:45 We1-G05-4 Oral (15 min)

### **Protein Crystallization by Slow Evaporation of Precipitant-free Solution in the Presence of Hydrochloric Acid**

Y. Suzuki<sup>1</sup>\*, T. Fujiwara<sup>2</sup>, S. Ueta<sup>1</sup>

<sup>1</sup>Institute of Technology and Science, <sup>2</sup>Institute of  
Scio-Arts and Sciences, Tokushima University, Japan

11:00 We1-G05-5 Oral (15 min)

### **Photochemically-induced crystallization of lysozyme**

T. Okutsu\*, T. Taguchi, Y. Takase, M. Utsumi, H. Horiuchi

Gunma University, Japan

11:15 We1-G05-6 Oral (15 min)

### **Time-resolved X-ray Observation of 10<sup>-18</sup> – 10<sup>-15</sup> N (Newton) force-field in Inorganic and Protein Supersaturated solution**

Y. Matsushita<sup>1</sup>\*, H. Sekiguchi<sup>2</sup>, N. Ohta<sup>2</sup>, K. Ikezaki<sup>1</sup>, Y. Goto<sup>3</sup>, Y. C. Sasaki<sup>1,2</sup>

<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>Spring-8, Japan,  
<sup>3</sup>Osaka University, Japan

## **We1-G06**

Bulk Crystal Growth

Room: Oral 10

9:40 We1-G06-1 Invited oral (25 min)

### **Ø1.5" Crystal Growth of High Performance Ternary Scintillators**

M. Zhuravleva<sup>1,2</sup>\*, A. C. Lindsey<sup>1,2</sup>, L. Stand<sup>1</sup>, Y. Wu<sup>1,2</sup>,  
M. A. Koschan<sup>1</sup>, C. L. Melcher<sup>1,2</sup>

<sup>1</sup>Scintillation Materials Research Center, <sup>2</sup>Department of  
Materials Science and Engineering, University of  
Tennessee, USA

10:05 We1-G06-3 Oral (15 min)

### **Anisotropy influence of RE-doped rubidium lead chloride single crystals on optical and luminescence properties**

R. Král<sup>1</sup>\*, V. Jarý<sup>1</sup>, J. Šulc<sup>2</sup>, H. Jelínková<sup>2</sup>, M. Fibrich<sup>2</sup>,  
K. Nitsch<sup>1</sup>, A. Bystrický<sup>1</sup>, P. Zemenová<sup>1</sup>, M. Nikl<sup>1</sup>

<sup>1</sup>Institute of Physics, Czech Academy of Sciences, Czech  
Republic, <sup>2</sup>Czech Technical University in Prague, Czech  
Republic

10:20 We1-G06-4 Oral (15 min)

### **Multifunctional borates RM<sub>3</sub>(BO<sub>3</sub>)<sub>4</sub> of huntite family: Half a century of progress in crystal growth and characterization**

N. I. Leonyuk\*

Moscow State University, Russia

10:35 We1-G06-5 Oral (15 min)

### **Comparative study of crystal growth from different flux systems and spectroscopic properties of (Er,Yb):LuAl<sub>3</sub>(BO<sub>3</sub>)<sub>4</sub> laser material**

V. V. Maltsev<sup>1</sup>, N. I. Leonyuk<sup>1</sup>\*, D. A. Naprasnikov<sup>1</sup>, K.  
N. Gorbachenya<sup>2</sup>, V. E. Kisel<sup>2</sup>, A. S. Yasukevich<sup>2</sup>, N. V.  
Kuleshov<sup>2</sup>

<sup>1</sup>Department of Crystallography and Crystal Chemistry,  
Moscow State University, Russia, <sup>2</sup>Belarusian National  
Technical University, Belarus

10:50 We1-G06-6 Oral (15 min)

### **Structural, thermal, laser damage, photoconductivity, NLO and mechanical properties of AgGa<sub>0.5</sub>In<sub>0.5</sub>Se<sub>2</sub> single crystal**

P. Vijayakumar\*, P. Ramasamy

SSN College of Engineering, India

11:05 We1-G06-7 Oral (15 min)

### **Growth and Characterization of Re<sup>3+</sup>:CALGO Crystals for Ultrafast Laser Application**

Q.-Q. Hu, Z.-T. Jia\*, Y.-R. Yin, C.-M. Dong, X.-T. Tao

Shandong University, China

11:20 We1-G06-8 Oral (15 min)

### **Research on the Growth and Inclusions of 5 Inches YCOB Crystals**

X. N. Tu<sup>1,2</sup>\*, K. N. Xiong<sup>1</sup>, Y. Q. Zheng<sup>1</sup>, B. H. Jiang<sup>1,2</sup>,  
S. L. Cao<sup>1,2</sup>, E. W. Shi<sup>1</sup>

<sup>1</sup>Shanghai Institute of Ceramics, Chinese Academy of  
Sciences, China, <sup>2</sup>University of Chinese Academy of  
Sciences, China

## **We1-J01**

Growth Simulation and Practice

Room: Oral 8		
9:40	We1-J01-1	Invited oral (25 min)
<b>Enhancement of Heat Transfer in Czochralski Growth of Large Size Crystals/High Pulling Rate with a Chemical Cooling Technique</b>		
J.-L. Ding, L.-J. Liu*, W.-H. Zhao <i>Xi'an Jiaotong University, China</i>		
10:05	We1-J01-2	Oral (15 min)
<b>Fully Three Dimensional Numerical Analysis of Industrial Scale Silicon Czochralski Growth with a Transverse Magnetic Field</b>		
R. Yokoyama <sup>1</sup> *, T. Nakamura <sup>1</sup> , T. Fujiwara <sup>1</sup> , K. Hamaogi <sup>2</sup> , K. Takatani <sup>2</sup> <sup>1</sup> <i>SUMCO Corp. Japan</i> , <sup>2</sup> <i>Nippon Steel &amp; Sumitomo Metal Corp., Japan</i>		
10:20	We1-J01-3	Oral (15 min)
<b>Efficient prediction of silicon Czochralski growth under the effect of a strong transverse or ovoid magnetic field</b>		
R. Rolinsky <sup>1</sup> , N. Van den Bogaert <sup>1</sup> , F. Dupret <sup>1,2</sup> * <sup>1</sup> <i>FEMAG S. A., Louvain-la-Neuve, Belgium</i> , <sup>2</sup> <i>niversite catholique de Louvain, Belgium</i>		
10:35	We1-J01-4	Oral (15 min)
<b>The relation between interface attachment kinetics, capillarity and heat transfer and evolving Czochralski grown oxide crystal shapes</b>		
O. Weinstein <sup>1</sup> , W. Miller <sup>2</sup> , S. Brandon <sup>1</sup> * <sup>1</sup> <i>Technion, Haifa, Israel</i> , <sup>2</sup> <i>Leibniz Institute for Crystal Growth, Germany</i>		
10:50	We1-J01-5	Oral (15 min)
<b>Temperature and stress distribution during growth of <math>\beta</math>-Ga<sub>2</sub>O<sub>3</sub> single crystals by the Czochralski method: numerical calculations</b>		
K. Bottcher <sup>1</sup> , Z. Gałazka <sup>1</sup> , W. Miller <sup>1</sup> *, J. Schreuer <sup>2</sup> <sup>1</sup> <i>Leibniz Institute of Crystal Growth (IKZ), Germany</i> , <sup>2</sup> <i>Ruhr University Bochum, Germany</i>		
11:05	We1-J01-6	Oral (15 min)
<b>Strategies for feedforward and feedback control of the Vertical Gradient Freeze (VGF) crystal growth process</b>		
S. Ecklebe <sup>1</sup> *, J. Winkler <sup>1</sup> , F. Woittennek <sup>2</sup> , J. Rudolph <sup>3</sup> <sup>1</sup> <i>Dresden University of Technology, Germany</i> , <sup>2</sup> <i>UMIT - University for Health Sciences, Austria</i> , <sup>3</sup> <i>Saarland University, Germany</i>		
11:20	We1-J01-7	Oral (15 min)
<b>Investigation of Heat Transfer and Thermal Stress in Sapphire Crystal by Heat Exchanger Method Based on Different Radiation Models</b>		
W. C. Ma <sup>1,2</sup> *, L. J. Liu <sup>1</sup> <sup>1</sup> <i>Xi'an Jiaotong University, China</i> , <sup>2</sup> <i>Uonone Optoelectronics Technology Co., Ltd., China</i>		

## We1-T01

III-V Semiconductors

Room: Oral 9

9:40	We1-T01-1	Invited oral (25 min)
<b>Digital Alloy Growth of AlInAsSb for Low Noise Avalanche Photodetectors</b>		
S. R. Bank <sup>1</sup> *, S. J. Maddox <sup>1</sup> , A. K. Rockwell <sup>1</sup> , W. Sun <sup>2</sup> ,		

J. C. Campbell<sup>2</sup>

<sup>1</sup>*University of Texas, USA*, <sup>2</sup>*University of Virginia, USA*

10:05 We1-T01-2 Oral (15 min)

**Epitaxial growth and characterization of AlxIn1-xSb barrier layer for high performance MWIR InSb photodetector**

H. Park<sup>1</sup>\*, S. Park<sup>1</sup>, D.-M. Geum<sup>1</sup>, W. J. Choi<sup>2</sup>, Y. Park<sup>1,3</sup>, E. Yoon<sup>1,3</sup>

<sup>1</sup>*Dept. of Material Science and Engineering, Seoul National University, Korea*, <sup>2</sup>*Korean Institute of Science and Technology, Korea*, <sup>3</sup>*Advanced Institutes of Convergence Technology (AICT), Seoul National University, Korea*

10:20 We1-T01-3 Oral (15 min)

**Morphology of Self-Assembled InSb/GaAs Quantum Dots on Ge Substrate**

Zon<sup>1</sup>\*, T. Poempool<sup>1</sup>, S. Kiravittaya<sup>2</sup>, S. Sopotpan<sup>3</sup>, S. Thainoi<sup>1</sup>, S. Kanjanachuchai<sup>1</sup>, S. Ratanathamphan<sup>1</sup>, S. Panyakeow<sup>1</sup>

<sup>1</sup>*Chulalongkorn University, Thailand*, <sup>2</sup>*Naresuan University, Thailand*, <sup>3</sup>*National Science and Technology Development Agency (NSTDA), Thailand*

10:35 We1-T01-4 Oral (15 min)

**Bulk Crystal Growth of n-type InSbBi and Fabrication of p-n Junction by Ion Implantation**

D. Maske<sup>1</sup>\*, M. Deshpande<sup>2</sup>, D. Gadkari<sup>3</sup>, D. Devi<sup>4</sup>, B. Mohan Arora<sup>5</sup>

<sup>1</sup>*D. G. Ruparel College, India*, <sup>2</sup>*Jai Hind College, India*, <sup>3</sup>*Mithibai College, India*, <sup>4</sup>*Inter University Accelerator Centre, India*, <sup>5</sup>*I. I. T. Bombay, India*

## We1-T04

II-VI and Oxide Materials

Room: Oral 4

9:40 We1-T04-1 Invited oral (25 min)

**Growth of ZnO Nanostructures for Functional Applications**

A. Zappettini\*, D. Calestani, M. Villani, L. Lazzarini, M. Culiolo, D. Delmonte and N. Coppedè

*IMEM-CNR, Italy*

10:05 We1-T04-2 Invited oral (25 min)

**Growth of CdZnTe for detector applications**

E. Diéguez\*

*Universidad Autónoma de Madrid, Spain*

10:30 We1-T04-3 Oral (15 min)

**Experimental and Numerical Study on Growth of High-Quality ZnO Single-Crystal Microtubes by Optical Vapor Supersaturated Precipitation Method**

Q. Wang\*, Y.-Z. Yan, Y. Zeng, Y.-J. Jiang

*Beijing University of Technology, China*

10:45 We1-T04-4 Oral (15 min)

**Floating-Zone crystallization of oxides under elevated oxygen pressure**

K. Conder\*, E. Pomjakushina

*Paul Scherrer Institute, Switzerland*

11:00 We1-T04-5 Oral (15 min)

**Hydrothermal Growth and Characterization of ZnO:Sc Single Crystals**

J.-L. Wang\*, M.-D. Ren, Y.-B. Zuo

China Nonferrous Metal (Guilin) Geology and Mining Co., Ltd., China

11:15 We1-T04-6 Oral (15 min)

**Study on migration of Te inclusions under traveling cycle annealing in CdZnTe crystals**

N. Jia<sup>1</sup>\*, Y. Xu<sup>1,2</sup>, W. Jie<sup>1</sup>, Y. Gu<sup>1</sup>, X. Fu<sup>1</sup>

<sup>1</sup>Northwestern Polytechnical University, China, <sup>2</sup>Nanjing University, China

11:30 We1-T04-7 Oral (15 min)

**Behaviors of Te precipitates in CdZnTe radiation detector materials grown by Modified Vertical Bridgman**

J. Wanqi\*, Z. Gangqiang, W. Tao, X. Yadong, X. Lingyan

Northwestern Polytechnical University, China

## We1-T06

Materials for Optical Devices

Room: Oral 7

9:40 We1-T06-1 Invited oral (25 min)

**Growth and Properties of Mid-infrared Nonlinear Optical Crystals**

S.-P Wang<sup>1,2</sup>\*, N. Jia<sup>1</sup>, J. Qiao<sup>1</sup>, C.-L. Li<sup>1</sup>, X.-T. Tao<sup>1,2</sup>

<sup>1</sup>State Key Laboratory of Crystal Materials, <sup>2</sup>Key Laboratory of Functional Crystal Materials and Device, Shandong University, Ministry of Education, China

10:05 We1-T06-3 Oral (15 min)

**LiGaGe<sub>2</sub>S<sub>6</sub>: A New Mid-IR Nonlinear Optical Material With a Large Band Gap and Congruent-melting Property**

D.-J. Mei<sup>1</sup>\*, S.-Y. Zhang<sup>1</sup>, F. Liang<sup>2</sup>, Y.-D. Wu<sup>1</sup>, Z.-S. Lin<sup>2</sup>

<sup>1</sup>Shanghai University of Engineering Science, China, <sup>2</sup>Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China

10:20 We1-T06-4 Oral (15 min)

**Single and double-element doped GaSe for nonlinear applications**

K. Kokh<sup>1,2,3</sup>\*, Yu. Andreev<sup>3,4,5</sup>, V. Svetlichnyi<sup>3,5</sup>, A. Kokh<sup>1</sup>

<sup>1</sup>Institute of Geology and Mineralogy SB RAS, Russia, <sup>2</sup>Novosibirsk State University, Russia, <sup>3</sup>High Current Electronics Institute SB RAS, Russia, <sup>4</sup>Institute of Monitoring of Climatic and Ecological Systems SB RAS, Russia, <sup>5</sup>Siberian Physical-Technical Institute of Tomsk State University, Russia

10:35 We1-T06-5 Oral (15 min)

**Liquid Phase Growth of Stoichiometry controlled GaSe Crystals for highly efficient THz generation**

Y. Sato\*, K. Suzuki, K. Maeda and Y. Oyama

Tohoku University, Japan

10:50 We1-T06-6 Oral (15 min)

**Two-temperature synthesis of non-linear optical material CdGeAs<sub>2</sub>**

C.-Q. Zhu<sup>1</sup>, G. Alex Verozubova<sup>2</sup>\*, Y. P. Mironov<sup>3</sup>, A. Yu. Trofimov<sup>2</sup>, A. I. Chernishev<sup>4</sup>, Z.-T. Lei<sup>1</sup>, L.-C. Song<sup>1</sup>, T.-H. Ma<sup>1</sup>, C.-H. Yang<sup>1</sup>

<sup>1</sup>Harbin Institute of Technology, China, <sup>2</sup>Institute of Monitoring of Climatic and Ecological System SB RAS,

Russia, <sup>3</sup>Institute of Strength Physics and Material Science SB RAS, Russia, <sup>4</sup>Tomsk State University, Russia

11:05 We1-T06-7 Oral (15 min)

**New LiGaTe<sub>2</sub> crystal thermal data**

S. Grazhdannikov<sup>1</sup>\*, A. Kurus<sup>1,2</sup>, L. Isaenko<sup>1,3</sup>, P. Krinitsyn<sup>1</sup>, V. Drebuschak<sup>1</sup>

<sup>1</sup>V. S. Sobolev Institute of Geology and Mineralogy, Russia, <sup>2</sup>Nikolaev Institute of Inorganic Chemistry, Russia, <sup>3</sup>Novosibirsk State University, Russia

## We1-T09

Nitride Semiconductors

Room: Oral 1

9:40 We1-T09-1 Invited oral (25 min)

**Point Defect Management in Bulk AlN and AlGaN Epitaxial Films**

R. Collazo<sup>1</sup>\*, I. Bryan<sup>1</sup>, Z. Bryan<sup>1</sup>, D. Alden<sup>1</sup>, S. Mita<sup>2</sup>, B. E. Gaddy<sup>1</sup>, J. Tweedie<sup>2</sup>, A. Franke<sup>1</sup>, R. Kirste<sup>1,2</sup>, T. Kinoshita<sup>3</sup>, Y. Kumagai<sup>4</sup>, A. Koukitu<sup>4</sup>, D. L. Irving<sup>1</sup>, Z. Sitar<sup>1</sup>

<sup>1</sup>North Carolina State University, USA, <sup>2</sup>Adroit Materials, Cary, USA, <sup>3</sup>Tokuyama Corporation, Japan, <sup>4</sup>Tokyo University of Agriculture and Technology, Japan

10:05 We1-T09-2 Invited oral (25 min)

**Growth of AlN substrates by hydride vapor phase epitaxy for opto-electronic devices.**

T. Kinoshita<sup>1</sup>\*, T. Nagashima<sup>1</sup>, T. Obata<sup>1</sup>, R. Togashi<sup>2</sup>, Y. Kumagai<sup>2</sup>, R. Schlessler<sup>3</sup>, R. Collazo<sup>4</sup>, A. Koukitu<sup>2</sup>, Z. Sitar<sup>4</sup>

<sup>1</sup>Tokuyama Corporation, Japan, <sup>2</sup>Tokyo University of Agriculture and Technology, Japan, <sup>3</sup>HexaTech, Inc., USA, <sup>4</sup>North Carolina State University, USA

10:30 We1-T09-3 Oral (15 min)

**Ab initio Calculations of Adsorption of Nitrogen and Aluminum at AlN(0001) Surface**

P. Strak\*, P. Kempisty, K. Sakowski, S. Krukowski

Institute of High Pressure Physics, PAS, Poland

10:45 We1-T09-4 Oral (15 min)

**Polarity inversion at very initial stage of AlN homoepitaxial growth by sublimation method**

K. Shigetoh\*, K. Horibuchi, D. Nakamura

Toyota Central R&D Labs., Japan

11:00 We1-T09-5 Oral (15 min)

**Dislocation evolution and stress management in AlN grown on patterned substrates**

F. Mercier<sup>1,2</sup>\*, M. Chubarov<sup>1,2</sup>, J. Su<sup>3</sup>, E. Blanquet<sup>1,2</sup>, S. Lay<sup>1,2</sup>, M. Pons<sup>1,2</sup>, R. Boichot<sup>1,2</sup>

<sup>1</sup>SIMaP, University of Grenoble Alps, France, <sup>2</sup>SIMaP, CNRS, France, <sup>3</sup>Xi'an Jiaotong University, China

11:15 We1-T09-6 Oral (15 min)

**Observation of AlGaN/GaN heterostructure by in situ XRD attached metalorganic vapor phase epitaxial equipment**

J. Osumi<sup>1</sup>\*, R. Kanayama<sup>1</sup>, M. Iwaya<sup>1</sup>, T. Takeuchi<sup>1</sup>, S. Kamiyama<sup>1</sup>, I. Akasaki<sup>2</sup>

<sup>1</sup>Meijo Univ., Japan, <sup>2</sup>Akasaka Research Center, Nagoya Univ., Japan

11:30 We1-T09-7 Oral (15 min)

**Threading dislocations as leakage current paths**

**through AlGaN/GaN heterostructures**

J. Friedrich<sup>1\*</sup>, S. Besendörfer<sup>2</sup>, E. Meissner<sup>1</sup>, A. Lesnik<sup>3</sup>,  
L. Frey<sup>2</sup>

<sup>1</sup>Fraunhofer IISB, Germany, <sup>2</sup>FAU Erlangen-Nürnberg,  
Germany, <sup>3</sup>Otto-von-Guericke-Universität Magdeburg,  
Germany

**Excursion**

Wednesday afternoon, 10 August, 12:00

1. Ise Jingu,
2. Toyota Automobile Museum,
3. Atsuta Shrine & Nagoya Asahi Brewery Tour,
4. Port of Nagoya Public Aquarium & SCMAGLEV  
and Railway Park.

# Thursday, 11 August

## Plenary 6

Thursday morning, 11 August, 8:30  
Shirotori Hall

8:30 Plenary Lecture (40 min)

### A dynamic view of nanostructure growth

Frances M. Ross\*

IBM T. J. Watson Research Center, USA

## Coffee break

Thursday morning, 11 August, 9:10  
Event Hall, Shirotori Hall

## Session Th1

Thursday morning, 11 August, 9:40

G01, G03, G05, G06, G09, T01, T02, T03, T04, T06

## Th1-G01

*Fundamentals of Nucleation and Crystal Growth*

Room: Oral 6

9:40 Th1-G01-1 Invited oral (25 min)

### In Situ Observation of Ice Crystal Surfaces by Advanced Optical Microscopy

G. Sazaki<sup>1</sup>\*, H. Asakawa<sup>1,2</sup>, K. Murata<sup>1</sup>, K. Nagashima<sup>1</sup>, S. Nakatsubo<sup>1</sup>, Y. Furukawa<sup>1</sup>

<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Present Address: National Institute of Technology, Anan College, Japan

10:05 Th1-G01-2 Oral (15 min)

### Direct observation of Surface Melting on Rough Ice Crystal Surfaces

H. Asakawa<sup>1</sup>\*, G. Sazaki<sup>2</sup>, K. Murata<sup>2</sup>, K. Nagashima<sup>2</sup>, S. Nakatsubo<sup>2</sup>, Y. Furukawa<sup>2</sup>

<sup>1</sup>Yamaguchi University, Japan, <sup>2</sup>Hokkaido University, Japan

10:20 Th1-G01-3 Oral (15 min)

### A simple physical model of surface melting on ice crystals

K. Murata<sup>1</sup>\*, H. Asakawa<sup>1,2</sup>, K. Nagashima<sup>1</sup>, Y. Furukawa<sup>1</sup>, G. Sazaki<sup>1</sup>

<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>Present Address: National Institute of Technology, Anan College, Japan

10:35 Th1-G01-4 Oral (15 min)

### Ice growth and interface oscillation of water droplets impinged on a cooling surface

Y. Hagiwara<sup>1</sup>\*, R. Kimura<sup>2</sup>, S. Ishikawa<sup>2</sup>, K. Fukushima<sup>2</sup>

<sup>1</sup>Faculty of Mech. Eng., <sup>2</sup>Department of Mech. and System Eng., Kyoto Institute of Technology, Japan

10:50 Th1-G01-5 Oral (15 min)

### In situ second-harmonic scattering: a new technique to simultaneously probe symmetry and size during crystal growth

S. Van Cleuvenbergen<sup>1</sup>\*, Z. J. Smith<sup>2</sup>, S.

Wachsmann-Hogiu<sup>3</sup>, T. Verbiest<sup>1</sup>, M. A. van der Veen<sup>4</sup>

<sup>1</sup>KU Leuven, Belgium, <sup>2</sup>University of Science and Technology of China, China, <sup>3</sup>UC Davis, USA, <sup>4</sup>TU Delft,

the Netherlands

11:05 Th1-G01-6 Oral (15 min)

### Peculiar Growth Kinetic of ADP crystal at very small supersaturations.

H. V. Alexandru\*

University of Bucharest/Academy of Romanian Scientists, Romania

11:20 Th1-G01-7 Oral (15 min)

### Surface Free Energy and Morphology of Negative Crystal in Sapphire Single Crystal

T. Suzuki\*, K. Shiotsuki, T. Taishi, and K. Hoshikawa

Shinshu University, Japan

## Th1-G03

*Nanomaterials and Low Dimensional Structures, Nanostructure - Fundamentals and Applications*

Room: Oral 2

9:40 Th1-G03-1 Invited oral (25 min)

### Modeling the kinetics and statistics of III-V nanowire growth

F. Glas\*, G. Priante, F. Oehler, K. Pantzas, G. Patriarche, J.-C. Harmand

CNRS, Université Paris Saclay, France

10:05 Th1-G03-2 Oral (15 min)

### Size and morphology controlled synthesis of silver sulfide nanostructures by multi-solvent thermal decomposition method

I. K. Mohamed Mathar Sahib<sup>1</sup>\*, D. Thangaraju<sup>2</sup>, Y. Masuda<sup>1</sup>, W. Inami<sup>1,2</sup>, Y. Kawata<sup>1,2</sup>, Y. Hayakawa<sup>1,2</sup>

<sup>1</sup>GSST, <sup>2</sup>RIE, Shizuoka University, Japan

10:20 Th1-G03-3 Oral (15 min)

### Polymorphism and Ambient-condition Growth of Metastable Single-crystalline KDP Microstructures

Y. Ren<sup>1</sup>\*, L. Deng<sup>2</sup>, C. Q. Zhang<sup>1</sup>, X. T. Tao<sup>1</sup>

<sup>1</sup>Shandong University, China, <sup>2</sup>National Institute of Standards and Technology, USA

10:35 Th1-G03-4 Oral (15 min)

### Dominant Role of Diffusion and Reaction on Nucleation and Shape Development of Particles

Y.-S. Han, T. Yang, J.-M. Liu, W. Liu, J.-H. Li

Institute of Process Engineering, Chinese Academy of Sciences, China

10:50 Th1-G03-5 Oral (15 min)

### 3D nanoscale energetic Metal-Organic Frameworks: crystal structures, thermostability, insensitivity and high-energy performances

D. Chen\*, D. Jing, X. He, Q. Zhang

Institute of Chemical Materials, China Academy of Engineering Physics, China

11:05 Th1-G03-6 Oral (15 min)

### Comparitive study on Ga1-xZnxN1-xOx oxynitride solid solution synthesized by different techniques and its application in photocatalytic hydrogen production

S. Sivadas Menon<sup>1</sup>\*, K. Baskar<sup>1,2</sup>, S. Singh<sup>1</sup>

<sup>1</sup>Anna University, India, <sup>2</sup>Manonmaniam Sundaranar University, India

11:20 Th1-G03-7 Oral (15 min)

### Formation and thermal conversion of 3Mg(OH)<sub>2</sub>·MgCl<sub>2</sub>·8H<sub>2</sub>O nanowires

L. Xiang\*  
Tsinghua University, China

## Th1-G05

Organic and Biological Crystallization

Room: Oral 3

9:40 Th1-G05-1 Invited oral (25 min)

### Nano Crystal Fishnets (Networks) Making Spider Silk Fibers Tougher

X. Y. Liu\*

National University of Singapore, Singapore/Xiamen University, China

10:05 Th1-G05-2 Oral (15 min)

### Nanocrystals of PbS, CdS, and HgS grown in four species of *Candida* and its characterization

M. Cuéllar-Cruz<sup>1</sup>\*, A. Moreno<sup>2</sup>

<sup>1</sup>Universidad de Guanajuato, México, <sup>2</sup>Universidad Nacional Autónoma de México, México

10:20 Th1-G05-3 Oral (15 min)

### Growth of acetaminophen form II by using solvent-mediated phase transformation

Yo. Mori<sup>1</sup>\*, M. Maruyama<sup>1</sup>, Y. Takahashi<sup>1,2</sup>, H.

Yoshikawa<sup>1,3</sup>, S. Okada<sup>2</sup>, H. Adachi<sup>1,2</sup>, S. Sugiyama<sup>4</sup>, K. Takano<sup>2,5</sup>, S. Murakami<sup>2,6</sup>, H. Matsumura<sup>2,7</sup>, T. Inoue<sup>1,2</sup>, K. Tsukamoto<sup>1,8</sup>, M. Yoshimura<sup>1</sup>, Yu. Mori<sup>1,2</sup>

<sup>1</sup>Graduate School of Engineering, Osaka University, Japan, <sup>2</sup>SOSHO Inc., Japan, <sup>3</sup>Saitama University, Japan, <sup>4</sup>Graduate School of Science, Osaka University, Japan, <sup>5</sup>Kyoto Prefectural University, Japan, <sup>6</sup>Tokyo Institute of Technology, Japan, <sup>7</sup>Ritsumeikan University, Japan, <sup>8</sup>Tohoku University, Japan

10:35 Th1-G05-4 Oral (15 min)

### Polymorphism of PAHs by application of magnetic fields

J. Potticary<sup>1,2</sup>\*, L. R. Terry<sup>1</sup>, C. Bell<sup>2</sup>, A. M. Collins<sup>1,2</sup>, C. Fontanesi<sup>3,4</sup>, G. Kockiok-Köhn<sup>4</sup>, S. Crampin<sup>4</sup>, E. Da Como<sup>4</sup>, S. R. Hall<sup>1</sup>

<sup>1</sup>Univertisy of Bristol/Chemistry, UK, <sup>2</sup>Univertisy of Bristol/Physics, UK, <sup>3</sup>Universita' di Modena e Reggio Emilia, Italy, <sup>4</sup>University of Bath/Physics, UK

10:50 Th1-G05-5 Oral (15 min)

### Spontaneous Formation of Eutectic Crystal Structures in Binary and Ternary Charged Colloids due to Depletion Attraction

A. Toyotama\*, T. Okuzono, J. Yamanaka

Nagoya City Univ., Japan

11:05 Th1-G05-6 Oral (15 min)

### Controlled crystallization of colloidal particles due to tuning of surface charge by adsorption of ionic surfactant

J. Yamanaka\*, A. Toyotama, T. Okuzono

Nagoya City Univ., Japan

## Th1-G06

Bulk Crystal Growth

Room: Oral 10

9:40 Th1-G06-1 Invited oral (25 min)

### Growth of SrTiO<sub>3</sub> bulk crystals by the EFG and TSSG methods

C. Guguschev\*, Z. Galazka, D. Kok, U. Juda, R. Uecker, M. Bickermann

Leibniz Institute for Crystal Growth, Germany

10:05 Th1-G06-2 Oral (15 min)

### A further development of the CZ weighing control for semiconductor and oxide crystals

P. V. Kasimkin<sup>1</sup>\*, V. A. Moskovskikh<sup>1</sup>, Ya. V. Vasiliev<sup>2</sup>, V. N. Shlegel<sup>2</sup>, V. N. Zhdankon<sup>3</sup>, O. I. Podkopaev<sup>4</sup>

<sup>1</sup>Novosibirsk State Technical University, Russia, <sup>2</sup>Nikolaev Institute of Inorganic Chemistry SB RAS, Russia, <sup>3</sup>CML Ltd., Russia, <sup>4</sup>OJSC Germanium, Russia

10:20 Th1-G06-3 Oral (15 min)

### Modeling convective effects on crystal-melt interface shape in edge-defined film-fed growth of sapphire rods and ribbons

C. Stelian<sup>1,2</sup>\*, N. Barthalay<sup>2</sup>, T. Duffar<sup>1</sup>

<sup>1</sup>SIMAP-EPM, France, <sup>2</sup>Le Rubis SA, France

10:35 Th1-G06-4 Oral (15 min)

### Growth of $\beta$ -Ga<sub>2</sub>O<sub>3</sub> Single Crystal by EFG Method

Z.-T. Jia<sup>1,2</sup>\*, W.-X. Mu<sup>1</sup>, Y.-R. Yin<sup>1</sup>, X.-T. Tao<sup>1</sup>

<sup>1</sup>Shandong University, China, <sup>2</sup>Sun Yat-sen University, China

10:50 Th1-G06-5 Oral (15 min)

### Investigation on primary phases in potassium tantalate niobate (KTa<sub>x</sub>Nb<sub>1-x</sub>O<sub>3</sub>: KTN) crystal growth in directional solidification

T. Taishi<sup>1</sup>\*, K. Ito<sup>1</sup>, K. Hosokawa<sup>1</sup>, K. Hoshikawa<sup>1</sup>, T. Kojima<sup>2</sup>, T. i Komatsu<sup>3</sup>

<sup>1</sup>Shinshu University, Japan, <sup>2</sup>Oxide Corporation, Japan, <sup>3</sup>NTT Advanced Technology Corporation, Japan

11:05 Th1-G06-6 Oral (15 min)

### Crystal growth and properties of spinel Co<sub>2</sub>TiO<sub>4</sub> by the floating zone melting with light heating.

A. M. Balbashov<sup>1</sup>\*, M. E. Voronchikhina<sup>1</sup>, A. A. Mukhin<sup>2</sup>, V. Yu. Ivanov<sup>2</sup>, L. D. Iskhakova<sup>3</sup>

<sup>1</sup>Moscow power Engineering Institute, <sup>2</sup>Institute of General Physics of RAS, <sup>3</sup>National center of fiber optics of RAS, Russia

## Th1-G09

In situ Observation and Characterization

Room: Oral 1

9:40 Th1-G09-1 Invited oral (25 min)

### Structure of solid-liquid interfaces: GaN-Ga & mica-electrolyte

E. Vlieg<sup>1</sup>\*, A. E. F. de Jong<sup>1,2</sup>, S. Pinte<sup>1</sup>, W. de Poel<sup>1</sup>, V. Honkimäki<sup>2</sup>, R. Felici<sup>2</sup>, V. Vonk<sup>3</sup>, M. Bockowski<sup>4</sup>, I. Grzegory<sup>4</sup>

<sup>1</sup>Radboud University, The Netherlands, <sup>2</sup>ESRF, France, <sup>3</sup>DESY, Germany, <sup>4</sup>Institute of High Pressure Physics, PAS, Poland

10:05 Th1-G09-2 Invited oral (25 min)

### In situ diagnostics of melting/solidification and segregation during crystal growth provided by energy resolved neutron imaging

A. S. Tremsin<sup>1</sup>\*, D. Perrodin<sup>2</sup>, A. Losko<sup>3</sup>, S. Vogel<sup>3</sup>, M. Bourke<sup>3</sup>, G. Bizarri<sup>2</sup>, E. Bourret<sup>2</sup>, J. J. Derby<sup>4</sup>

<sup>1</sup>University of California at Berkeley, USA, <sup>2</sup>Lawrence Berkeley National Laboratory, USA, <sup>3</sup>Los Alamos

National Laboratory, USA, <sup>4</sup>University of Minnesota, USA

10:30 Th1-G09-3 Oral (15 min)  
**Microstructural investigations of SrTiO<sub>3</sub> single crystals and multicrystalline silicon using a powerful new X-ray diffraction surface mapping technique**  
 C. Guguschev<sup>1</sup>\*, R. Tagle<sup>2</sup>, U. Juda<sup>1</sup>, A. Kwasniewski<sup>1</sup>, T. Ervik<sup>1</sup>, R. Uecker<sup>1</sup>, S. Kayser<sup>1</sup>, F. M. Kießling<sup>1</sup>, M. Bickermann<sup>1</sup>

<sup>1</sup>Leibniz Institute for Crystal Growth, Germany, <sup>2</sup>Bruker Nano GmbH, Germany

10:45 Th1-G09-4 Oral (15 min)  
**Ultra High Speed In-Situ Characterisation of Defects in Single Crystals**

A. N. Danilewsky<sup>1</sup>\*, A. Rack<sup>2</sup>, M. Scheel<sup>3</sup>  
<sup>1</sup>Albert-Ludwigs-Universität, Germany, <sup>2</sup>European Synchrotron Radiation Facility, France, <sup>3</sup>Synchrotron Soleil, France

11:00 Th1-G09-5 Oral (15 min)  
**Synchrotron X-ray diffraction imaging to study dislocations in Ti doped sapphire crystal grown by Kyropoulos method**

G. Sen<sup>1</sup>\*, J. Baruchel<sup>2</sup>, T. N. Tran Caliste<sup>2</sup>, N. Barthalay<sup>3</sup>, C. Pezzani<sup>3</sup>, T. Duffar<sup>1</sup>  
<sup>1</sup>SIMAP-EPM, France, <sup>2</sup>ESRF, France, <sup>3</sup>RSA le rubis SA, France

11:15 Th1-G09-6 Oral (15 min)  
**New Directions in In Situ X-Ray Studies of Vapor Phase Crystal Growth**

P. H. Fuoss<sup>1</sup>, G.-X. Ju<sup>1</sup>, M. J. Highland<sup>1</sup>, H. Zhou<sup>2</sup>, A. Yanguas-Gil<sup>3</sup>, C. Thompson<sup>4</sup>\*, D.-W. Xu<sup>1</sup>, P. Zapol<sup>1</sup>, J. A. Eastman<sup>1</sup>, G. Brian Stephenson<sup>1</sup>  
<sup>1</sup>Materials Science Division, <sup>2</sup>X-Ray Science Division, <sup>3</sup>Energy Systems Division, Argonne National Laboratory, USA, <sup>4</sup>Northern Illinois University, USA

11:30 Th1-G09-7 Oral (15 min)  
**Spin-Lattice Coupling and Phonon Softening in BiFeO<sub>3</sub> Crystal**  
 C.-S. Tu<sup>1</sup>\*, C.-S. Chen<sup>2</sup>, P.-Y. Chen<sup>3</sup>  
<sup>1</sup>Fu Jen Catholic University, Taiwan, <sup>2</sup>Hwa Hsia Univ. of Tech., Taiwan, <sup>3</sup>Ming Chi Univ. of Tech., Taiwan

## Th1-T01

III-V Semiconductors

Room: Oral 9

9:40 Th1-T01-1 Oral (15 min)  
**Analysis of complex dislocation in GaN layer grown on 4 inch Si(111) with AlGa<sub>0.2</sub>N/AlN strained layer superlattice after epitaxial growth**

Y. Sugawara<sup>1</sup>, Y. Ishikawa<sup>1</sup>\*, A. Watanabe<sup>2</sup>, M. Miyoshi<sup>2,3</sup>, T. Egawa<sup>2,3</sup>  
<sup>1</sup>Japan Fine Ceramics Center, Japan, <sup>2</sup>Nagoya Institute of Technology, Japan, <sup>3</sup>Innovation center for Multi-Business of Nitride Semiconductors, Japan

10:05 Th1-T01-2 Oral (15 min)  
**Control of the growth plane of semipolar GaN on Si (001) by adjusting the direction of sputtered AlN buffer layer**

H. J. Lee<sup>1</sup>\*, S. Y. Bae<sup>1</sup>, K. Lekhal<sup>1</sup>, T. Suzuki<sup>1</sup>, M. Deki<sup>2</sup>,

Y. Honda<sup>2</sup>, H. Amano<sup>2,3</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Center for Integrated Research of Future Electronics, <sup>3</sup>Akasaki Research Center, Nagoya University, Japan

10:20 Th1-T01-3 Oral (15 min)  
**Reduction of leakage current density in homoepitaxial m-plane GaN by controlling V/III ratios for high-power device applications**

O. I Barry<sup>1</sup>\*, A. Tanaka<sup>1</sup>, K. Nagamatsu<sup>1</sup>, S.-Y. Bae<sup>1</sup>, K. Lekhal<sup>1,2</sup>, M. Deki<sup>2</sup>, S. Nitta<sup>2</sup>, Y. Honda<sup>2</sup>, H. Amano<sup>2,3</sup>  
<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Institute of Materials and Systems for Sustainability, <sup>3</sup>Akasaki Research Center, Nagoya University, Japan

10:35 Th1-T01-4 Oral (15 min)  
**Fabrication of crack-free freestanding GaN substrates by dissolution of sapphire substrates using Li after the Na-flux growth**

T. Yamada\*, M. Imanishi, K. Nakamura, K. Murakami, H. Imabayashi, D. Matsuo, M. Honjo, M. Maruyama, M. Imade, M. Yoshimura, Y. Mori  
 Osaka University, Japan

10:50 Th1-T01-5 Oral (15 min)  
**Suppression of V-shape Valley Formation at the Coalescence Boundary in 4-inch GaN Crystals Grown from Multiple HVPE Wafers by the Na-flux Growth**

M. Imanishi<sup>1</sup>\*, K. Murakami<sup>1</sup>, M. Honjo<sup>1</sup>, H. Imabayashi<sup>1</sup>, D. Matsuo<sup>1</sup>, M. Maruyama<sup>1</sup>, M. Imade<sup>1</sup>, M. Yoshimura<sup>1</sup>, T. Yoshida<sup>2</sup>, T. Kitamura<sup>2</sup>, M. Shibata<sup>2</sup>, Y. Mori<sup>1</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>SCIOCS, Japan

11:05 Th1-T01-6 Oral (15 min)  
**High Quality Bulk GaN Crystal Grown by Acidic Ammonothermal Method**

M. Saito<sup>1,2</sup>\*, Q. Bao<sup>1,3</sup>, K. Kurimoto<sup>1,3</sup>, D. Tomida<sup>1</sup>, K. Kojima<sup>1</sup>, Y. Kagamitani<sup>2</sup>, R. Kayano<sup>3</sup>, T. Ishiguro<sup>1</sup>, S. F. Chichibu<sup>1</sup>  
<sup>1</sup>IMRAM-Tohoku Univ., Japan, <sup>2</sup>Mitsubishi Chemical Corp., Japan, <sup>3</sup>The Japan Steel Works, Japan

11:20 Th1-T01-7 Oral (15 min)  
**Low resistive GaInN tunnel junctions with high Si concentrations**

Y. Akatsuka<sup>1</sup>\*, D. Takasuka<sup>1</sup>, M. Ino<sup>1</sup>, T. Akagi<sup>1</sup>, T. Takeuchi<sup>1</sup>, M. Iwaya<sup>1</sup>, S. Kamiyama<sup>1</sup>, I. Akasaki<sup>1,2</sup>  
<sup>1</sup>Meijo Univ., Japan, <sup>2</sup>Akasaki Research Center, Nagoya Univ., Japan

## Th1-T02

Group IV Semiconductors

Room: Oral 8

9:40 Th1-T02-1 Invited oral (25 min)  
**Group-IV two-dimensional materials beyond graphene**

Y. Yamada-Takamura\*  
 Japan Advanced Institute of Science and Technology (JAIST), Japan

10:05 Th1-T02-2 Invited oral (25 min)  
**Reactive Gas Source Epitaxy of Group IV Alloys for**

<b>Si based Photonics</b>		
D. Grützmacher <sup>1*</sup> , N. von den Driesch <sup>1</sup> , S. Wirths <sup>1</sup> , D. Stange <sup>1</sup> , S. Mantl <sup>1</sup> , D. M. Buca <sup>1</sup> , J. M. Hartmann <sup>2</sup> , R. Geiger <sup>3</sup> , H. Sigg <sup>3</sup> , Z. Ikonik <sup>4</sup>		
<sup>1</sup> PGI-9 and Jülich Aachen Research Alliance on Fundamentals of Future Information Technology (JARA-FIT), Germany, <sup>2</sup> CEA, LETI, MINATEC Campus, France, <sup>3</sup> Paul Scherrer Institute, Switzerland, <sup>4</sup> University of Leeds, UK		
10:30	Th1-T02-3	Oral (15 min)
<b>Growth and selective n-type doping of GeSi/Ge(001) structures</b>		
A. V. Novikov*, D. V. Yurasov, M. V. Shaleev, P. A. Yunin, M. N. Drozdov		
Institute for Physics of Microstructures RAS, Russia		
10:45	Th1-T02-4	Oral (15 min)
<b>Role of H<sub>2</sub> Supply for Sn Incorporations in MOCVD Ge<sub>1-x</sub>Sn<sub>x</sub> Epitaxial Growth</b>		
K. Suda <sup>1*</sup> , N. Sawamoto <sup>1</sup> , H. Machida <sup>2</sup> , M. Ishikawa <sup>2</sup> , H. Sudoh <sup>2</sup> , Y. Ohshita <sup>3</sup> , I. Hirose <sup>4</sup> , A. Ogura <sup>1</sup>		
<sup>1</sup> Meiji University, Japan, <sup>2</sup> Gas-phase Growth Ltd., Japan, <sup>3</sup> Toyota Technological Institute, Japan, <sup>4</sup> Japan Synchrotron Radiation Research Institute, Japan		
11:00	Th1-T02-5	Oral (15 min)
<b>Fabrication of uniaxially strained Ge by selective ion implantation technique</b>		
S. Konoshima*, E. Yonekura, K. Sawano		
Tokyo City University, Japan		
11:15	Th1-T02-6	Oral (15 min)
<b>Study on ion implantation conditions in fabricating compressively strained Si/relaxed Si<sub>1-x</sub>C<sub>x</sub> heterostructures using the defect control by ion implantation technique</b>		
Y. Arisawa <sup>1*</sup> , K. Sawano <sup>2</sup> , N. Usami <sup>1</sup>		
<sup>1</sup> Nagoya University, Japan, <sup>2</sup> Tokyo City University, Japan		
11:30	Th1-T02-7	Oral (15 min)
<b>Melt Growth of Thermoelectric Grade Mg<sub>2</sub>Si in Atmosphere</b>		
H. Udono*, H. Okazaki		
Ibaraki University, Japan		
<b>Th1-T03</b>		
2D Materials		
Room: Oral 5		
9:40	Th1-T03-1	Invited oral (25 min)
<b>Liquid -phase growth of high -quality graphene from silicon carbide on silicon through a catalytic alloy</b>		
F. Iacopi <sup>1*</sup> , N. Mishra <sup>1</sup> , R. T. Jones <sup>2</sup> , P. J. Pigram <sup>2</sup> , A. Tadich <sup>3</sup> , J. Boeckl <sup>4</sup>		
<sup>1</sup> Griffith University, Australia, <sup>2</sup> La Trobe University, Australia, <sup>3</sup> Australian Synchrotron, Australia, <sup>4</sup> Air Force Research Laboratories, USA		
10:05	Th1-T03-2	Invited oral (25 min)
<b>Structural analysis of heterostructures of 2D materials by low-energy electron microscopy and diffraction</b>		
H. Hibino <sup>1,2*</sup>		
<sup>1</sup> Kwansei Gakuin University, Japan, <sup>2</sup> NTT Basic Research Laboratories, NTT Corporation, Japan		
10:30	Th1-T03-3	Oral (15 min)
<b>Epitaxial Growth of Graphene by Chemical Vapor Deposition on Ir(111)/α-Al<sub>2</sub>O<sub>3</sub>(0001)</b>		
S. Koh*, Y. Saito, H. Kodama and A. Sawabe		
Aoyama Gakuin University, Japan		
10:45	Th1-T03-4	Oral (15 min)
<b>Improvement of crystalline quality of directly grown multilayer graphene by precipitation method using crystallized Ni catalyst</b>		
J. Yamada <sup>1*</sup> , Y. Ueda <sup>1</sup> , T. Maruyama <sup>2</sup> , S. Naritsuka <sup>1</sup>		
<sup>1</sup> Department of Materials Science and Engineering, <sup>2</sup> Department of Applied Chemistry, Meijo University, Japan		
11:00	Th1-T03-5	Oral (15 min)
<b>Influence of growth temperature on nucleation during non-catalytic CVD of graphene on sapphire substrate</b>		
Y. Ueda <sup>1*</sup> , J. Yamada <sup>1</sup> , T. Maruyama <sup>2</sup> , S. Naritsuka <sup>1</sup>		
<sup>1</sup> Department of Materials Science and Engineering, <sup>2</sup> Department of Applied Chemistry, Meijo University, Japan		
11:15	Th1-T03-6	Oral (15 min)
<b>Anisotropic growth of graphene on cleaved SiC(1-100) surfaces</b>		
T. Takasaki, A. Shioji, T. Kajiwara, A. Visikovskiy, and S. Tanaka*		
Kyushu University, Japan		
<b>Th1-T04</b>		
II-VI and Oxide Materials		
Room: Oral 4		
9:40	Th1-T04-1	Invited oral (25 min)
<b>Ferroelectric oxide energy technologies</b>		
B. Vilquin*		
Université de Lyon, France		
10:05	Th1-T04-2	Invited oral (25 min)
<b>Defect formation at solution crystal growth: new vision</b>		
A. E. Voloshin*, E. B. Rudneva, V. L. Manomenova		
Shubnikov Institute of Crystallography of RAS, Russia		
10:30	Th1-T04-3	Oral (15 min)
<b>Properties of ε-Ga<sub>2</sub>O<sub>3</sub> films grown by MOVPE</b>		
M. Pavesi <sup>1,2</sup> , F. Fabbri <sup>2,3</sup> , F. Boschi <sup>1,2</sup> , A. Baraldi <sup>1</sup> , C. Ferrari <sup>2</sup> , E. Buffagni <sup>2</sup> , M. Bosi <sup>2</sup> , G. Piacentini <sup>1</sup> , E. Gombia <sup>2</sup> , A. Parisini <sup>1,2</sup> , R. Fornari <sup>1,2*</sup>		
<sup>1</sup> Parma University, Italy, <sup>2</sup> IMEM-CNR Institute, Italy, <sup>3</sup> Key Enabling Technology Laboratory, Italy		
10:45	Th1-T04-4	Oral (15 min)
<b>Observation of Etch Pits on the (010) Surface of β-Ga<sub>2</sub>O<sub>3</sub> Single Crystals</b>		
M. Kasu <sup>1*</sup> , K. Hanada <sup>1</sup> , T. Moribayashi <sup>1</sup> , K. Koshi <sup>2</sup> , K. Sasaki <sup>2</sup> , A. Kuramata <sup>2</sup> , O. Ueda <sup>3</sup>		
<sup>1</sup> Saga University, Japan, <sup>2</sup> Tamura Corporation, Japan, <sup>3</sup> Kanazawa Institute of Technology, Japan		
11:00	Th1-T04-5	Oral (15 min)
<b>Segregation of TiO<sub>2</sub> during Y<sub>2</sub>Ti<sub>2</sub>O<sub>7</sub> Crystal Growth by OFZ Method</b>		
C.Y. Liu <sup>1,2*</sup> , A. Dabkowski <sup>1</sup> , W.-Q. Jie <sup>2,3</sup> , B. D.		



Gaulin<sup>1,4</sup>, H. A. Dabkowska,  
<sup>1</sup>Brockhouse Institute for Materials Research, McMaster University, Canada, <sup>2</sup>School of Materials Science and Engineering, <sup>3</sup>State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, China, <sup>4</sup>Department of Physics and Astronomy, McMaster University, Canada

11:15 Th1-T04-6 Oral (15 min)  
**Influence of growth rate at 1000°C on homoepitaxial growth of β-Ga<sub>2</sub>O<sub>3</sub> (001) by halide vapor phase epitaxy**

Y. Kozakai<sup>1\*</sup>, K. Nomura<sup>1</sup>, M. Takahashi<sup>1</sup>, K. Goto<sup>1,2</sup>, K. Sasaki<sup>2,3</sup>, Q. T. Thieu<sup>1</sup>, R. Togashi<sup>1</sup>, H. Murakami<sup>1</sup>, M. Higashiwaki<sup>3</sup>, A. Kuramata<sup>2</sup>, S. Yamakoshi<sup>2</sup>, B. Monemar<sup>1,4</sup>, Y. Kumagai<sup>1</sup>  
<sup>1</sup>Tokyo University of Agriculture and Technology, Japan, <sup>2</sup>Tamura Corporation, Sayama, Japan, <sup>3</sup>National Institute of Information and Communications Technology, Japan, <sup>4</sup>Linköping University, Sweden

11:30 Th1-T04-7 Oral (15 min)  
**Investigation of Crystal Growth and Magnetic Properties of Pr<sub>1-x</sub>La<sub>x</sub>AlO<sub>3</sub>**

C. Korosec<sup>1,2</sup>, A. Dabkowski<sup>1</sup>, M. Tachibana<sup>3</sup>, B. Gaulin<sup>1,4</sup>, H. Dabkowska<sup>1\*</sup>  
<sup>1</sup>Brockhouse Institute for Materials Research, McMaster University, Canada, <sup>2</sup>Simon Fraser University, Canada, <sup>3</sup>National Institute for Materials Science, Japan, <sup>4</sup>Department of Physics and Astronomy, McMaster University, Canada

## Th1-T06

Materials for Optical Devices

Room: Oral 7

9:40 Th1-T06-1 Invited oral (25 min)  
**High quantum efficiency and thermal stability of green-to-yellow single-crystal phosphors excited by high-brightness blue LEDs/LDs**

E. G. Villora<sup>1\*</sup>, S. Arjoca<sup>1</sup>, D. Inomata<sup>2</sup>, K. Shimamura<sup>1</sup>  
<sup>1</sup>National Institute for Materials Science, Japan, <sup>2</sup>Tamura Corp., Japan

10:05 Th1-T06-2 Oral (15 min)  
**Flux growth at 1230°C of cubic Tb<sub>2</sub>O<sub>3</sub> single crystals and characterization of their optical and magnetic properties**

P. Veber<sup>1\*</sup>, M. Velázquez<sup>1</sup>, G. Gadret<sup>2</sup>, O. Plantevin<sup>3</sup>, D. Rytz<sup>4</sup>, M. Peltz<sup>4</sup>  
<sup>1</sup>CNRS, Université de Bordeaux, France, <sup>2</sup>LICB, UMR 6303 CNRS-Université de Bourgogne, France, <sup>3</sup>CSNSM, UMR 8609 CNRS-Université d'Orsay, France, <sup>4</sup>FEE-GmbH, Germany

10:20 Th1-T06-3 Oral (15 min)  
**Scull melting growth of Tb-doped ZrO<sub>2</sub> single crystals for magneto-optical applications**

V. Kochurikhin<sup>1,2\*</sup>, A. Yoshikawa<sup>1,3</sup>, Y. Furukawa<sup>4</sup>  
<sup>1</sup>C&A Corp., Japan, <sup>2</sup>General Physics Institute, Russia, <sup>3</sup>IMR, Tohoku University, Japan, <sup>4</sup>OXIDE Corp., Japan

10:35 Th1-T06-4 Oral (15 min)  
**Crystal Growth of Zinc Tungstate Crystals for Dark Matter Search**

S. Kurosawa<sup>1\*</sup>, H. Sekiya<sup>2</sup>, R. Murakami<sup>3</sup>, T. Horiai<sup>3</sup>, Y. Shoji<sup>3,4</sup>, Y. Ohashi<sup>3</sup>, Y. Yokota<sup>1</sup>, K. Kamada<sup>1,4</sup>, A. Yoshikawa<sup>1,3,4</sup>

<sup>1</sup>New Industry Creation Hatchery Center, Tohoku University, Japan, <sup>2</sup>The Univ. of Tokyo, Japan, <sup>3</sup>Institute for Materials Research, Tohoku University, Japan, <sup>4</sup>C&A Corp., Japan

10:50 Th1-T06-5 Oral (15 min)  
**Site Preference of Ga<sup>3+</sup> ions in Ce:Gd<sub>3</sub>Al<sub>5-x</sub>Ga<sub>x</sub>O<sub>12</sub> Scintillator Crystals Studied by Photoabsorption Spectroscopy at Low Temperature**

C. Oyama<sup>1</sup>, M. Kitaura<sup>1\*</sup>, M. Ishizaki<sup>1</sup>, K. Kamada<sup>2</sup>, S. Kurosawa<sup>2</sup>, A. Ohnishi<sup>1</sup>, K. Hara<sup>3</sup>  
<sup>1</sup>Yamagata University, Japan, <sup>2</sup>NICHE, Tohoku University, Japan, <sup>3</sup>Shizuoka University, Japan

11:05 Th1-T06-6 Oral (15 min)  
**Luminescent properties of new hybrid materials synthesised by high temperature heterophase reaction**  
M. Anurova, E. Ermolaeva, O. Petrova, I. Taydakov, A. Khomyakov, A. Akkuzina, R. Avetisov, I. Avetissov\*  
D. Mendeleev University of Chemical Technology of Russia, Russia

11:20 Th1-T06-7 Oral (15 min)  
**Growth and optical properties of alkaline-earth borates and silicates doped with divalent RE ions**  
M. Głowacki<sup>1\*</sup>, P. Solarz<sup>2</sup>, W. Ryba-Romanowski<sup>2</sup>, R. Diduszko<sup>1,4</sup>, M. Berkowski<sup>1</sup>

<sup>1</sup>Institute of Physics, PAS, Poland, <sup>2</sup>Institute of Low Temperature and Structure Research, PAS, Poland, <sup>3</sup>Tele and Radio Research Institute, Poland

## Lunch

Thursday afternoon, 11 August, 11:35  
Shirotori Hall

## IOCG Council Meeting

Thursday afternoon, 11 August, 11:50  
Bldg. 2 Exhibition Room 212

## IOCG General Assembly

Thursday afternoon, 11 August, 13:00  
Shirotori Hall

## Session Th2

Thursday afternoon, 11 August, 14:10  
G06, G09, G11, T02, T03, T04, T05, T06, T08, T10

## Th2-G06

Bulk Crystal Growth

Room: Oral 10

14:10 Th2-G06-1 Invited oral (25 min)  
**Basic Technology for High Quality Bulk Crystals by the Liquinert process**  
S. Sakuragi\*

Union Materials Inc. Japan  
14:35 Th2-G06-2 Oral (15 min)

**High Composition Uniformity of 4" of PIN- PMN-PT Single Crystals Grown by the Modified Bridgman Method**

Z.-R. Li\*, K.-X. Song, H.-S. Guo, Y.-B. Liu, Z. Xu, S. Fan

*Xi'an Jiaotong University, China*

14:50 Th2-G06-3 Oral (15 min)

**Enhanced pyroelectric and electrocaloric properties of (Pb, La) (Zr, Sn, Ti)O<sub>3</sub> antiferroelectric single crystal**

F. P. Zhuo<sup>1\*</sup>, Q. Li<sup>1</sup>, J. H. Gao<sup>1</sup>, Y. J. Wang<sup>1</sup>, Q. F. Yan<sup>1</sup>, Y. L. Zhang<sup>2</sup>, X. C. Chu<sup>2</sup>

<sup>1</sup>Department of Chemistry, <sup>2</sup>State Key Laboratory of New Ceramics and Fine Processing, Tsinghua University, China

15:05 Th2-G06-4 Oral (15 min)

**Ferroelectric and domain characterization of K<sub>0.5</sub>Bi<sub>4.5</sub>Ti<sub>4</sub>O<sub>15</sub> crystal**

H.-Y. Zhao<sup>1\*</sup>, K. Cai<sup>1</sup>, Z.-X. Cheng<sup>2</sup>, Z.-B. Ma<sup>1</sup>, H. Kimura<sup>3</sup>, T.-T. Jia<sup>3</sup>

<sup>1</sup>Wuhan Institute of Technology, China, <sup>2</sup>University of Wollongong, Australia, <sup>3</sup>National Institute for Materials Science, Japan

15:20 Th2-G06-5 Oral (15 min)

**Multiferroic properties of a series of the n=4 Aurivillius-phase single crystal: Bi<sub>5</sub>Ti<sub>3</sub>MO<sub>15</sub> (M= Cu, V, Ni, Mn)**

H.-Y. Zhao<sup>1\*</sup>, Z.-D. Huang<sup>1</sup>, Z.-X. Cheng<sup>2</sup>, Z.-B. Ma<sup>1</sup>, H. Kimura<sup>3</sup>

<sup>1</sup>Wuhan Institute of Technology, China, <sup>2</sup>University of Wollongong, Australia, <sup>3</sup>National Institute for Materials Science, Japan

15:35 Th2-G06-6 Oral (15 min)

**Growth of Ca<sub>3</sub>Ta(Ga<sub>1-x</sub>Al<sub>x</sub>)<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> piezoelectric single crystals and the piezoelectric properties**

Y. Yokota<sup>1\*</sup>, T. Kudo<sup>2</sup>, Y. Shoji<sup>2,3</sup>, A. Medvedev<sup>2</sup>, Y. Ohashi<sup>2</sup>, S. Kurosawa<sup>1</sup>, K. Kamada<sup>1,3</sup>, A. Yoshikawa<sup>1,2,3</sup>

<sup>1</sup>New Industry Creation Hatchery Center (NICHe), <sup>2</sup>Institute for Materials Research, Tohoku University, Sendai, Japan, <sup>3</sup>C&A Corporation, Japan

15:50 Th2-G06-7 Oral (15 min) \*Late News

**Czocharlski Growth and Distribution of SAW Velocity of 2 inch Ca<sub>3</sub>Ta(Ga,Al)<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> Single Crystals for Piezoelectric Application**

A. Yoshikawa<sup>1,2,3,4\*</sup>, Y. Shoji<sup>1,3</sup>, Y. Ohashi<sup>1,4</sup>, Y. Yokota<sup>2</sup>, K. Inoue<sup>4</sup>, V. I. Chani<sup>1</sup>, M. Arakawa<sup>1</sup>, K. Kamada<sup>2,3,4</sup>, S. Kurosawa<sup>1,2</sup>, A. Medvedev<sup>1,4</sup>, V. Kochurikhin<sup>3,4</sup>

<sup>1</sup>Institute for Materials Research (IMR), <sup>2</sup>New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>3</sup>C&A Corporation, Japan, <sup>4</sup>Piezo Studio Inc., Japan, <sup>5</sup>General Physics Institute, Russian Academy of Sciences, Russia

**Th2-G09**

*In situ Observation and Characterization*

Room: Oral 1

14:10 Th2-G09-1 Invited oral (25 min)

**In Situ Study of Iron Oxide dendrite and Iron-Platinum Nanostructure Growth using Liquid Cell TEM**

H.-M. Zheng<sup>1,2\*</sup>

<sup>1</sup>Lawrence Berkeley National Laboratory, USA,

<sup>2</sup>University of California, Berkeley, USA

14:35 Th2-G09-2 Invited oral (25 min)

**Calcite Dissolution Processes Visualized by High-Speed Frequency Modulation Atomic Force Microscopy with True Atomic Resolution**

T. Fukuma<sup>1,2\*</sup>, K. Miyata<sup>1,3</sup>, Y. Kawagoe<sup>1</sup>, K. Miyazawa<sup>1</sup>, P. Spijker<sup>4</sup>, A. Foster<sup>4</sup>

<sup>1</sup>Kanazawa University, Japan, <sup>2</sup>ACT-C, Japan Science and Technology Agency, Japan, <sup>3</sup>Japan Society for the Promotion of Science, Japan, <sup>4</sup>Aalto University, Finland

15:00 Th2-G09-3 Invited oral (25 min)

**The mechanism of matrix protein assembly and its role on mineral formation**

J. Tao<sup>1\*</sup>, G. W. Buchko<sup>1</sup>, B. J. Tarasevich<sup>1</sup>, W. J. Shaw<sup>1</sup>, P. Kelly<sup>2</sup>, J. Elliott<sup>2</sup>, J. Moradian-Oldak<sup>3</sup>, J. J. De Yoreo<sup>1</sup>

<sup>1</sup>Pacific Northwest National Lab, USA, <sup>2</sup>University of Cambridge, UK, <sup>3</sup>University of Southern California, USA

15:25 Th2-G09-4 Oral (15 min)

**In-situ TEM Observation Reveals Early Stages of Crystallization Governed by Singular Phenomena of Nanoparticles**

Y. Kimura\*, T. Yamazaki

*Hokkaido University, Japan*

15:40 Th2-G09-5 Oral (15 min)

**Characterization of threading dislocations in GaN (0001) substrates by photoluminescence imaging, cathodoluminescence mapping and etch pits**

Y. Yao<sup>1\*</sup>, Y. Ishikawa<sup>1,2</sup>, M. Sudo<sup>1,2</sup>, Y. Sugawara<sup>1</sup>, D. Yokoe<sup>1</sup>

<sup>1</sup>Japan Fine Ceramics Center, Japan, <sup>2</sup>Nagoya Institute of Technology, Japan

15:55 Th2-G09-6 Oral (15 min)

**InGaN surface roughness recovery by hydrogen treatment as monitored by in situ laser scattering**

T. Yamamoto<sup>1\*</sup>, A. Tamura<sup>1</sup>, K. Nagamatsu<sup>1</sup>, M. Deki<sup>2</sup>, S. Nitta<sup>2</sup>, Y. Honda<sup>1,2</sup>, H. Amamo<sup>1,2,3</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Science, <sup>2</sup>Center for Integrated Research of Future Electronics, <sup>3</sup>Akasaki Research Center, Nagoya University, Japan

**Th2-G11**

*Industrial Crystallization*

Room: Oral 2

14:10 Th2-G11-1 Invited oral (25 min)

**Co-doping effects in oxide and halide industrial scintillation materials**

V. Ouspenski<sup>1\*</sup>, S. Blahuta<sup>1</sup>, A. Benedetto<sup>1</sup>, P. R. Menge<sup>2</sup>, K. Yang<sup>2</sup>, J. Buzniak<sup>2</sup>, J. Frank<sup>2</sup>

<sup>1</sup>Saint-Gobain Recherche, France, <sup>2</sup>Saint-Gobain Crystals, USA

14:35 Th2-G11-2 Invited oral (25 min)

**The Commercial Evolution of Bulk AlN Single-Crystal Growth**

R. T. Bondokov<sup>1\*</sup>, T. Suzuki<sup>1,2</sup>, S. P. Rao<sup>1</sup>, J. Chen<sup>1</sup>, L. J. Schowalter<sup>1</sup>

<sup>1</sup>Crystal IS, Inc., USA, <sup>2</sup>Asahi Kasei Corp, Japan

15:00 Th2-G11-3 Oral (15 min)

**Control of the crystallization rate and solid-melt interface modification during alkali halide crystal growth by VGF technique with a skull layer**

V. Taranyuk\*, A. Gektin, A. Kolesnikov  
Institute for Scintillation Materials, NAS of Ukraine, Ukraine

15:15 Th2-G11-4 Oral (15 min)

**Multiple Ribbons of Sapphire Crystals Grown by EFG Method**

J. Xu<sup>1</sup>\*, P. Luo<sup>1</sup>, H.-L. Tang<sup>1</sup>, Q.-G. Wang<sup>1,2</sup>, Y.-D. Jin<sup>3</sup>  
<sup>1</sup>Tongji University, China, <sup>2</sup>Shanghai Guojing New Material Technology Co., Ltd., China, <sup>3</sup>Shanghai Langzhao Mechanical and Electrical Equipment Co., Ltd., China

15:30 Th2-G11-5 Oral (15 min)

**Effect of crucible and crystal rotations on the convexity and the thermal stress in large size sapphire crystal during Czochralski growth**

T. Phu Nguyen<sup>1</sup>\*, Y.-T. Hsieh<sup>1</sup>, J.-C. Chen<sup>1</sup>, H. Bich Nguyen<sup>2</sup>

<sup>1</sup>National Central University, Taiwan, <sup>2</sup>Nong Lam University, Vietnam

15:45 Th2-G11-6 Oral (15 min)

**Growth of Variably Doped and Large Size RE:YAG Laser Crystals Grown by Horizontal Direct Crystallization Method**

M. Arzakantsyan<sup>1</sup>\*, N. Ananyan<sup>1</sup>, V. Gevorgyan<sup>2</sup>, J.-C. Chanteloup<sup>3</sup>

<sup>1</sup>"Laser techniques" CJSC, Armenia, <sup>2</sup>Russian Armenian (Slavonic) University, Armenia, <sup>3</sup>Laboratory LULI, Ecole Polytechnique, CNRS, France

16:00 Th2-G11-7 Oral (15 min) \*Late News

**Melt Flow before Crystal Seeding in Cz Si Growth with Transversal MF**

S. E. Demina<sup>1</sup>, M. Iizuka<sup>2</sup>\*, Y. Mukaiyama<sup>2</sup>, V. V. Kalaev<sup>1</sup>

<sup>1</sup>STR Group Inc., Russia, <sup>2</sup>STR Japan K.K., Japan

16:15 Th2-G11-8 Oral (15 min) \*Late News

**Using of Simplified Geometry of Cz Si Crystal Growth Process with Transverse Magnetic Field for Analysis of Numerical Parameters**

S. Demina<sup>1</sup>, A. Smirnov<sup>1</sup>, V. Kalaev<sup>1</sup>\*, G. Ratnieks<sup>2</sup>, L. Kadinski<sup>2</sup>

<sup>1</sup>STR Group, Inc., Russia, <sup>2</sup>Siltronic AG, Germany

**Th2-T02**

Group IV Semiconductors

Room: Oral 8

14:10 Th2-T02-1 Invited oral (25 min)

**Challenges and solutions to grow Czochralski silicon crystals for power electronic applications**

Y. Nagai\*, M. Higasa, S. Nakagawa, K. Kashima  
GlobalWafers Japan Co., Ltd., Japan

14:35 Th2-T02-2 Oral (15 min)

**Possible reasons for dislocation formation in heavily doped Czochralski grown Si**

L. Stockmeier<sup>1</sup>\*, L. Lehmann<sup>2</sup>, C. Reimann<sup>1,3</sup>, J. Friedrich<sup>1,3</sup>

<sup>1</sup>Fraunhofer THM, Germany, <sup>2</sup>Siltronic AG, Germany,

<sup>3</sup>Fraunhofer IISB, Germany

14:50 Th2-T02-3 Oral (15 min)

**Influence of Light Elements on Bulk Lifetime in CZ Si crystals**

Y. Miyamura\*, H. Harada, S. Nakano, B. Gao, K. Kakimoto

Kyushu University, Japan

15:05 Th2-T02-4 Oral (15 min)

**Effect of packing structure of Si chunks on melting process and carbon contamination in Czochralski silicon crystal growth**

X. Liu\*, B. Gao, S. Nakano, K. Kakimoto  
Kyushu University, Japan

15:20 Th2-T02-5 Oral (15 min)

**Silicon single crystals grown by the Kyropoulos method**

G. Chichignoud<sup>1,2</sup>\*, A. Nouri<sup>1,2</sup>, Y. Delannoy<sup>1</sup>, F. Richard<sup>3</sup>, M. Albaric<sup>4</sup>, V. Brize<sup>4</sup>, K. Zaïdat<sup>1</sup>

<sup>1</sup>Univ. Grenoble Alpes, SIMAP, France, <sup>2</sup>CNRS, SIMAP, France, <sup>3</sup>Cyberstar, France, <sup>4</sup>CEA-INES, France

15:35 Th2-T02-6 Oral (15 min)

**New cold crucible for single crystal growth**

K. Zaïdat\*, H. Abouchi, P. Petitpas, C. Garnier, G. Chichignoud, R. Ernst

Univ. Grenoble Alpes, SIMAP, France/CNRS, SIMAP, France

15:50 Th2-T02-7 Oral (15 min) \*Late News

**Thermophysical Properties of Supercooled-liquid Silicon**

J. T. Okada<sup>1</sup>\*, T. Ishikawa<sup>2</sup>, Y. Watanabe<sup>3</sup>, P. -F. Paradis<sup>2</sup>, S. Uda<sup>1</sup>

<sup>1</sup>Tohoku University, Japan, <sup>2</sup>Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan, <sup>3</sup>Advanced Engineering Services, Japan

**Th2-T03**

2D Materials

Room: Oral 5

14:10 Th2-T03-1 Invited oral (25 min)

**Synthesis and Applications of 2-Dimensional Layered Materials**

G. S. Duesberg<sup>1,2</sup>\*, N. Berner<sup>2</sup>, C. Cullen<sup>1,2</sup>, T. Hallam<sup>2</sup>, M. O'Brien<sup>1,2</sup>, R. Gatensby<sup>1,2</sup>, N. McEvoy<sup>2</sup>

<sup>1</sup>School of Chemistry, <sup>2</sup>Centre for Adaptive Nanostructures and Nanodevices (CRANN) & Advanced Materials BioEngineering Research Centre (AMBER), Trinity College Dublin, Ireland

14:35 Th2-T03-2 Invited oral (25 min)

**Novel Electronics Technology based on Low-Symmetry Two-Dimensional Materials**

H. Wang\*

University of Southern California, Los Angeles, USA

15:00 Th2-T03-3 Oral (15 min)

**Chemical vapor deposition and photoresponse measurement of WSe<sub>2</sub> monolayer**

W.-J. Su<sup>1</sup>\*, Y.-L. Wang<sup>2</sup>, W.-S. Gan<sup>1</sup>, Y.-S. Huang<sup>1,2</sup>, K.-Y. Lee<sup>1,2</sup>

<sup>1</sup>Graduate Institute of Electro-Optical Engineering,

<sup>2</sup>Department of Electronic and Computer Engineering,

National Taiwan University of Science and Technology,  
Taiwan

15:15 Th2-T03-4 Oral (15 min)

**Improvement of CVT growth of transition metal dichalcogenides: the key role of chloride precursors**

C. Barreteau\*, A. Ubaldini, E. Giannini  
University of Geneva, Switzerland

15:30 Th2-T03-5 Oral (15 min)

**High-Pressure melt growth and Chemical Vapor Transport growth of SiP, SiAs, GeP, and GeAs 2D layered semiconductors**

E. Giannini\*, C. Barreteau, C. Besnard  
University of Geneva, Switzerland

## Th2-T04

*II-VI and Oxide Materials*

Room: Oral 4

14:10 Th2-T04-1 Invited oral (25 min)

**Growth of (Cd,Zn)Te crystals by Travelling Heater Method THM under microgravity**

M. Fiederle<sup>1\*</sup>, A. Fauler<sup>1</sup>, S. Schütt<sup>1</sup>, S. A. Senchenkov<sup>2</sup>, A. S. Egorov<sup>2</sup>  
<sup>1</sup>Materials Research Center FMF, Germany, <sup>2</sup>Research and Development Institute for Launch Complexes NIISK, Russia

14:35 Th2-T04-2 Oral (15 min)

**Analysis of the Accelerated Crucible Rotation Technique for Vertical Bridgman Growth of Cadmium Zinc Telluride**

M. S. Divecha<sup>1\*</sup>, S. K. Swain<sup>2</sup>, K. G. Lynn<sup>2</sup>, J. J. Derby<sup>1</sup>  
<sup>1</sup>University of Minnesota, USA, <sup>2</sup>Washington State University, USA

14:50 Th2-T04-3 Oral (15 min)

**Controlling Growth Modes to Tailor-Make a Texture of Al- or Ga-Highly Doped ZnO Polycrystalline Films**

J. Nomoto<sup>1\*</sup>, K. Inaba<sup>2</sup>, S. Kobayashi<sup>2</sup>, M. Osada<sup>1,3</sup>, H. Makino<sup>1</sup>, T. Yamamoto<sup>1</sup>  
<sup>1</sup>Kochi University of Technology, Japan, <sup>2</sup>Rigaku Corporation, Japan, <sup>3</sup>National Institute of Materials Science, Japan

15:05 Th2-T04-4 Oral (15 min)

**Formation of transparent p-type conductive CuCrO<sub>2</sub> film and analysis on source of degradation in transmittance**

H. Chiba\*, T. Kawashima, K. Washio  
Tohoku University, Japan

15:20 Th2-T04-5 Oral (15 min)

**Crystal Growth of triangular-lattice antiferromagnet Ba<sub>3</sub>CoSb<sub>2</sub>O<sub>9</sub>**

D. Prabhakaran\*, A. T. Boothroyd  
University of Oxford, UK

15:35 Th2-T04-6 Oral (15 min)

**Comparison of THz response of ZnQTe (Q=V, Mn) bulk crystals grown by temperature gradient solvent method**

Y. Xu<sup>1,2\*</sup>, W. Bai<sup>1</sup>, L.-L. Ji<sup>1</sup>, L.-J. Guo<sup>1</sup>, B. Xiao, N.-B. Jia<sup>1</sup>, C.-H. Zhang<sup>2</sup>, W.-Q. Jie<sup>1</sup>  
<sup>1</sup>Northwestern Polytechnical University, China, <sup>2</sup>Nanjing University, China

15:50 Th2-T04-7 Oral (15 min)

**Rate limitations for the growth of cadmium zinc telluride (CZT) by the traveling heater method (THM)**

J. H. Peterson\*, J. J. Derby  
University of Minnesota, USA

## Th2-T05

*Materials for Spintronics*

Room: Oral 6

14:10 Th2-T05-1 Invited oral (25 min)

**Ge-based spintronics with epitaxial Heusler alloys**

K. Hamaya\*  
Osaka University, Japan

14:35 Th2-T05-2 Oral (15 min)

**Ge/Fe<sub>3</sub>Si thin film stacks on GaAs(001) substrates: A solid state epitaxy approach**

J. Kalt, B. Jenichen, J. Herfort\*  
Paul-Drude-Institut für Festkörperelektronik, Germany

14:50 Th2-T05-3 Oral (15 min)

**Magnetic Properties of Fe<sub>3</sub>Si Films on Low-temperature-grown Germanium Layers**

M. Ikawa\*, S. Sakai, M. Kawano, S. Yamada, T. Kanashima, K. Hamaya  
Osaka University, Japan

15:05 Th2-T05-4 Oral (15 min)

**The Relation between Crystal structure and Spin Accumulation of the n-Ge/MgO/Co<sub>40</sub>Fe<sub>40</sub>B<sub>20</sub>**

**Spin-tunnel Contact**  
S. Lee<sup>1\*</sup>, S.-H. Kim<sup>2</sup>, J.-Y. Son<sup>1</sup>, J.-G. Cha<sup>1</sup>, J.-G. Hong<sup>1</sup>  
<sup>1</sup>Yonsei University, Korea, <sup>2</sup>Kyoto University, Japan

15:20 Th2-T05-5 Invited oral (25 min)

**Highly efficient spin injection from a half-metallic spin source of Co<sub>2</sub>MnSi and sensitive detection of nuclear spin states**

T. Uemura\*  
Hokkaido University, Japan

15:45 Th2-T05-6 Oral (15 min)

**MBE synthesis of (In,Mn)As quantum dots using Mn selective doping**

A. Bouravleuv<sup>1,4\*</sup>, V. F. Sapega<sup>2</sup>, V. N. Nevedomskii<sup>2</sup>, L. L. Lev<sup>5,6</sup>, C. Piamonteze<sup>5</sup>, T. Schmitt<sup>5</sup>, A. I. Khrebtov<sup>1</sup>, Yu. B. Samsonenko<sup>1,3</sup>, J. Kanski<sup>7</sup>, G. E. Cirlin<sup>1,4</sup>, V. N. Strocov<sup>5</sup>

<sup>1</sup>St.Petersburg Academic University RAS, Russia, <sup>2</sup>Ioffe Physical Technical Institute RAS, Russia, <sup>3</sup>Institute for Analytical Instrumentation RAS, Russia, <sup>4</sup>St.Petersburg State University, Russia, <sup>5</sup>Swiss Light Source, Paul Scherrer Institute, Switzerland, <sup>6</sup>National Research Centre "Kurchatov Institute", Russia <sup>7</sup>Chalmers University of Technology, Sweden

16:00 Th2-T05-7 Oral (15 min)

**Nanocomposite Based on ZnSiAs<sub>2</sub>+MnAs**

I. V. Fedorchenko<sup>1,2</sup>, A. I. Ril<sup>1</sup>, O. Rabinovich<sup>1\*</sup>, S. Legotin<sup>1</sup>, S. Didenko<sup>1</sup>, A. A. Krasnov<sup>1</sup>, Yu. Osipov<sup>1</sup>  
<sup>1</sup>NUST MISiS, Russia, <sup>2</sup>Kurnakov Institute of General and Inorganic Chemistry, Russia

## Th2-T06

<i>Materials for Optical Devices</i>		
Room: Oral 7		
14:10	Th2-T06-1	Invited oral (25 min)
<b>Yb-doped crystalline hosts, laser architectures and crystal geometries for high-power ultrashort-pulse lasers</b>		
X. Délen <sup>1*</sup> , F. Lesparre <sup>1,2</sup> , J. T. Gomes <sup>1</sup> , I. Martial <sup>1,2</sup> , J. Didierjean <sup>1,2</sup> , F. Druon <sup>1</sup> , F. Balembos <sup>1</sup> , P. Georges <sup>1</sup>		
<sup>1</sup> Institut d'Optique Graduate School, CNRS, Université Paris - Saclay, France, <sup>2</sup> Fibercryst SAS, France		
14:35	Th2-T06-2	Oral (15 min)
<b>Progress in the Research and Applications of Self-frequency Doubling Crystals</b>		
J. Wang <sup>1*</sup> , H.-H. Yu <sup>1</sup> , C.-Q. Ma <sup>2</sup> , H.-J. Zhang <sup>1</sup>		
<sup>1</sup> Shandong University, China, <sup>2</sup> Lascence Company, China		
14:50	Th2-T06-3	Oral (15 min)
<b>Comparison between numerical modeling and experimental measurements of the interface shape and solute distribution in Kyropoulos growth of Ti doped sapphire crystals</b>		
C. Stelian <sup>1,2*</sup> , G. Sen <sup>1</sup> , N. Barthalay <sup>2</sup> , T. Duffar <sup>1</sup>		
<sup>1</sup> SIMAP-EPM, France, <sup>2</sup> Le Rubis SA, France		
15:05	Th2-T06-4	Oral (15 min)
<b>Growth and Characterization of Large Sized Ti: sapphire Crystal</b>		
M. Xu <sup>*</sup> , L. H. Zhang, K. J. Ning, Y. X. Chu, X. Y. Liang, R. X. Li, Y. Hang		
Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China		
15:20	Th2-T06-5	Oral (15 min)
<b>Yb:CaYAIO<sub>4</sub> crystal for ultrafast laser pulses</b>		
X. Xu <sup>1*</sup> , D. Li <sup>1</sup> , J. Ma <sup>2</sup> , J. Zhang <sup>1</sup> , D. Tang <sup>1</sup> , J. Xu <sup>3</sup>		
<sup>1</sup> Jiangsu Normal University, China, <sup>2</sup> Nanyang Technological University, Singapore, <sup>3</sup> Tongji University, China		
15:35	Th2-T06-6	Oral (15 min)
<b>Yb:Er-doped LiLa(WO<sub>4</sub>)<sub>2</sub> single fiber crystal growth</b>		
R. L. Denaldi, L. Gomes, V. L. Mazzocchi, J. R. Moraes, C. B. R. Parente, S. L. Baldochi*		
Instituto de Pesquisas Energéticas e Nucleares, Brazil		
<b>Th2-T08</b>		
<i>Materials for Organic Devices and Bio Applications</i>		
Room: Oral 3		
14:10	Th2-T08-1	Invited oral (25 min)
<b>Surface-directed Molecular Assembly in Organic Electronics</b>		
K.-W. Cho*		
Pohang University of Science and Technology, Korea		
14:35	Th2-T08-2	Invited oral (25 min)
<b>Systematic comparative investigations on organic single crystals</b>		
Y. Krupskaya <sup>1,2*</sup> , A. Morpurgo <sup>1</sup> , B. Büchner <sup>2</sup>		
<sup>1</sup> IFW Dresden, Germany, <sup>2</sup> DQMP, University of Geneva, Switzerland		
15:00	Th2-T08-3	Oral (15 min)
<b>Fluorination of Metal Phthalocyanines: Single-Crystal Growth, Efficient N-Channel Organic</b>		

**Field-Effect Transistors, and Structure-Property Relationships**

H. Jiang <sup>1*</sup> , J. Ye <sup>2</sup> , P. Hu <sup>1</sup> , C. Kloc <sup>1</sup>		
<sup>1</sup> Nanyang Technological University, Singapore, <sup>2</sup> Institute of High Performance Computing, Singapore		
15:15	Th2-T08-4	Oral (15 min)

**Heteroepitaxy of C<sub>60</sub> on the Pentacene Single Crystal Surface**

Y. Mizuno <sup>2</sup> , T. Hosokai <sup>3</sup> , T. Koganezawa <sup>4</sup> , R. Tsuruta <sup>1</sup> , A. Hinderhofer <sup>5</sup> , A. Gerlach <sup>5</sup> , K. Broch <sup>6</sup> , V. Belova <sup>5</sup> , H. Frank <sup>5</sup> , M. Yamamoto <sup>2</sup> , H. Ishii <sup>2</sup> , F. Schreiber <sup>5</sup> , N. Ueno <sup>2</sup> , Y. Nakayama <sup>1*</sup>		
<sup>1</sup> Tokyo University of Science (TUS), Japan, <sup>2</sup> Chiba University, Japan, <sup>3</sup> National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>4</sup> Japan Synchrotron Radiation Research Institute (JASRI), Japan, <sup>5</sup> Eberhard Karls Universität Tübingen, Germany, <sup>6</sup> University of Cambridge, UK		
15:30	Th2-T08-5	Oral (15 min)

**Anomalous Roughness Evolution of Organic Mixed Films**

A. Hinderhofer*, A. Gerlach, M. Oettel, F. Schreiber		
University of Tuebingen, Germany		
15:45	Th2-T08-6	Oral (15 min)

**Molecular Dynamics Simulation of Thin Film Growth of Organic Semiconductors**

T. Shimada <sup>1*</sup> , T. Tamura <sup>2</sup> , T. Nagahama <sup>1</sup> , T. Yanase <sup>1</sup>		
<sup>1</sup> Division of Applied Chemistry, <sup>2</sup> Graduate School of Chemical Science and Engineering, Hokkaido University, Japan		
16:00	Th2-T08-7	Oral (15 min)

<b>Polymers growth for photovoltaic</b>		
D. Saranin, O. Rabinovich*, M. Orlova, S. Legotin, S. Didenko, I. Fedorchenko and Yu. Osipov		
NUST MISiS, Russia		

**Th2-T10**

<i>Silicon Carbide</i>		
Room: Oral 9		
14:10	Th2-T10-1	Invited oral (25 min)

**Silicon Carbide Crystal and Epitaxial Growth and Dislocation Behavior**

J. J. Sumakeris <sup>1*</sup> , J. Ambati <sup>1</sup> , A. A. Burk <sup>1</sup> , R. T. Leonard <sup>1</sup> , E. Deyneka <sup>1</sup> , Y. Khlebnikov <sup>1</sup> , A. R. Powell <sup>1</sup> , J. Seaman <sup>1</sup> , M. P. Paisley <sup>1</sup> , V. Tsvetkov <sup>1</sup> , J. Guo <sup>2</sup> , Y. Yang <sup>2</sup> , M. Dudley <sup>2</sup> , E. Balkas <sup>1</sup>		
<sup>1</sup> Cree Inc., USA, <sup>2</sup> Stony Brook University, USA		
14:35	Th2-T10-2	Invited oral (25 min)

**High temperature solution growth of SiC: An old, though still challenging topic**

D. Chaussende*		
CNRS, Univ. Grenoble Alpes, LMGP, France		
15:00	Th2-T10-3	Oral (15 min)

**Surface morphology and growth stability of 4H-SiC crystals in solution growth on (110m) surfaces**

T. Mitani*, N. Komatsu, Y. Hayashi, T. Kato, H. Okumura		
National Institute of Advanced Industrial Science and Technology, Japan		

15:15	Th2-T10-4	Oral (15 min)
<b>Threading Screw Dislocation Conversion by Macrosteps during SiC Solution Growth for High-quality Crystals</b>		
S. Harada <sup>1,2</sup> *, K. Murayama <sup>1</sup> , S. Xiao <sup>2</sup> , F. Fujie <sup>2</sup> , T. Sakai <sup>3</sup> , M. Tagawa <sup>1,2</sup> , T. Ujihara <sup>1,2</sup>		
<sup>1</sup> Institute of Materials and Systems for Sustainability (IMaSS), <sup>2</sup> Department of Materials Science and Engineering, <sup>3</sup> Green Mobility Collaborative Research Center, Nagoya University, Japan		
15:30	Th2-T10-5	Oral (15 min)
<b>Two-step growth of SiC solution growth for reduction of dislocations</b>		
K. Murayama <sup>1</sup> *, T. Hori <sup>2</sup> , S. Harada <sup>1</sup> , S. Xiao <sup>2</sup> , M. Tagawa <sup>1</sup> , T. Ujihara <sup>1</sup>		
<sup>1</sup> Institute of Materials and Systems for Sustainability (IMaSS), <sup>2</sup> Department of Materials Science and Engineering, Nagoya University, Japan		
15:45	Th2-T10-6	Oral (15 min)
<b>Polytype of p-type SiC crystals grown by the physical vapor transport method with using aluminum and nitrogen co-doping</b>		
K.Eto <sup>1</sup> *, H. Suo <sup>1,2</sup> , T. Kato <sup>1</sup> , H. Okumura <sup>1</sup>		
<sup>1</sup> National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>2</sup> Showa Denko K. K, Japan		
16:00	Th2-T10-7	Oral (15 min)
<b>Study of SiC carbonization on misoriented Si substrates on research and production scale VPE reactors</b>		
M. Bosi <sup>1</sup> *, C. Ferrari <sup>1</sup> , D. Nilsson <sup>2</sup> , P. J. Ward <sup>2</sup>		
<sup>1</sup> IMEM-CNR, Italy, <sup>2</sup> Anvil Semiconductors Ltd, UK		

### Poster 3

Thursday afternoon, 11 August, 16:10

Event Hall

G06, G09, G11, T02, T03, T04, T05, T08, T10

### ThP-G06

Bulk Crystal Growth

16:10	ThP-G06-1	Poster (120 min)
<b>Growth and nonlinear optical properties of GdAl<sub>3</sub>(BO<sub>3</sub>)<sub>4</sub> in a flux without molybdate</b>		
Y.-C. Yue <sup>1</sup> *, Y.-Y. Zhu <sup>1,2</sup> , Z.-G. Hu <sup>1</sup>		
<sup>1</sup> Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China, <sup>2</sup> Graduate School of the Chinese Academy of Sciences, China		
16:10	ThP-G06-2	Poster (120 min)
<b>Free-standing HVPE-GaN crystals - slicing, wafering, and preparation of seeds</b>		
M. Fijalkowski <sup>1</sup> *, M. Amilusik <sup>1,2</sup> , T. Sochacki <sup>1,2</sup> , B. Lucznik <sup>1,2</sup> , M. Iwinska <sup>1</sup> , I. Grzegory <sup>1</sup> , M. Bockowski <sup>1</sup>		
<sup>1</sup> Institute of High Pressure Physics PAS, Poland, <sup>2</sup> TopGaN Sp z o.o., Poland		
16:10	ThP-G06-3	Poster (120 min)
<b>Crystal Growth of LiFe<sub>5</sub>O<sub>8</sub> with New Flux at Lower Temperature</b>		
Y. Miyamoto <sup>1</sup> *, Y. Kosaka <sup>1</sup> , B. Menaert <sup>2,3</sup> , A. Pena <sup>2,3</sup> , K. Inoue <sup>1</sup> , J. Akimitsu <sup>1</sup>		

<sup>1</sup> Hiroshima University, Japan, <sup>2</sup> University Grenoble Alpes, France, <sup>3</sup> CNRS, Institut NEEL, France		
16:10	ThP-G06-4	Poster (120 min)
<b>Crystal Growth and Optical Properties of Gd Admixed Ce-doped Lu<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> Single Crystals</b>		
T. Horiai <sup>1</sup> *, S. Kurosawa <sup>2</sup> , R. Murakami <sup>1</sup> , A. Yamaji <sup>1</sup> , Y. Shoji <sup>1,3</sup> , Y. Ohashi <sup>1</sup> , K. Kamada <sup>2,3</sup> , Y. Yokota <sup>2</sup> , A. Yoshikawa <sup>1,2,3</sup>		
<sup>1</sup> Institute for Materials Research (IMR), <sup>2</sup> New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>3</sup> C&A Corporation, Japan		
16:10	ThP-G06-5	Poster (120 min)
<b>Development of Large Size Direction Controlled alpha-NiSO<sub>4</sub>·6H<sub>2</sub>O Single Crystals and its Optical Studies for UV Filters</b>		
P. Rajesh*, P. Ramasamy		
SSN College of Engineering, India		
16:10	ThP-G06-6	Poster (120 min)
<b>Luminescence and scintillation properties of Tl-doped CsCl crystals</b>		
T. Sakai <sup>1</sup> *, Y. Fujimoto <sup>1</sup> , T. Yanagida <sup>2</sup> , M. Koshimizu <sup>1</sup> , K. Asai <sup>1</sup>		
<sup>1</sup> Tohoku University, Japan, <sup>2</sup> NAIST, Japan		
16:10	ThP-G06-7	Poster (120 min)
<b>Growth and characterizations of Tm<sup>3+</sup>: CNGS single crystals</b>		
S.-Y. Guo*, J.-Y. Ren, X.-Z. Zhang, J.-L. He, X.-F. Cheng, J.-Y. Guo, R. Cheng, X. Zhao		
Shandong University, China		
16:10	ThP-G06-8	Poster (120 min)
<b>Downconversion of UV into IR Emission in Yb Doped Scheelite-Like Molybdate Single Crystals</b>		
K. A. Subbotin, D. A. Lis*, Ju. N. Osipova, D. A. Nikolaev, V. A. Smirnov, E. V. Zharikov, I. A. Shcherbakov		
A. M. Prokhorov General Physics Institute RAS, Russia		
16:10	ThP-G06-9	Poster (120 min)
<b>X-ray topographic studies of KDP crystals grown under extremely high supersaturation</b>		
A. E. Voloshin, S. S. Baskakova, E. B. Rudneva*		
Shubnikov Institute of Crystallography RAS, Russia		
16:10	ThP-G06-10	Poster (120 min)
<b>Scintillation properties of Ce-doped Cs<sub>2</sub>HfCl<sub>6</sub></b>		
K. Saeki <sup>1</sup> *, Y. Fujimoto <sup>1</sup> , M. Koshimizu <sup>1</sup> , T. Yanagida <sup>2</sup> , K. Asai <sup>1</sup>		
<sup>1</sup> Tohoku University, Japan, <sup>2</sup> Nara Institute of Science and Technology, Japan		
16:10	ThP-G06-11	Poster (120 min)
<b>Colony structure formation mechanism in Ce-doped Al<sub>2</sub>O<sub>3</sub>/YAG eutectic systems grown by vertical Bridgman technique</b>		
S. Yamada <sup>1</sup> , M. Yoshimura <sup>1,2</sup> , S. Sakata <sup>2</sup> , T. Taishi <sup>1</sup> , K. Hoshikawa <sup>1</sup>		
<sup>1</sup> Shinshu University, Japan, <sup>2</sup> Ube Industries Ltd., Japan		
16:10	ThP-G06-12	Poster (120 min)
<b>Compositional variations in optical characteristics of Mn doped spinel crystals</b>		
T. Katsumata <sup>1</sup> *, H. Mitomi <sup>1</sup> , H. Nagayama <sup>1</sup> , Y. Orihara <sup>1</sup> , M. Aoki <sup>1</sup> , A. Yoshida <sup>1</sup> , K. Shiratake <sup>1</sup> , S. Minowa <sup>2</sup> , T. Sakuma <sup>2</sup> , H. Aizawa <sup>1</sup> , S. Komuro <sup>1</sup>		

<sup>1</sup>Faculty of Science and Engineering, <sup>2</sup>Graduated School of Engineering, Toyo University, Japan

16:10 ThP-G06-13 Poster (120 min)

**Single Crystal Growth and Electrical Properties of Cu<sub>2</sub>TlX<sub>2</sub> (X=Se, Te)**

Y.-Y. Lv<sup>1</sup>\*, B.-B. Zhang<sup>1</sup>, S. H. Yao<sup>1</sup>, Y. B. Chen<sup>2</sup>, J. Zhou<sup>1</sup>, Y. F. Chen<sup>1</sup>

<sup>1</sup>National Laboratory of Solid State Microstructures and Department of Materials Science and Engineering, Nanjing University, <sup>2</sup>National Laboratory of Solid State Microstructure and Department of Physics, Nanjing University, China.

16:10 ThP-G06-14 Poster (120 min)

**The growth of α-NiSO<sub>4</sub>·6H<sub>2</sub>O and K<sub>2</sub>Co<sub>x</sub>Ni<sub>1-x</sub>(SO<sub>4</sub>)<sub>2</sub>·6H<sub>2</sub>O crystals by the temperature difference method**

V. L. Manomenova<sup>1</sup>\*, V. M. Masalov<sup>2</sup>, E. B. Rudneva<sup>1</sup>, A. E. Voloshin<sup>1</sup>, A. A. Zhokhov<sup>2</sup>, G. A. Emelchenko<sup>2</sup>

<sup>1</sup>Shubnikov Institute of Crystallography, Russian Academy of Sciences, Russia, <sup>2</sup>Institute of Solid State Physics, Russian Academy of Sciences, Russia

16:10 ThP-G06-15 Poster (120 min)

**Single Crystal Growth and Properties of Spin Ladders: a new class of low- Dimensional Quantum Magnets**

R. Bag<sup>\*</sup>, K. Karmakar, S. Singh

Indian Institute of Science Education and Research, India.

16:10 ThP-G06-16 Poster (120 min)

**Synthesis and Characterization of High Temperature Piezoelectric Single Crystal**

C. Ji<sup>1,2</sup>\*, L. Shen<sup>1,2</sup>, N. Bao<sup>1,2,3</sup>

<sup>1</sup>Nanjing Tech University, China, <sup>2</sup>State Key Laboratory of Materials-Oriented Chemical Engineering, China, <sup>3</sup>Jiangnan Graphene Institute, China

16:10 ThP-G06-17 Poster (120 min)

**Growth and Scintillation Properties of Perovskite CsPbBr<sub>3</sub> Crystals**

J. Xu<sup>1</sup>\*, Q. Cui<sup>1</sup>, H. Shen<sup>1</sup>, H. Kimura<sup>2</sup>, H. Zeng<sup>1,3</sup>, M. Jin<sup>4</sup>

<sup>1</sup>Shanghai Institute of Technology, China, <sup>2</sup>National Institute for Materials Science, Japan, <sup>3</sup>Nanjing University of Science and Technology, China, <sup>4</sup>Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China

16:10 ThP-G06-18 Poster (120 min)

**S and Te substitution effects on the single crystal growth and superconducting properties of iron-based superconductor FeSe**

Y. Hara<sup>\*</sup>, T. Sugaya, T. Isomae, C. Y. Lik, H. Kobayashi, K. Sato

National Institute of Technology, Ibaraki College, Japan

16:10 ThP-G06-19 Poster (120 min)

**Growth and characterization of terbium fluoride crystals**

D. N. Karimov<sup>1</sup>\*, D. S. Lisovenko<sup>2</sup>, N. L. Sizova<sup>1</sup>

<sup>1</sup>Shubnikov Institute of Crystallography of the Russian Academy of Sciences, Russia, <sup>2</sup>Institute for Problems in Mechanics of the Russian Academy of Sciences, Russia

16:10 ThP-G06-20 Poster (120 min)

**Crystal Growth of Heavily Doped Nd:YAG by Czochralski Method**

T.-Y. Jiang<sup>1,2</sup>, C.-A. Li<sup>1,2</sup>\*, C.-K. Lee<sup>3</sup>, M. M. C. Chou<sup>1,2</sup>

<sup>1</sup>Department of Materials and Opto-electronic Science, National Sun Yat-sen University, Taiwan, <sup>2</sup>Taiwan Consortium of Emergent Crystalline Materials, Ministry of Science and Technology, Taiwan, <sup>3</sup>Department of Photonics, National Sun Yat-sen University, Taiwan

16:10 ThP-G06-21 Poster (120 min)

**Preparation and laser modulation investigation of quadratic electro-optical crystal Cu:KTN with gradient refractivity effect**

X.-P. Wang<sup>\*</sup>, B. Liu, Y.-G. Yang, Y.-Y. Zhang, X.-S. Lv, L. Wei, J. Wang

Shandong Academy of Sciences, China

16:10 ThP-G06-22 Poster (120 min)

**Air-processed NdBCO Single Domain Bulk with High Superconducting Properties**

G. H. Du<sup>\*</sup>, Y. F. Zhuang, L. T. Ma, X. Yao

Shanghai Jiao Tong University, China

16:10 ThP-G06-23 Poster (120 min)

**Growth of GaN layers using Ga<sub>2</sub>O vapor synthesized from Ga and H<sub>2</sub>O**

Y. Yamaguchi<sup>1</sup>\*, Y. Taniyama<sup>1</sup>, A. Kitamoto<sup>1</sup>, M. Imade<sup>1</sup>, M. Yoshimura<sup>1</sup>, M. Isemura<sup>2</sup>, Y. Mori<sup>1</sup>

<sup>1</sup>Osaka University, Japan, <sup>2</sup>Itochu Plastics Inc., Japan

16:10 ThP-G06-24 Poster (120 min)

**Effect of deuterium content on the property of DKDP crystals**

M.-X. Xu<sup>1,2</sup>\*, L. Zhang<sup>1,2</sup>, F. Liu<sup>1,2</sup>, S.-Y. Wang<sup>1,2</sup>, Y.-F. Lian<sup>1,2</sup>, F. Wang<sup>3</sup>, Z.-P. Wang<sup>1,2</sup>, X.-G. Xu<sup>1,2</sup>, X. Sun<sup>1,2</sup>

<sup>1</sup>State Key Laboratory of Crystal Materials, <sup>2</sup>Key Laboratory of Functional Crystal Materials and Device, Shandong University, Ministry of Education, China, <sup>3</sup>Research Center of Laser Fusion, China Academy of Engineering Physics, China

16:10 ThP-G06-25 Poster (120 min)

**Slip dislocation crowd to be generated during pulling stop for a long time on CZ Si crystal growth**

T. Abe<sup>1</sup>\*, T. Takahashi<sup>1</sup>, K. Shirai<sup>2</sup>

<sup>1</sup>Shin-Etsu Handotai, Japan, <sup>2</sup>ISIR, Osaka University, Japan

16:10 ThP-G06-26 Poster (120 min)

**The Single Crystal Growth of LiInSe<sub>2</sub> and Its Properties for Neutron Detector Application**

L. Guo<sup>\*</sup>, Y. Xu, W. Jie, B. Xiao

Northwestern Polytechnical University, China

16:10 ThP-G06-27 Poster (120 min)

**Growth and characterization of cyclohexylamine phthalate hemihydrate single crystal**

R. Gomathi<sup>\*</sup>, S. Madeswaran, D. Rajan Babu

VIT University, India.

16:10 ThP-G06-28 Poster (120 min)

**Structural and theoretical investigation on N<sup>3</sup>-[(E)-(4-Bromophenyl)(phenyl)methylidene]-4-methylbenzenesulfonohydrazide crystal prepared by slow evaporation method.**

S. Rafi Ahamed<sup>1</sup>, J. Balaji<sup>2</sup>, P. Srinivasan<sup>2</sup>\*, Q. Ching

- Kheng<sup>3</sup>  
<sup>1</sup>Krishnasamy College of Engineering and Technology, India, <sup>2</sup>University College of Engineering (A Constituent College of Anna University), India, <sup>3</sup>Universiti Sains Malaysia, Malaysia
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- 16:10 ThP-G06-29 Poster (120 min)  
**Growth and Characterization of Re:LaF<sub>3</sub> Single Crystal**  
 J. Q. Hong\*, L. H. Zhang, M. Xu, Z. Chen, P. X. Zhang, Y. Hang  
 Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China
- 
- 16:10 ThP-G06-30 Poster (120 min)  
**Growth and Characterization of CLBO crystal**  
 C.-X. Huang, J.-R. Chen\*, S.-F. Zhang  
 Beijing Sinoma Synthetic Crystals Co. Ltd., China
- 
- 16:10 ThP-G06-31 Poster (120 min)  
**Growth, nonlinearoptical and thermal properties of NaSr<sub>3</sub>Be<sub>3</sub>B<sub>3</sub>O<sub>9</sub>F<sub>4</sub> crystal**  
 Z. Fang<sup>1,2\*</sup>, L.-J. Liu<sup>1</sup>, Z.-Y. Hou<sup>1,2</sup>, K. Li<sup>1</sup>, X.-Y. Wang<sup>1</sup>, C.-T. Chen<sup>1</sup>  
<sup>1</sup>Technical Institute of Physics and Chemistry, Chinese Academy of Science, China, <sup>2</sup>University of Chinese Academy of Science, China
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- 16:10 ThP-G06-32 Poster (120 min)  
**Crystal growth and thermal properties of luminescence from rare-earth doped YAG crystals**  
 H. Aizawa<sup>1\*</sup>, Y. Kiyokawa<sup>2</sup>, T. Katsumata<sup>1</sup>, S. Komuro<sup>1</sup>  
<sup>1</sup>Faculty of Science and Engineering, <sup>2</sup>Graduated School of Engineering, Toyo University, Japan
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- 16:10 ThP-G06-33 Poster (120 min)  
**Deep Ultraviolet nonlinear optical crystal: NaBe<sub>2</sub>BO<sub>3</sub>F<sub>2</sub>**  
 S. Guo<sup>1,2\*</sup>, L.-J. Liu<sup>1</sup>, X.-Y. Wang<sup>1</sup>, Q. Huang<sup>1,2</sup>, Z.-Y. Hou<sup>1,2</sup>, C.-T. Chen<sup>1</sup>  
<sup>1</sup>Technical Institute of Physics and Chemistry, Chinese Academy of Science, China, <sup>2</sup>University of Chinese Academy of Sciences (UCAS), China
- 
- 16:10 ThP-G06-34 Poster (120 min)  
**Eliminating of In inclusions in InP single crystals by the temperature gradient zone melting**  
 N.-F. Sun<sup>1\*</sup>, S.-J. Wang<sup>1</sup>, Y.-K Han<sup>2</sup>, X.-L. Li<sup>1</sup>, H.-M. Shao<sup>1</sup>, Y.-L. Shi<sup>1</sup>, Y. Wang<sup>1</sup>, L.-J. Fu<sup>1</sup>, R.-X. Yang<sup>2</sup>, H.-S. Liu<sup>1</sup>, T.-N. Sun<sup>1</sup>  
<sup>1</sup>Hebei Semiconductor Research Institute, China, <sup>2</sup>Hebei University of Technology, China
- 
- 16:10 ThP-G06-35 Poster (120 min)  
**Effects of Al additives on GaN crystal growth by the Na Flux Method**  
 H. Imabayashi, K. Murakami, H. Takazawa, M. Honjo, M. Imanishi, M. Maruyama, M. Imade, M. Yoshimura, Y. Mori  
 Osaka University, Japan
- 
- 16:10 ThP-G06-36 Poster (120 min)  
**The formation mechanism of β-NaLuF<sub>4</sub> microcrystals**  
 H. Lin\*, D. Y. He, Y. L. Zhang  
 Sun Yat-Sen University, China.
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- 16:10 ThP-G06-37 Poster (120 min)  
**Large Sized Crystal Growth and Piezoelectric Properties of Na<sub>2</sub>TeW<sub>2</sub>O<sub>9</sub>**  
 X. X. Tian\*, Z. L. Gao, Y. X. Sun, X. T. Tao  
 Shandong University, China
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- 16:10 ThP-G06-38 Poster (120 min)  
**Crystal growth and laser performances of M<sub>3</sub>Re<sub>2</sub>(BO<sub>3</sub>)<sub>4</sub> (M=Ca, Sr; Re=Y, La, Gd) disordered crystals**  
 Z.-B. Pan<sup>1\*</sup>, H.-Q. Cai<sup>1</sup>, J. Ma<sup>2</sup>, H.-H. Yu<sup>3</sup>, H.-J. Zhang<sup>3</sup>, J. Wang<sup>3</sup>  
<sup>1</sup>Institute of Chemical Materials and Advanced Materials Center, China Academy of Engineering Physics, China, <sup>2</sup>Nanyang Technological University, Singapore, <sup>3</sup>Shandong University, China
- 
- 16:10 ThP-G06-39 Poster (120 min)  
**Design and Numerical Optimization for Argon Guide System in Multicrystalline Silicon Furnace**  
 W.-J. Su<sup>1\*</sup>, S.-S. Chen<sup>1</sup>, J.-G. Lu<sup>2</sup>, R. Zuo<sup>1</sup>  
<sup>1</sup>Jiangsu University, China, <sup>2</sup>Zhenjiang Huantai Silicon Science Technology Co. Ltd., China
- 
- 16:10 ThP-G06-40 Poster (120 min)  
**The effects of Mg amount on the microstructural properties of Al-Si alloys**  
 Z. Sersour<sup>1</sup>, L. Amirouche<sup>2\*</sup>  
<sup>1</sup>UR- MPE Unit, UMBB, Algeria, <sup>2</sup>Physics Faculty, USTHB, Algeria
- 
- 16:10 ThP-G06-41 Poster (120 min)  
**Crystal Growth of Europium doped Lithium Strontium Iodide (LiSrI<sub>3</sub>:Eu) Scintillating Radiation Detector**  
 S. Uba<sup>1\*</sup>, E. Rowe<sup>2</sup>, S. Babalola<sup>1</sup>, P. Bhattacharya<sup>2</sup>  
<sup>1</sup>Alabama A&M University, USA, <sup>2</sup>Fisk University, USA
- 
- 16:10 ThP-G06-42 Poster (120 min)\*Late News  
**Synthesis, Crystal structure, bulk crystal growth and characterization of a new aquadiiodo (3-aminopropanoic acid) cadmium (II) (3-APACd)**  
 K. Boopathi<sup>1</sup>, P. Ramasamy<sup>2</sup>, S. Moorthy Babu<sup>1\*</sup>  
<sup>1</sup>Anna University, India, <sup>2</sup>SSN College of Engineering, India
- 
- 16:10 ThP-G06-43 Poster (120 min)\*Late News  
**Growth of platinum fiber using the micro-pulling-down method**  
 T. Nihei<sup>1\*</sup>, Y. Yokota<sup>2</sup>, M. Arakawa<sup>2</sup>, Y. Ohashi<sup>1</sup>, S. Kurosawa<sup>2</sup>, K. Kamada<sup>2,3</sup>, A. Yoshikawa<sup>1,2,3</sup>  
<sup>1</sup>Institute for Materials Research, <sup>2</sup>New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan, <sup>3</sup>C&A Corporation, Japan
- 
- 16:10 ThP-G06-44 Poster (120 min)\*Late News  
**Growth and Characterization of Ce:Gd<sub>3</sub>(Al, Ga)<sub>5</sub>O<sub>12</sub> single crystals with various Ga-Al ratio**  
 H. Sato<sup>1\*</sup>, T. Endo<sup>1</sup>, Y. Usuki<sup>1</sup>, T. Matsueda<sup>1</sup>, K. Kamada<sup>2</sup>, M. Yoshino<sup>3</sup>, A. Yoshikawa<sup>2,3</sup>  
<sup>1</sup>Furukawa Co., Ltd., Japan, <sup>2</sup>New Industry Creation Hatchery Center (NICHe), <sup>3</sup>Institute for Materials Research (IMR), Tohoku University, Japan
- 
- 16:10 ThP-G06-45 Poster (120 min)\*Late News



**Non-proportionality in the scintillation response of light yield and energy resolution with derivation of Mg co-doped Ce:Gd<sub>3</sub>(Al,Ga)O<sub>12</sub> single crystals**  
 M. Yoshino<sup>1,2,\*</sup>, K. Kamada<sup>1,2</sup>, Y. Shoji<sup>2,3</sup>, A. Yamaji<sup>3</sup>, S. Kurosawa<sup>1,3</sup>, Y. Yokota<sup>1</sup>, Y. Ohashi<sup>3</sup>, A. Yoshikawa<sup>1,2,3</sup>  
<sup>1</sup>New Industry Creation Hatchery Center, Tohoku University, Japan, <sup>2</sup>C&A Corporation, Japan, <sup>3</sup>Institute for Material Research Tohoku University, Japan

## ThP-G09

*In situ Observation and Characterization*

16:10 ThP-G09-1 Poster (120 min)

**Growth morphologies of Fe nanoparticles in liquid of the copper alloy**

Y.-H. Zheng\*

Wuxi Open University, China

16:10 ThP-G09-2 Poster (120 min)

**Impact of PIN and PZ end-members on Binary system PMN -PT Single Crystals near the Morphotropic Phase Boundary**

W.-H. He\*, Q. Li, T. Jiang, N.-N. Luo, Q.-F. Yan

Tsinghua University, China

16:10 ThP-G09-4 Poster (120 min)

**In-Situ X-ray Characterization of the Initial Nucleation of AlN on Sapphire (0001) during Reactive Sputtering**

G.-X. Ju<sup>1</sup>, M. J. Highland<sup>1</sup>, J. A. Eastman<sup>1</sup>, R.

Sichel-Tissot<sup>1</sup>, P. M. Baldo<sup>1</sup>, P. Zapol<sup>1</sup>, C. Thompson<sup>2,\*</sup>, P. H. Fuoss<sup>1</sup>

<sup>1</sup>Argonne National Laboratory, USA, <sup>2</sup>Northern Illinois University, USA

16:10 ThP-G09-5 Poster (120 min)

**In-situ IR measurement of homogeneous nucleation of alumina from supersaturated vapor on ground and under  $\mu$ G**

S. Ishizuka<sup>1,\*</sup>, Y. Kimura<sup>1</sup>, T. Yamazaki<sup>1</sup>, I. Sakon<sup>2</sup>, Y. Inatomi<sup>3</sup>

<sup>1</sup>Hokkaido University, Japan, <sup>2</sup>University of Tokyo, Japan, <sup>3</sup>Japan Aerospace and Exploration Agency, Japan

16:10 ThP-G09-6 Poster (120 min)

**The in situ observation of the peritectic solidification in a Sr(NO<sub>3</sub>)<sub>2</sub> - H<sub>2</sub>O system**

K. Maiwa\*, H. Nakamura, H. Kimura

National Institute for Materials Science, Japan

16:10 ThP-G09-7 Poster (120 min)

**A new set-up of Mössbauer Spectroscopic Microscope to study the correlation between Fe impurities and lattice defects in Si crystals**

Y. Ino<sup>1,\*</sup>, K. Hayakawa<sup>1</sup>, K. Yukihiro<sup>1</sup>, K. Matsumuro<sup>1</sup>, H. Fujita<sup>1</sup>, T. Watanabe<sup>1</sup>, K. Ogai<sup>2</sup>, K. Moriguchi<sup>2</sup>, Y. Harada<sup>2</sup>, H. Soejima<sup>1</sup>, Y. Yoshida<sup>1</sup>

<sup>1</sup>Shizuoka Institute of Science and Technology, Japan, <sup>2</sup>APCO. Ltd., Japan

16:10 ThP-G09-8 Poster (120 min)

**A New Li-Ge-O Type Material Synthesized by High-Pressure Method**

Y. Shimonishi<sup>1,\*</sup>, Y. Satou<sup>1</sup>, N. Yamamoto<sup>1</sup>, S. Komine<sup>1</sup>, D. Mori<sup>2</sup>, Y. Inaguma<sup>2</sup>

<sup>1</sup>DENSO CORPORATION, Japan, <sup>2</sup>Gakushuin

University, Japan

16:10 ThP-G09-9 Poster (120 min)

**Nucleation Control and Separation of  $\alpha$  and  $\beta$  Polymorphs of L-glutamic Acid by Swift Cooling Crystallization Process**

N. Poongodi<sup>1,\*</sup>, J. Aarthi<sup>1</sup>, P. Dhanasekaran<sup>1</sup>, K. Srinivasan<sup>2</sup>

<sup>1</sup>Erode Sengunthar Engineering College, India, <sup>2</sup>Bharathiar University, India.

16:10 ThP-G09-10 Poster (120 min)

**Effect of L-tyrosine on the Nucleation Control and Separation of  $\alpha$  and  $\beta$  Polymorphs of L-glutamic Acid by Swift Cooling Crystallization Process**

J. Aarthi<sup>1,\*</sup>, N. Poongodi<sup>1</sup>, P. Dhanasekaran<sup>1</sup>, K. Srinivasan<sup>2</sup>

<sup>1</sup>Erode Sengunthar Engineering College, India, <sup>2</sup>Bharathiar University, Coimbatore, India

16:10 ThP-G09-11 Poster (120 min)

**100 nm 3D Laue Diffraction Technique for Ultra-High Spatial and Strain Resolution Combined with Versatile Analytical Probes for Materials Science**

J. C.-S. Ku\*

National Synchrotron Radiation Research Center, Taiwan

16:10 ThP-G09-12 Poster (120 min)

**In-Situ Observation of the Structural Evolution During the Anodic Oxidation of Silicon**

W. Voegeli<sup>1,\*</sup>, E. Arakawa<sup>1</sup>, T. Shirasawa<sup>2,3</sup>, T. Matsushita<sup>4</sup>

<sup>1</sup>Tokyo Gakugei University, Japan, <sup>2</sup>University of Tokyo, Japan, <sup>3</sup>JST, PRESTO, Japan, <sup>4</sup>Institute of Materials Structure Science, KEK, Japan

16:10 ThP-G09-13 Poster (120 min)

**RHEED and HRTEM Study of Interface Layers in PbTe(Ga)/BaF<sub>2</sub>/CaF<sub>2</sub>/Si Heterostructures Prepared by MBE Technique**

A. M. Samoylov<sup>1,\*</sup>, E. K. Belonogov<sup>1</sup>, V. M. Iyevlev<sup>2</sup>, A. E. Klimov<sup>3</sup>, V. N. Shumsky<sup>3</sup>

<sup>1</sup>Voronezh State University, Russia, <sup>2</sup>Moscow State University, Russia, <sup>3</sup>Institute of Physics of Semiconductors, Russia

## ThP-G11

*Industrial Crystallization*

16:10 ThP-G11-1 Poster (120 min)

**Correlation between Thermal Gradients' Field and Structure Formation in Steel Static and Continuously Cast Brass Ingot**

W. Wołczyński<sup>1,\*</sup>, B. Kania<sup>1</sup>, A. W. Bydałek<sup>2</sup>, P. Kwapisieński<sup>3</sup>, A. A. Ivanova<sup>4</sup>

<sup>1</sup>Institute of Metallurgy and Materials Science, Poland, <sup>2</sup>AGH University of Science and Technology, Poland, <sup>3</sup>KGHM Polish Copper, Poland, <sup>4</sup>Institute of Applied Mathematics and Mechanics, Ukraine

16:10 ThP-G11-2 Poster (120 min)

**High Quality LBO Crystals Grown by TSSG Method**

V. A. Sukharev<sup>1</sup>, A. P. Sadovskiy<sup>1,\*</sup>, M. N. Artyushenko<sup>1</sup>, I. S. Zhurkova<sup>1</sup>, D. D. Perlov<sup>2</sup>, A. V.

Novoselov <sup>2</sup>		
<sup>1</sup> NTO IRE-Polus, Russia, <sup>2</sup> IPG-Photonics, USA		
16:10	ThP-G11-3	Poster (120 min)
<b>Growth and Laser Properties of Self-frequency-doubled Yb:Ca<sub>4</sub>YO(BO<sub>3</sub>)<sub>3</sub> crystal</b>		
Q.-N. Fang*, D. Lu, H.-H. Yu, H.-J. Zhang, J. Wang		
Shandong University, China		
16:10	ThP-G11-4	Poster (120 min)
<b>Investigating the moisture-induced transformation kinetics of 7-ethyl-10-hydroxy camptothecin DMF solvate into monohydrate</b>		
L. Fang, L. Wang*, Z.-X. Wu, X.-T. Tao		
Shandong University, China		
16:10	ThP-G11-5	Poster (120 min)
<b>Effect on Operating Parameters towards Metastable Zone Width of Carbamazepine-Saccharin Co-crystal</b>		
E. N. Engku Mat Nasir <sup>1</sup> *, F. Ab Rahman <sup>1</sup> , S. Abd Rahim <sup>1</sup> , R. Z. Edros <sup>2</sup> , N. Anuar <sup>3</sup>		
<sup>1</sup> Faculty of Chemical & Natural Resources Engineering, <sup>2</sup> Faculty of Engineering Technology, Universiti Malaysia Pahang, Malaysia, <sup>3</sup> Universiti Teknologi MARA, Malaysia		
16:10	ThP-G11-6	Poster (120 min)
<b>Application of the "Liquinert" Process to VB Growth of SrI<sub>2</sub> (Eu) Single Crystals</b>		
S. Sakuragi*, S. Hashimoto		
Union Materials Inc. Japan		
16:10	ThP-G11-7	Poster (120 min)
<b>Acceleration growth mechanism of Rauenthalite crystals (Ca<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub>10H<sub>2</sub>O) from aqueous solution</b>		
R. Komatsu <sup>1</sup> *, M. Miyazaki <sup>1</sup> , K. Mitsui <sup>1</sup> , N. Mizukoshi <sup>2</sup> , A. Sakuma <sup>2</sup> , Y. Ohtani <sup>2</sup>		
<sup>1</sup> Yamaguchi University, Japan, <sup>2</sup> GODO SHIGEN SANGYO CO., LTD., Japan		
16:10	ThP-G11-8	Poster (120 min)
<b>Influence of Diamond Multi-wire Slicing Material Removal Rate on SiC wafer Warp</b>		
X. Wei*, W. Yingmin, H. Chao		
China Electronics Technology Group Corporation, China		
16:10	ThP-G11-9	Poster (120 min)
<b>The effect of ultrasound variables on the crystallization of <math>\alpha</math>-Lactose monohydrate (<math>\alpha</math>-LM) single crystals in aqueous solution</b>		
K. Vinodhini, K. Srinivasan*		
Bharathiar University, India		
16:10	ThP-G11-10	Poster (120 min)
<b>Investigation of the growth parameters for SrI<sub>2</sub>:Eu<sup>2+</sup> crystal growth by VGF method</b>		
V. Taranyuk*, A. Gektin, E. Galenin, O. Sidletskiy, N. Nazarenko, A. Kolesnikov, S. Vasyukov		
Institute for Scintillation Materials, Ukraine		
16:10	ThP-G11-11	Poster (120 min)
<b>Working point of the EFG and <math>\mu</math>-PD processes</b>		
L. Carroz <sup>1,2</sup> *, K. Lebboud <sup>3</sup> , T. Duffar <sup>4</sup>		
<sup>1</sup> SNECMA Villaroches, France, <sup>2</sup> RSA, France, <sup>3</sup> ILM Bat Kastler, France, <sup>4</sup> SIMaP-EPM, France		
16:10	ThP-G11-12	Poster (120 min)
<b>Dissolving and Melting Phenomena of Inorganic and Organic Crystals by Addition of Third or Second Components</b>		
K. Funakoshi*, R. Negishi, H. Nakagawa, R. Kawasaki		
National Institute of Technology, Suzuka Collage (NIT, Suzuka Collage), Japan		
<b>ThP-T02</b>		
Group IV Semiconductors		
16:10	ThP-T02-1	Poster (120 min)
<b>Highly (111)-oriented Ge on insulators formed by Al-induced crystallization leading to vertically aligned Ge nanowires</b>		
M. Nakata <sup>1</sup> *, K. Toko <sup>1</sup> , W. Jevasuwan <sup>2</sup> , N. Fukata <sup>2</sup> , T. Suemasu <sup>1</sup>		
<sup>1</sup> University of Tsukuba, Japan, <sup>2</sup> National Institute for Materials Science, Japan		
16:10	ThP-T02-2	Poster (120 min)
<b>Homogeneous bulk SiGe crystals grown on board the International Space Station</b>		
Y. Arai <sup>1</sup> *, K. Kinoshita <sup>1</sup> , T. Tsukada <sup>2</sup> , K. Abe <sup>2</sup> , S. Sumioka <sup>2</sup> , M. Kubo <sup>2</sup> , S. Baba <sup>2</sup> , T. Maeda <sup>3</sup> , Y. Inatomi <sup>1</sup>		
<sup>1</sup> Japan Aerospace Exploration Agency (JAXA), Japan, <sup>2</sup> Tohoku University, Japan, <sup>3</sup> National Institute of Advanced Industrial Science and Technology (AIST), Japan		
16:10	ThP-T02-3	Poster (120 min)
<b>PECVD nanocomposites and nanotubes growth</b>		
D. Muratov, O. Rabinovich*, S. Legotin, S. Didenko, I. Fedorchenko, Yu. Osipov		
NUST MISiS, Russia		
16:10	ThP-T02-4	Poster (120 min)
<b>Towards optimized nucleation control in multicrystalline silicon ingot for solar cells</b>		
G. Anandha babu <sup>1,2</sup> *, I. Takahashi <sup>1</sup> , T. Muramatsu <sup>1</sup> , N. Usami <sup>1</sup>		
<sup>1</sup> Nagoya University, Japan, <sup>2</sup> SSN College of Engineering, India		
16:10	ThP-T02-5	Poster (120 min)
<b>Dependence of Grain Boundary Structure Controlled by Artificially Designed Seeds on Dislocation Generation</b>		
T. Iwata*, I. Takahashi, N. Usami		
Nagoya University, Japan		
16:10	ThP-T02-6	Poster (120 min)
<b>Growth of Si crystals from the crucible repelling Si melt by directional solidification</b>		
R. Komatsu <sup>1</sup> *, T. Okubo <sup>1</sup> , C. Mizuno <sup>1</sup> , Y. Fujii <sup>1</sup> , I. Takahashi <sup>2</sup> , N. Usami <sup>2</sup>		
<sup>1</sup> Yamaguchi University, Japan, <sup>2</sup> Nagoya University, Japan		
16:10	ThP-T02-7	Poster (120 min)
<b>Ultra high TCR Germanium films prepared by DC magnetron sputtering</b>		
L. P. Peng*, Z. G. Li, Z. Q. Zhan, L. Fan, X. M. Wang, T. Jiang, W. D. Wu		
Research Center of Laser Fusion, CAEP, China		
16:10	ThP-T02-8	Poster (120 min)
<b>Hole Mobility in Strained Si/SiGe/Vicinal Si(110)</b>		

**Grown by Gas Source MBE**  
K. Arimoto<sup>1\*</sup>, S. Yagi<sup>1</sup>, J. Yamanaka<sup>1</sup>, K. Nakagawa<sup>1</sup>, N. Usami<sup>2</sup>, K. Sawano<sup>3</sup>  
<sup>1</sup>Univ. of Yamanashi, Japan, <sup>2</sup>Nagoya Univ. Japan, <sup>3</sup>Tokyo City Univ., Japan

16:10 ThP-T02-9 Poster (120 min)

**About typology of grain boundaries in multicrystalline silicon based on high-purity metallurgical silicon**

S. M. Pescherova, R. V. Presnyakov\*, A. I. Nepomnyashchikh  
A. P. Vinogradov Institute of Geochemistry SB RAS, Russia

16:10 ThP-T02-10 Poster (120 min)

**The Influence of Stress-Induced Twins upon Surface Morphology of SiGe/Si(110)**

J. Yamanaka<sup>1\*</sup>, M. Shirakura<sup>2</sup>, C. Yamamoto<sup>2,3</sup>, N. Utsuyama<sup>1</sup>, K. Sato<sup>1</sup>, T. Yamada<sup>1</sup>, K. Arimoto<sup>1</sup>, K. Nakagawa<sup>1</sup>  
<sup>1</sup>Center for Crystal Science and Technology, <sup>2</sup>Center for Instrumental Analysis, <sup>3</sup>Center for Creative Technology, University of Yamanashi, Japan

16:10 ThP-T02-11 Poster (120 min)

**Influences of Phosphorous  $\delta$ -Doping at Ge Quantum Dots / Si Interface on Photoluminescence Properties and Dot Formation**

K. Sawano\*, K. Watanabe, K. Mizutani, X. Xu, T. Maruizumi  
Tokyo City University, Japan

16:10 ThP-T02-12 Poster (120 min)

**Tuning the Aluminum-Induced Crystallization process to realize a poly-Si seed-layer suitable for epitaxy**

S. Tutashkonko<sup>1,2\*</sup>, N. Usami<sup>2</sup>  
<sup>1</sup>Fukushima Top-level United center for Renewable Energy research (FUTURE-PV), Innovation Japan Science and Technology Agency (JST), Japan, <sup>2</sup>Nagoya Univ., Japan

16:10 ThP-T02-13 Poster (120 min)

**Silicon crystal growth from a Si-Al melt**

M. Gonik<sup>1\*</sup>, T. Carlberg<sup>2</sup>  
<sup>1</sup>Centre for Material Researches (PHOTON), Russia, <sup>2</sup>Mid Sweden University (FSCN), Sweden

16:10 ThP-T02-14 Poster (120 min)

**Low-Temperature Selective Epitaxial Growth of Ge on Si by using Metal Organic Chemical Vapor Deposition**

T. Washizu<sup>1\*</sup>, S. Ike<sup>1,2</sup>, Y. Inuzuka<sup>1</sup>, W. Takeuchi<sup>1</sup>, O. Nakatsuka<sup>1</sup>, S. Zaima<sup>1,3</sup>  
<sup>1</sup>Graduate School of Eng., Nagoya Univ., Japan, <sup>2</sup>JSPS Research Fellow, Japan, <sup>3</sup>IMA-SS, Nagoya Univ., Japan

16:10 ThP-T02-15 Poster (120 min)

**Interdiffusion of Al and Si during thermal process of backside fields (BSF) of Si solar cell**

S. Oyama\*, T. Kobayashi, M. Watanabe  
Gakushuin University, Japan

16:10 ThP-T02-16 Poster (120 min)

**Tomographic mapping analysis of high Ge content SiGe epitaxial films with compositionally graded**

**layers by X-ray microdiffraction**  
K. Shida<sup>1\*</sup>, S. Takeuchi<sup>1</sup>, Y. Imai<sup>2</sup>, S. Kimura<sup>2</sup>, A. Sakai<sup>1</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>JASRI/SPring-8, Japan

## ThP-T03

**2D Materials**  
16:10 ThP-T03-1 Poster (120 min)

**Growth mechanism and structure determination of TiSeTe single crystals – A new ternary phase of transition metal chalcogenides**

A. K.Dasadia<sup>1\*</sup>, B. B.Nariaya<sup>2</sup>, A. R.Jani<sup>2</sup>  
<sup>1</sup>A. D. Patel Institute of Technology, India, <sup>2</sup>Sardar Patel University, India

16:10 ThP-T03-2 Poster (120 min)

**Synthesis of Orthorhombic Black Phosphorus Single Crystal by A Modified Chemical Vapor Transport Method**

Q.-F. Yan\*, Z.-M. Zhang  
Tsinghua University, China

16:10 ThP-T03-3 Poster (120 min)

**Low-Temperature Growth of Highly Crystalline Multilayer Graphene on Heteroepitaxial Nickel Catalytic Thin Films**

T. Matsumoto<sup>1\*</sup>, M. Katagiri<sup>2</sup>, R. Ifuku<sup>1</sup>, N. Sakuma<sup>2</sup>, T. Sakai<sup>2</sup>, A. Kajita<sup>2</sup>  
<sup>1</sup>Tokyo Electron Ltd., Japan, <sup>2</sup>Toshiba Corp., Japan

16:10 ThP-T03-4 Poster (120 min)

**Ultrafast One-Step Synthesis of Sub-5 mm Orthorhombic Black Phosphorus Single Crystal by Chemical Vapor Transport Reaction Method**

Z.-M. Zhang\*, Q.-F. Yan  
Tsinghua University, China

16:10 ThP-T03-5 Poster (120 min)

**Two and Three- Dimensional Growth of Bi<sub>2</sub>Te<sub>3</sub> crystal by chemical vapor transport (CVT) Method and its Characterization**

C. Bagavath\*, J. Kuma  
Anna University, India

16:10 ThP-T03-6 Poster (120 min)

**Pulsed Visible Lasers with Atomic-layer MoS<sub>2</sub> Optical Modulator**

Yuxia Zhang<sup>1\*</sup>, Haohai Yu<sup>1</sup>, Huaijin Zhang<sup>1</sup>, Yanxue Chen<sup>2</sup>, Liangmo Mei<sup>2</sup>, Alberto Di Lieto<sup>3</sup>, Mauro Tonelli<sup>3</sup>, and Jiyang Wang<sup>1</sup>  
<sup>1</sup>State Key Laboratory of Crystal Materials and Institute of Crystal Materials, <sup>2</sup>School of Physics, Shandong University, China, <sup>3</sup>NEST Istituto Nanoscienze-CNR and Dipartimento di Fisica dell'Università di Pisa, Italy

16:10 ThP-T03-7 Poster (120 min)

**Low-temperature solid-phase crystallization of sputtering deposited quasi-layered MoS<sub>2</sub> thin film**

S. Ishihara<sup>1\*</sup>, Y. Hibino<sup>1</sup>, N. Sawamoto<sup>1</sup>, T. Ohashi<sup>2</sup>, K. Matsuura<sup>2</sup>, H. Wakabayashi<sup>2</sup>, A. Ogura<sup>1</sup>  
<sup>1</sup>Meiji University, Japan, <sup>2</sup>Tokyo Institute of Technology, Japan

16:10 ThP-T03-8 Poster (120 min)

**Structural and Optical Properties of Few-layered MoS<sub>2</sub> Nanosheets Prepared by Solvent Exfoliation**

D.-R. Hang\*, K. Hari Sharma, D.-Y. Sun, F.-Y. Su, Sk Emdadul Islam

National Sun Yat-sen University, Taiwan

16:10 ThP-T03-9 Poster (120 min)

**Two-dimensional Si-based nanostructures synthesized from CaSi<sub>2</sub> on Si substrates under chlorides vapor**

X. Meng<sup>1</sup>\*, K. Tsukamoto<sup>2</sup>, K. Sasaki<sup>3</sup>, H. Tatsuoka<sup>3</sup>  
<sup>1</sup>Graduate School of Science and Technology, <sup>2</sup>Faculty of Engineering, <sup>3</sup>Graduate School of Integrated Science and Technology, Shizuoka University, Japan

16:10 ThP-T03-10 Poster (120 min)

**Synthesis of MoS<sub>2</sub> monolayer using promoter**

M. Bosi<sup>1</sup>\*, L. Nasi<sup>1</sup>, E. Scatena<sup>2,3</sup>, C. Cairone<sup>2,3</sup>, M. Negri<sup>1,4</sup>, E. Rotunno<sup>1</sup>, F. Fabbri<sup>1,2</sup>  
<sup>1</sup>IMEM-CNR, Italy, <sup>2</sup>KET-Lab c/o Italian Space Agency Via del Politecnico, Italy, <sup>3</sup>Consozio Hypatia, c/o Italian Space Agency, Via del Politecnico, Italy, <sup>4</sup>EPFL, Switzerland

16:10 ThP-T03-11 Poster (120 min)

**Optical investigation of tungsten-doped ReS<sub>2</sub> layered crystals**

H. P. Hsu<sup>1</sup>\*, K. H. Lin<sup>2</sup>, Y. S. Huang<sup>2</sup>  
<sup>1</sup>Ming Chi University of Technology, Taiwan, <sup>2</sup>National Taiwan University of Science and Technology, Taiwan

16:10 ThP-T03-12 Poster (120 min)

**Numerical Study of Phonon Properties for Sub 2-dimensional Nano-carbon System by Force Vibrational Method**

S. Ohyagi\*, Md. Sherajul Islam, T. Nambu, A. Hashimoto  
 University of Fukui, Japan

**ThP-T04**

II-VI and Oxide Materials

16:10 ThP-T04-1 Poster (120 min)

**Low temperature growth of ZnO/MgZnO single quantum well**

X. Wang\*, K. Saito, T. Tanaka, M. Nishio, Q.-X. Guo  
 Saga University, Japan

16:10 ThP-T04-2 Poster (120 min)

**Growth of high optical quality zinc chalcogenides single crystals doped by Fe and Cr by the solid phase recrystallization technique at barothermal treatment**

E. Gavrishuk<sup>1</sup>, V. Ikonnikov<sup>1</sup>, T. Kotereva<sup>1</sup>, E. Mozhevitina<sup>1,2</sup>, R. Avetisov<sup>1,2</sup>\*, S. Rodin<sup>1</sup>, D. Savin<sup>1</sup>, P. Yunin<sup>3</sup>, I. Avetissov<sup>1</sup>

<sup>1</sup>G. G. Devyatkh Institute of Chemistry of High-Purity Substances RAS, Russia, <sup>2</sup>D. Mendeleev University of Chemical Technology of Russia, Russia, <sup>3</sup>Institute for Physics of Microstructures RAS, Russia

16:10 ThP-T04-3 Poster (120 min)

**Synthesis and Characterization of Sol-gel Derived CuGaO<sub>2</sub> Semiconductor Thin Films for UV Photodetector Application**

C.-L. Chen, C.-Y. Tsay\*  
 Feng Chia University, Taiwan

16:10 ThP-T04-4 Poster (120 min)

**A comparison study of residual stress in sputtered**

**ZnO:Al thin films by spectroscopic ellipsometry and XRD methods**

K.-M. Lin<sup>1</sup>\*, R.-L. Lin<sup>1</sup>, C.-K. Hsu<sup>1</sup>, W.-T. Hsiao<sup>2</sup>  
<sup>1</sup>Southern Taiwan University of Science and Technology, Taiwan R.O.C., <sup>2</sup>National Applied Research Laboratories, Taiwan R.O.C.

16:10 ThP-T04-5 Poster (120 min)

**Influence of NO gas addition on the properties of ZnO films grown by catalytic reaction assisted chemical vapor deposition**

R. Tajima, Y. Ishidzuka, Y. Ohashi, Y. Tamayama, K. Yasui\*  
 Nagaoka University of Technology, Japan

16:10 ThP-T04-6 Poster (120 min)

**Hydrothermal Synthesis of Flower-like ZnO Structures**

Y. F. Wu<sup>1</sup>\*, W. Y. Chen<sup>1</sup>, H. P. Hsu<sup>1</sup>, J. C. Lee<sup>2</sup>  
<sup>1</sup>Ming Chi University of Technology, Taiwan, R.O.C., <sup>2</sup>Taipei City University of Science and Technology, Taiwan, R.O.C.

16:10 ThP-T04-7 Poster (120 min)

**Numerical simulation of growth of ZnTe crystal from Te solution by vertical Bridgman method**

L.-I. Yin<sup>1,2</sup>\*, W.-Q. Jie<sup>1,2</sup>, T. Wang<sup>1,2</sup>, B. Zhou<sup>1,2</sup>, F. Yang<sup>1,2</sup>

<sup>1</sup>Northwestern Polytechnical University, China, <sup>2</sup>Ministry of Industry and Information Technology, China

16:10 ThP-T04-8 Poster (120 min)

**Influence of argon pressure on the ZnSe single crystal growth**

J. H. He\*, J. R. Chen, Z. X. Zhou, T. Y. Tian  
 Beijing Sinoma Synthetic Crystals Co. Ltd., China

16:10 ThP-T04-9 Poster (120 min)

**Mist-CVD-Grown Crystalline In<sub>2</sub>O<sub>3</sub> Thin-Film Transistors with Low Off-State Current**

S. Aikawa<sup>1</sup>\*, K. Tanuma<sup>2</sup>, T. Kobayashi<sup>2</sup>, T. Yamaguchi<sup>2</sup>, T. Onuma<sup>2</sup>, T. Honda<sup>2</sup>  
<sup>1</sup>Research Institute for Science and Technology, <sup>2</sup>Department of Applied Physics, Kogakuin University, Japan

16:10 ThP-T04-10 Poster (120 min)

**Growth of ZnMgSeTe nearly Lattice-matched to ZnTe and p-type Doping by Low-pressure MOVPE**

K. Saito\*, M. Nishio, Y. Nakatsuru, T. Shono, Y. Matsuo, A. Tomota, T. Tanaka, and Q. X. Guo  
 Saga University, Japan

16:10 ThP-T04-11 Poster (120 min)

**Photoluminescence and Electrical Properties of P-doped ZnTe Layers Grown by Low Pressure MOVPE**

M. Nishio, K. Saito\*, Y. Nakatsuru, T. Shono, Y. Matsuo, A. Tomota, T. Tanaka, and Q. X. Guo  
 Saga University, Japan

16:10 ThP-T04-12 Poster (120 min)

**Fabrication and characterization of (Ba,La)SnO<sub>3</sub> semiconductor films on (111)SrTiO<sub>3</sub> substrate**

K. Miura\*, T. Yoshimura, A. Ashida, N. Fujimura  
 Osaka Prefecture University, Japan

16:10 ThP-T04-13 Poster (120 min)

**Defect induced resistive switching effect and room temperature ferromagnetism in (In, Cr)-codoped ZnO thin film**

S. S. Li<sup>1\*</sup>, Y. K. Su<sup>1,2,3</sup>, Y. M. Hu<sup>4</sup>  
<sup>1</sup>Department of Photonics, <sup>2</sup>Institute of Microelectronics, Department of Electrical Engineering, Advanced Optoelectronic Technology Center, National Cheng Kung University, Taiwan, <sup>3</sup>Kun Shan University, Taiwan, <sup>4</sup>National University of Kaohsiung, Taiwan

16:10 ThP-T04-14 Poster (120 min)

**Crystal Structure of  $\epsilon$ -Ga<sub>2</sub>O<sub>3</sub> Thin Films by Single Crystal X-Ray Diffraction**

F. Mezzadri<sup>1</sup>, F. Boschi<sup>2,3\*</sup>, M. Bosi<sup>3</sup>, G. Calestani<sup>1</sup>, R. Fornari<sup>2,3</sup>  
<sup>1</sup>Dept. of Chemistry, <sup>2</sup>Dept. of Physics and Earth Sciences, Parma University, Italy, <sup>3</sup>IMEM-CNR Institute, Italy

16:10 ThP-T04-15 Poster (120 min)\*Late News

**Subsurface Damage Analyses of Cd<sub>0.90</sub>Zn<sub>0.10</sub>Te Single Crystals**

M. P. Kabukcuoglu<sup>1\*</sup>, Y. Ergunt<sup>2</sup>, B. Yasar<sup>3</sup>, Y. E. Kalay<sup>3</sup>, R. Turan<sup>1</sup>  
<sup>1</sup>Department of Physics, <sup>2</sup>Micro and Nanotechnology Department, <sup>3</sup>Metallurgical and Materials Engineering, Middle East Technical University, Turkey

**ThP-T05**

*Materials for Spintronics*

16:10 ThP-T05-1 Poster (120 min)

**Growth, Structure and Thermal Expansion Anomaly Single Crystal Ba<sub>3</sub>NbFe<sub>3</sub>S<sub>2</sub>O<sub>14</sub> of Langasite Family**

A. P. Dudka<sup>1</sup>, A. M. Balbashov<sup>2\*</sup>, I. S. Lyubutin<sup>1</sup>  
<sup>1</sup>The Institute of crystallography RAS, Russia, <sup>2</sup>Moscow Power Engineering Institute, Russia

16:10 ThP-T05-2 Poster (120 min)

**Preparation and Characterization of Bi substituted gadolinium iron garnet with high Bi substitution on glass substrates by Enhanced Metal Organic Decomposition method**

D. A. Wahid<sup>\*</sup>, J. Sato, M. Hosoda, H. Shimizu  
 Tokyo University of Agriculture and Technology, Japan

16:10 ThP-T05-3 Poster (120 min)

**Dzyaloshinskii-Moriya interaction at metallic bilayer interfaces**

K. Yamamoto<sup>1\*</sup>, K. Nawa<sup>1</sup>, K. Nakamura<sup>1</sup>, T. Akiyama<sup>1</sup>, T. Ito<sup>1</sup>, T. Ono<sup>2</sup>  
<sup>1</sup>Mie University, Japan, <sup>2</sup>Kyoto University, Japan

16:10 ThP-T05-4 Poster (120 min)

**Fabrication of fully epitaxial tunnel junctions with a EuS ferromagnetic barrier by molecular beam epitaxy**

S. Sakawaki<sup>1</sup>, Y. Fujita<sup>2\*</sup>, S. Haraguchi<sup>1</sup>, S. Senba<sup>2</sup>, H. Asada<sup>1</sup>, K. Kishimoto<sup>1</sup>, T. Koyanagi<sup>1</sup>  
<sup>1</sup>Yamaguchi University, Japan, <sup>2</sup>National Institute of Technology, Ube College, Japan

16:10 ThP-T05-5 Poster (120 min)

**Role of atomic-layer alignments in intrinsic spin Hall conductivity of Pt-based superlattices**

Ta. Ito<sup>1\*</sup>, K. Nawa<sup>1</sup>, K. Nakamura<sup>1</sup>, T. Akiyama<sup>1</sup>, To. Ito<sup>1</sup>, T. Ono<sup>2</sup>

<sup>1</sup>Mie University, Japan, <sup>2</sup>Kyoto University, Japan

16:10 ThP-T05-6 Poster (120 min)

**Purification of commercial yttrium metal: Removal of fluorine**

A. Takenouchi<sup>1\*</sup>, T. Otomo<sup>1</sup>, K. Niwa<sup>1</sup>, Y. Saito<sup>1</sup>, M. Sakai<sup>1</sup>, D. Kirigane<sup>1</sup>, M. Kosaka<sup>1</sup>, S. Hasegawa<sup>2</sup>  
<sup>1</sup>Saitama University, Japan, <sup>2</sup>Osaka University, Japan

16:10 ThP-T05-7 Poster (120 min)

**Fabrication of Sc and ScH<sub>x</sub> (x ≈ 2) thin film and their Hall effect**

M. Nishimagi<sup>1\*</sup>, T. Matsunaga<sup>1</sup>, M. Sakai<sup>1</sup>, K. Iizasa<sup>1</sup>, K. Higuchi<sup>2</sup>, A. Kitajima<sup>2</sup>, S. Hasegawa<sup>2</sup>  
<sup>1</sup>Saitama University, Japan, <sup>2</sup>Osaka University, Japan

16:10 ThP-T05-8 Poster (120 min)

**Rare earth ion doping in Ge deposited by molecular beam epitaxy**

Y. Miyata<sup>\*</sup>, K. Ueno, T. Yoshimura, A. Ashida, N. Fujimura  
 Osaka Prefecture University, Japan

16:10 ThP-T05-9 Poster (120 min)

**Crystal Chemistry and Magnetic Properties of A-site Column Ordered Double Perovskites, LnMnGaTiO<sub>6</sub>**

G. Shimura<sup>\*</sup>, Y. Shirako, K. Niwa, M. Hasegawa  
 Nagoya University, Japan

16:10 ThP-T05-10 Poster (120 min)

**Effects of carrier-doping on Sm-induced levels in GaSmN grown by plasma-assisted molecular beam epitaxy**

Y. Miyazaki<sup>\*</sup>, K. Dehara, S. Hasegawa  
 Osaka University Japan

16:10 ThP-T05-11 Poster (120 min)

**Effect of Co doping on the Structural, Optical and Magnetic properties of SnO<sub>2</sub> nanoparticles synthesized by citrate gel combustion method**

R. Renu, R. Ezhil Vizhi<sup>\*</sup>  
 VIT University, India

16:10 ThP-T05-12 Poster (120 min)

**Influence of Al substitution on the Structural, Optical and Gas Sensing properties of SnO<sub>2</sub> nanoparticles**

R. Renu, R. Ezhil Vizhi<sup>\*</sup>  
 VIT University, India

16:10 ThP-T05-13 Poster (120 min)\*Late News

**Highly oriented epitaxial ( $\alpha'$ + $\alpha'$ )-Fe<sub>16</sub>N<sub>2</sub> films on  $\alpha$ -Fe(001) buffered MgAl<sub>2</sub>O<sub>4</sub>(001) substrates and their magnetizations**

S. Higashikozono<sup>1\*</sup>, K. Ito<sup>1,2,3</sup>, F. Takata<sup>1</sup>, T. Gushi<sup>1</sup>, K. Toko<sup>1</sup>, T. Suemasu<sup>1</sup>  
<sup>1</sup>University of Tsukuba, Japan, <sup>2</sup>Tohoku University, Japan, <sup>3</sup>Japan Society for the Promotion of Science, Japan

16:10 ThP-T05-14 Poster (120 min)\*Late News

**First-principles Study of Rashba Effect in Bi-based Systems**

N. Yamaguchi<sup>1\*</sup>, H. Kotaka<sup>1</sup>, F. Ishii<sup>2</sup>  
<sup>1</sup>Graduate School of Natural Science and Technology,

<sup>2</sup>Faculty of Mathematics and Physics, Kanazawa University, Japan

## ThP-T08

Materials for Organic Devices and Bio Applications

16:10 ThP-T08-1 Poster (120 min)

### Multiple Stoichiometries in Organic Single Crystals of Charge Transfer Compound

P. Hu\*, H. Jiang, C. Kloc

Nanyang Technological University, Singapore

16:10 ThP-T08-2 Poster (120 min)

### Study of Nano-Dimensional Self Assembly of Poly(3-hexylthiophene) and Charge Transfer Properties

B. R. Lin<sup>1</sup>, C. J. Tsou<sup>1</sup>, W. Y. Chou<sup>1,2</sup>, H. L. Cheng<sup>1,2</sup> \*

<sup>1</sup>Department of Photonics, <sup>2</sup>Advanced Optoelectronic Technology Center, National Cheng Kung University, Taiwan

16:10 ThP-T08-3 Poster (120 min)

### Improved microstructure-dependent electrical performance of polymeric thin-film transistors by hexamethylbenzene

F.-C. Wu<sup>1</sup> \*, C.-C. Lu<sup>1</sup>, W.-Y. Chou<sup>1</sup>, J. Ruan<sup>2</sup>, H.-L. Cheng<sup>1</sup>

<sup>1</sup>Department of Photonics, <sup>2</sup>Department of Materials Science and Engineering, National Cheng Kung University, Taiwan

16:10 ThP-T08-4 Poster (120 min)

### Charge Transfer as a Tool for Designing Properties of Organic Crystals

C. Kloc\*, H. Jiang, P. Hu

Nanyang Technological University, Singapore

16:10 ThP-T08-5 Poster (120 min)

### Microneedle Crystals of Cyano-substituted Thiophene/Phenylene Co-oligomer Epitaxially Grown on KCl Surface

K. Torii\*, Y. Tanaka, S. Yoshinaga, H. Yanagi

Nara Institute of Science and Technology, Japan

16:10 ThP-T08-6 Poster (120 min)

### Fabrication of Polycrystalline Films of Cyano-substituted Thiophene/Phenylene Co-oligomer by Vapor-deposition Transfer Method

S. Dokiya<sup>1</sup> \*, F. Sasaki<sup>2</sup>, H. Yanagi<sup>1</sup>

<sup>1</sup>Nara Institute of Science and Technology, Japan,

<sup>2</sup>National Institute of Advanced Industrial Science and Technology, Japan

16:10 ThP-T08-7 Poster (120 min)

### Mechanism of Selective Crystal Growth in Non-Peripheral Hexyl-Substituted Phthalocyanine and Tetrabenzotriazaporphyrin

M. Ohmori\*, C. Nakano, A. Fujii, M. Ozaki

Osaka University, Japan

16:10 ThP-T08-8 Poster (120 min)

### Single-crystal Perovskites Prepared by Simple-solution Process: Cast-capping Method

V.-C. Nguyen<sup>1</sup> \*, H. Katsuki<sup>1</sup>, F. Sasaki<sup>2</sup>, H. Yanagi<sup>1</sup>

<sup>1</sup>Nara Institute of Science and Technology, Japan,

<sup>2</sup>National Institute of Advanced Industrial Science and Technology, Japan

16:10 ThP-T08-9 Poster (120 min)

### Fabrication of CdTe Quantum Dots-Apoferritin Arrays For Detection Of Neurotransmitters

T. H. Le\*, S. J. Park

Gachon University, Korea

16:10 ThP-T08-10 Poster (120 min)

### Morphological Control of Blend Films Using Gas Deposition Method for Organic Photovoltaics

Y. Shibata<sup>1</sup> \*, N. Ohashi<sup>2</sup>, Y. Yoshida<sup>3</sup>

<sup>1</sup>Tohoku University, Japan, <sup>2</sup>Suwa Tokyo University of Science, Japan, <sup>3</sup>National Institute of Advanced Industrial and Science Technology (AIST), Japan

16:10 ThP-T08-11 Poster (120 min)

### Epitaxy of Lead-iodide Perovskite Thin Films on ionic crystal substrates

Y. Yoshida<sup>1</sup> \*, K. Yase<sup>1</sup>, T. Tsutsui<sup>2</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and Technology, Japan, <sup>2</sup>Kyushu University, Japan

16:10 ThP-T08-12 Poster (120 min)

### Synthesis and characterization of Bifunctional Fe<sub>3</sub>O<sub>4</sub>/SiO<sub>2</sub>/CsLa(WO<sub>4</sub>)<sub>2</sub>:Eu<sup>3+</sup> Nanocomposites with core-shell structure for Biomedical application

D. Balaji<sup>1</sup> \*, K. Kavirasu, S. Moorthy Babu

Anna University, India

16:10 ThP-T08-13 Poster (120 min)

### The effect of air exposure on the crystal structure of oligothiophene thin films investigated using *in situ* X-ray diffraction

T. Watanabe<sup>1</sup> \*, T. Koganezawa<sup>1</sup>, M. Kikuchi<sup>2</sup>, C. Videlot-Ackermann<sup>3</sup>, J. Ackermann<sup>3</sup>, H. Brisset<sup>4</sup>, N. Yoshimoto<sup>2</sup>, I. Hirose<sup>1</sup>

<sup>1</sup>Japan Synchrotron Radiation Research Institute, Japan,

<sup>2</sup>Iwate University, Japan, <sup>3</sup>Aix Marseille Université, CNRS, France, <sup>4</sup>Université, de Toulon MAPIEM, France

16:10 ThP-T08-14 Poster (120 min)

### Effects of alkyl-chain lengths on thin film growth of $\alpha,\omega$ -quaterthiophene derivatives observed by *in-situ* 2-dimensional X-ray diffraction

D. Hironai<sup>1</sup>, S. Koshika<sup>1</sup>, T. Koganezawa<sup>3</sup>, M. Suzuki<sup>4</sup>, D. Kuzuhara<sup>1</sup>, H. Yamada<sup>4</sup>, I. Hirose<sup>3</sup>, M. Hasegawa<sup>2</sup>, N. Yoshimoto<sup>1,2</sup> \*

<sup>1</sup>Graduate School of Engineering, <sup>2</sup>Soft-Path Engineering Research Center, Iwate University, Japan,

<sup>3</sup>Japan Synchrotron Radiation Research Institute, Japan,

<sup>4</sup>Nara Institute of Science and Technology, Japan

16:10 ThP-T08-15 Poster (120 min)

### Effect of polar interactions between substrate and long-chain molecules on initial stage in thin film growth

H. Takeda\*, T. Abe, K. Horai, M. Kamiya, R. Matsubara, A. Kubono

Shizuoka University, Japan

16:10 ThP-T08-16 Poster (120 min)

### Single Crystal Preparation and X-ray Structure Analysis of Non-peripherally Alkyl-substituted Phthalocyanine Blends

C. Nakano<sup>1</sup> \*, M. Ohmori<sup>1</sup>, N. Tohnai<sup>2</sup>, A. Fujii<sup>1</sup>, M. Ozaki<sup>1</sup>

<sup>1</sup>Division of Electrical, Electronic and Information

Engineering, <sup>2</sup>Department of Material and Life Science, Osaka University, Japan

16:10 ThP-T08-17 Poster (120 min)

**Improved Crystallinity of Epitaxial C<sub>60</sub> on Pentacene Single Crystal by Preparation Temperature**

R. Tsuruta<sup>1</sup>\*, Y. Mizuno<sup>2</sup>, T. Hosokai<sup>3</sup>, T. Koganezawa<sup>4</sup>, H. Ishii<sup>2</sup>, Y. Nakayama<sup>1</sup>

<sup>1</sup>Tokyo University of Science, Japan, <sup>2</sup>Chiba University, Japan, <sup>3</sup>National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>4</sup>Japan Synchrotron Radiation Research Institute (JASRI), Japan

16:10 ThP-T08-18 Poster (120 min)

**Preparation and characterizations of pure and Zn<sup>2+</sup> doped CoFe<sub>2</sub>O<sub>4</sub> magnetic nanoparticles for anti-microbial activities**

D. Rajan Babu<sup>1</sup>\*, K. Venkatesan<sup>1</sup>, R. Vidya<sup>2</sup>

<sup>1</sup>Department of Physics, School of Advanced Sciences, India, <sup>2</sup>Department of Bio-Medical Sciences, School of Bio Science and Technology, VIT University, India

16:10 ThP-T08-19 Poster (120 min)

**Crystal Growth of Organic Semiconductor in Ionic Liquid by Vacuum Vapor Deposition**

S. Horike\*, Y. Koshiha, M. Misaki, K. Ishida  
Kobe University, Japan

16:10 ThP-T08-20 Poster (120 min)

**Growth-Condition dependent Morphology of Uniaxially Aligned Perylenediimide Nanowires**

S. Machida\*, M. Tanikatsu, A. Itaya, N. Ikeda  
Kyoto Institute of Technology, Japan

16:10 ThP-T08-21 Poster (120 min)

**Efficient Growth of C<sub>70</sub> Nanowhiskers By Liquid-Liquid Interfacial Precipitation Method**

H. Hayase<sup>1</sup>\*, S. Yamamoto<sup>1</sup>, K. Kato<sup>1</sup>, H. Murata<sup>1</sup>, K. Miyazawa<sup>2</sup>, M. Tachibana<sup>1</sup>

<sup>1</sup>Yokohama City University, Japan, <sup>2</sup>National Institute for Materials Science, Japan

**ThP-T10**

Silicon Carbide

16:10 ThP-T10-1 Poster (120 min)

**Numerical Investigation of Transport Phenomena during Crystal Growth of SiC by the Induction Heating TSSG Method**

N. Adkar<sup>1</sup>\*, T. Yamamoto<sup>1</sup>, Y. Okano<sup>1</sup>, T. Ujihara<sup>2</sup>, S. Dost<sup>3</sup>

<sup>1</sup>Osaka University, Japan, <sup>2</sup>Nagoya University, Japan, <sup>3</sup>University of Victoria, Canada

16:10 ThP-T10-2 Poster (120 min)

**Effect of Crystal Shape on Solution Flow and Surface Morphology in Solution Growth of SiC**

D. Koike<sup>1</sup>\*, T. Umezaki<sup>1</sup>, K. Murayama<sup>2</sup>, K. Aoyagi<sup>3</sup>, S. Harada<sup>1,2</sup>, M. Tagawa<sup>1,2</sup>, T. Sakai<sup>3</sup>, T. Ujihara<sup>1,2</sup>

<sup>1</sup>Department of Materials Science and Engineering, <sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), <sup>3</sup>Green Mobility Collaborative Research Center, Nagoya University, Japan

16:10 ThP-T10-3 Poster (120 min)

**Effect of etching process on fast-epitaxial SiC thick films**

K.-L. Mao<sup>1,2</sup>\*, Y.-M. Wang<sup>2</sup>, B. Li<sup>2</sup>, G.-Y. Zhao<sup>1</sup>

<sup>1</sup>Xi'an University of Technology, China, <sup>2</sup>The 2nd Research Institute of CETC, China

16:10 ThP-T10-4 Poster (120 min)

**Modeling Solutions for Growth of Silicon Carbide**

M. V. Bogdanov<sup>1</sup>, A. V. Kulik<sup>1</sup>, A. S. Segal<sup>1</sup>, A. N. Vorob'ev<sup>1</sup>, E. V. Yakovlev<sup>1</sup>, M. Iizuka<sup>2</sup>, Y. Mukaiyama<sup>2</sup>\*, V. V. KalaeV<sup>1</sup>

<sup>1</sup>STR Group Inc., Russia, <sup>2</sup>STR Japan K.K., Japan

16:10 ThP-T10-6 Poster (120 min)

**Parameters affecting n-type doping in 3C-SiC**

M. Negri<sup>1</sup>, M. Bosi<sup>2</sup>\*, G. Attolini<sup>2</sup>, T. Rimoldi<sup>3</sup>, D. Orsi<sup>3</sup>, L. Cristofolini<sup>3</sup>, E. Buffagni, C. Ferrari, G. Salvati<sup>2</sup>

<sup>1</sup>EPFL, Switzerland, <sup>2</sup>IMEM-CNR, Italy, <sup>3</sup>Università degli Studi di Parma, Italy

16:10 ThP-T10-7 Poster (120 min)

**Effects of properties of SiC powder source on growth of SiC crystal by PVT**

X. J. Chen\*, Y. Liu, J. Su, Y. Li

Xi'an Jiaotong University, China

16:10 ThP-T10-8 Poster (120 min)

**Carrier Lifetimes in 4H SiC Epitaxial layers with Different n-type Doping Levels**

L. Lilja, I. Farkas, J. P. Bergman<sup>1</sup>\*

Linköping University, Sweden

16:10 ThP-T10-9 Poster (120 min)

**Solution growth of SiC from metal solvent**

K. Suzuki<sup>1</sup>, T. Taishi<sup>1,2</sup>

<sup>1</sup>Faculty of Engineering, <sup>2</sup>Center for Energy and Environmental Science, Shinshu University, Japan

16:10 ThP-T10-10 Poster (120 min)\*Late News

**The realization of high-quality 4H-SiC C-face grown crystals by controlling the macrosteps formation during solution growth**

S. Y. Xiao<sup>1</sup>\*, S. Harada<sup>2</sup>, P. L. Chen<sup>1</sup>, K. Murayama<sup>2</sup>, T. Ujihara<sup>2</sup>

<sup>1</sup>Department of Materials Science and Engineering, <sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University, Japan

16:10 ThP-T10-11 Poster (120 min)\*Late News

**Investigation on the microstructure, mechanical properties and thermal shock stability of 3C-SiC films deposited by low pressure chemical vapor deposition**

J. B. Wu\*, W. C. Tsai, H. W. Cheng, J. J. Chang, T. S. Chen, M. S. Leu

Industrial Technology Research Institute, Taiwan R.O.C.

**Banquet**

Thursday evening, 11 August, 19:00

Nagoya Marriott Associa Hotel

## Friday, 12 August

### Plenary 7

Friday morning, 12 August, 8:30  
Shirotori Hall

8:30 Plenary Lecture (40 min)

### MOVPE Chemistry and Process Modeling: Where are we and what can we do?

Thomas Kuech\*  
University of Wisconsin, USA

### Coffee break

Friday morning, 12 August, 9:10  
Event Hall, Shirotori Hall

### Session Fr1

Friday morning, 12 August, 9:40  
G06, G09, G11, T02, T03, T04, T05, T06, T08, T10

### Fr1-G06

Bulk Crystal Growth  
Room: Oral 10

9:40 Fr1-G06-1 Oral (15 min)

### Evaluation of AlSb Crystal for Radiation Detector Applications

Tao Wang\*, Ziang Yin, Wei Wang, Jie Li, Fan Yang  
Wanqi Jie  
Northwestern Polytechnical University, China

9:55 Fr1-G06-2 Oral (15 min)

### Growth of LiIn<sub>1-x</sub>Ga<sub>x</sub>Se<sub>2</sub> Semi-Insulating Crystals

B. Wiggins<sup>1,2</sup>\*, A. Burger<sup>2,3</sup>, K. Stassun<sup>2,3</sup>, A. Stowe<sup>1,2</sup>  
<sup>1</sup>Y-12 National Security Complex, USA, <sup>2</sup>Vanderbilt University, USA, <sup>3</sup>Fisk University, USA

10:10 Fr1-G06-3 Oral (15 min)

### Crystal growth of pyrochlore stannate

D. Prabhakaran\*, A. T. Boothroyd  
University of Oxford, UK

10:25 Fr1-G06-4 Oral (15 min)

### Growth of Brownmillerite Ca<sub>2</sub>Fe<sub>2</sub>O<sub>5</sub> Single Crystals in Different Ambience

S. Dhankhar<sup>1</sup>\*, G. Bhalerao<sup>2</sup>, S. Ganesamoorthy<sup>3</sup>, K. Baskar<sup>4</sup>, S. Singh<sup>1</sup>  
<sup>1</sup>Anna University, India, <sup>2</sup>UGC-DAE CSR Kalpakkam Node, India, <sup>3</sup>Material Science Group, IGCAR, India, <sup>4</sup>Manonmaniam Sundaranar University, India

10:40 Fr1-G06-5 Oral (15 min)

### Effect of Transition Metal Ions (Cd and Mn) on Solubility, Growth, Linear, Nonlinear Optical and Electrical Properties of Li<sub>2</sub>SO<sub>4</sub>·H<sub>2</sub>O Single Crystals

A. Silambarasan\*, P. Rajesh, P. Ramasamy  
SSN College of Engineering, India

10:55 Fr1-G06-6 Oral (15 min) \*Late News

### Single crystal growth of Mg co-doped Ce:Lu<sub>2</sub>Gd<sub>1</sub>(Ga,Al)<sub>5</sub>O<sub>12</sub> by micro pulling down method and their scintillation properties.

K. Kamada<sup>1,2</sup>\*, H. Yamaguchi<sup>3</sup>, A. Yamaji<sup>3</sup>, S. Kurosawa<sup>1,3</sup>, Y. Shoji<sup>2,3</sup>, Y. Yokota<sup>1</sup>, Y. Ohashi<sup>3</sup>, A.

Yoshikawa<sup>1,2,3</sup>

<sup>1</sup>New Industry Creation Hatchery Center, Tohoku University, Japan, <sup>2</sup>C&A Corporation, Japan, <sup>3</sup>Institute for Material Research, Tohoku University, Japan

### Fr1-G09

In situ Observation and Characterization

Room: Oral 1

9:40 Fr1-G09-1 Invited oral (25 min)

### Kinetic roughening via two-dimensional spinodal decomposition in hematin crystallization

P. G. Vekilov<sup>1,2</sup>\*, K. N. Olafson<sup>1</sup>, J. D. Rimer<sup>1</sup>  
<sup>1</sup>Department of Chemical and Biomolecular Engineering, <sup>2</sup>Department of Chemistry, University of Houston, USA

10:05 Fr1-G09-2 Invited oral (25 min)

### Enantioselective bias on circularly polarized laser-induced chiral crystallization from NaClO<sub>3</sub> solution with plasmonic Ag nanoparticles

H. Niinomi<sup>1</sup>\*, T. Sugiyama<sup>2</sup>, M. Tagawa<sup>3</sup>, M. Maruyama<sup>4</sup>, T. Omatsu<sup>1</sup>, T. Ujihara<sup>3</sup>, Y. Mori<sup>4</sup>  
<sup>1</sup>Chiba University, Japan, <sup>2</sup>National Chiao Tung University, Taiwan, <sup>3</sup>Nagoya University, Japan, <sup>4</sup>Osaka University, Japan

10:30 Fr1-G09-3 Oral (15 min)

### Influence of the atmosphere on the in-situ observation of heated graphene layers

M. Kato\*, K. Shihomatsu, Y. Homma, X. Zhao  
Tokyo University of Science, Japan

10:45 Fr1-G09-4 Oral (15 min)

### In situ High Temperature NEXAFS Study on Initial Growth Process of Carbon Nanotubes by Surface Decomposition of SiC

T. Maruyama<sup>1,2\*</sup>, S. Naritsuka<sup>1,2</sup>, K. Amemiya<sup>3</sup>  
<sup>1</sup>Department of Applied Chemistry, <sup>2</sup>Department of Materials Science and Engineering, Meijo University, Japan, <sup>3</sup>High Energy Accelerator Research Organization (KEK-PF), Japan

11:00 Fr1-G09-5 Oral (15 min)

### Understanding the polymorphic transitions of linear amino acids using in-situ characterisation

M. Smets\*, S. Brugman, E. van Eck, J. van den Ende, H. Meekes, H. Cuppen, E. Vlieg  
Radboud University, The Netherlands

11:15 Fr1-G09-6 Oral (15 min)

### Structure analysis of the liquid Ti near solid-liquid interface of melted zone by laser-heating

N. N. Fujiwara<sup>1</sup>\*, D. Aoshima<sup>1</sup>, A. Nakamura<sup>1</sup>, A. Mizuno<sup>2</sup>, M. Watanabe<sup>1</sup>  
<sup>1</sup>Gakushuin University, Japan, <sup>2</sup>National Institute of Technology, Hakodate College, Japan

11:30 Fr1-G09-7 Oral (15 min)

### In-Situ Measurement of Lysozyme Crystal Growth Rate vs Supersaturation with different impurity level in the International Space Station

K. Tsukamoto<sup>1</sup>\*, H. Miura<sup>2</sup>, Y. Suzuki<sup>3</sup>, I. Yoshizaki<sup>4</sup>  
<sup>1</sup>Osaka University, Japan/Tohoku University, Japan, <sup>2</sup>Nagoya City University, Japan, <sup>3</sup>Tokushima University, Japan, <sup>4</sup>Japan Aerospace Exploration Agency, Japan



## Fr1-G11

Industrial Crystallization

Room: Oral 2

9:40 Fr1-G11-1 Invited oral (25 min)

### Laser Heated Pedestal Growth and cladding of Yb Doped CaAlGdO<sub>4</sub> single crystals fibers

G. Maxwell\*, B. Ponting, E. Gebremichael, R. Magana Shasta Crystals, 1750 Cesar Chavez Unit J, USA

10:05 Fr1-G11-2 Oral (15 min)

### Effects of amaranth dye on the growth optical, thermal, mechanical and electrical properties of KDP crystal

R. Paulraj\*, S. Chandran, P. Ramasamy

SSN College of Engineering, India

10:20 Fr1-G11-3 Oral (15 min)

### Bulk Hydrothermal KTiOPO<sub>4</sub> Crystals for Electro-Optic Application

C.-L. Zhang<sup>1,2</sup> \*

<sup>1</sup>China Nonferrous Metals (Guilin) Geology and Mining Co., Ltd, China, <sup>2</sup>Guilin Bairay Photoelectric Technology Co., Ltd., China

10:35 Fr1-G11-4 Oral (15 min)

### Crystal Growth of Nd:GdCOB with High Optical Quality and Large Size

X. K. Han<sup>1</sup> \*, H. H. Yu<sup>1</sup>, H. J. Zhang<sup>1</sup>, C. Q. Ma<sup>2</sup>

<sup>1</sup>Institute of Crystal Materials, <sup>2</sup>School of Chemistry and Chemical Engineering, Shandong University, China

10:50 Fr1-G11-5 Oral (15 min)

### Development of new alumina precipitation routes for catalysis applications

R. Lafficher<sup>1,2</sup> \*, M. Digne<sup>1</sup>, F. Salvatori<sup>1</sup>, M. Boualleg<sup>1</sup>, D. Colson<sup>2</sup>, F. Puel<sup>2,3</sup>

<sup>1</sup>IFP Energies Nouvelles, France, <sup>2</sup>Univ Lyon, Université Lyon 1, CNRS, France, <sup>3</sup>LGPM, CentraleSupélec, Université Paris-Saclay, France

11:05 Fr1-G11-6 Oral (15 min)

### Nucleation kinetics assessment for carbamazepine co-crystals crystallised from ethanolic solutions

S. Abd Rahim<sup>1</sup> \*, R. B. Hammond<sup>2</sup>, K. J. Roberts<sup>2</sup>, A. Y. Sheikh<sup>3</sup>

<sup>1</sup>Universiti Malaysia Pahang, Malaysia, <sup>2</sup>University of Leeds, UK, <sup>3</sup>Solid State Chemistry, AbbVie Inc, USA

11:20 Fr1-G11-7 Oral (15 min)

### The Role of Solvents on the Control of Liquid-Liquid Phase Separation (LLPS) and Crystallization of Vanillin

P. Parimaladevi, K. Srinivasan\*

Bharthiar University, India.

11:35 Fr1-G11-8 Oral (15 min)

### The Decopperisation and Coagulation by Use the Carbo-N-Ox

A. W. Bydałek<sup>1</sup>\*, W. Wołczyński<sup>2</sup>, J.

Karwan-Baczewska<sup>1</sup>

<sup>1</sup>AGH University of Science and Technology, Poland,

<sup>2</sup>Institute of Metallurgy and Materials Science, PAS, Poland

## Fr1-T02

Group IV Semiconductors

Room: Oral 8

9:40 Fr1-T02-1 Invited oral (25 min)

### Progress and challenges for cost effective kerfless Silicon crystal growth for PV application

J. M. Serra<sup>1</sup> \*, J. Maia Alves<sup>1</sup>, A. M. Vallera<sup>1,2</sup>

<sup>1</sup>Universidade de Lisboa, Portugal, <sup>2</sup>SDSIL, Campo Grande, ED ICAT, Portugal

10:05 Fr1-T02-2 Oral (15 min)

### Influence of different nucleation layers on the initial grain structure of multi-crystalline silicon ingots

I. Kupka<sup>1</sup>, C. Reimann<sup>1,2</sup> \*, T. Lehmann<sup>1</sup>, D. Oriwol<sup>3</sup>, F. Kropfgans<sup>3</sup>, J. Friedrich<sup>1,2</sup>

<sup>1</sup>Fraunhofer THM, Germany, <sup>2</sup>Fraunhofer IISB, Germany, <sup>3</sup>SolarWorld Innovations GmbH, Germany

10:20 Fr1-T02-3 Oral (15 min)

### On the growth mechanism of a multicrystalline silicon ingot with small grains by using single layer silicon beads

T. Muramatsu<sup>1</sup> \*, I. Takahashi<sup>1</sup>, G. Anandha Babu<sup>1,2</sup>, N. Usami<sup>1</sup>

<sup>1</sup>Nagoya University, Japan, <sup>2</sup>SSN College of Engineering, India

10:35 Fr1-T02-4 Oral (15 min)

### Controlling Impurity Distributions in Crystalline Si for Solar Cells by Using Artificial Designed Defects

Y. Hayama\*, I. Takahashi, N. Usami

Nagoya University, Japan

10:50 Fr1-T02-5 Oral (15 min)

### Influence of extraordinary long ingot heights on the wafer quality of high performance multi-crystalline silicon for PV application

T. Lehmann<sup>1</sup>, I. Kupka<sup>1</sup>, M. Trempa<sup>2</sup>, M. Beier<sup>2</sup>, C. Reimann<sup>1,2</sup> \*, D. Oriwol<sup>3</sup>, F. Kropfgans<sup>3</sup>, L. Sylla<sup>3</sup>, J. Friedrich<sup>1,2</sup>

<sup>1</sup>Fraunhofer THM, Germany, <sup>2</sup>Fraunhofer IISB, Germany, <sup>3</sup>SolarWorld Innovations GmbH, Germany

11:05 Fr1-T02-6 Oral (15 min)

### Improvement of Process yield and Ingot Quality with High Purity Silazane-based Releasing Nitrides Coatings in PV Silicon Crystallization

V. Brizé\*, S. Bailly, M. Sérasset, D. Camel, B. Drevet University Grenoble Alpes, INES, France/CEA, LITEN, France

11:20 Fr1-T02-7 Oral (15 min)

### Development of growth technology of mc-Si ingot suppressing impurity contamination

K. Fujiwara<sup>1</sup> \*, Y. Horioka<sup>2</sup>, S. Sakuragi<sup>3</sup>

<sup>1</sup>Tohoku University, Japan, <sup>2</sup>Frontier Technology Business Research Institute Co. Ltd., Japan, <sup>3</sup>Union Materials Inc., Japan

11:35 Fr1-T02-8 Oral (15 min)

### Chemical and microstructural stability of silicon nitride coatings used in the crystallization of PV silicon ingots

V. Brizé<sup>1</sup> \*, A. Selzer<sup>1</sup>, R. Voytovych<sup>1</sup>, B. Drevet<sup>1</sup>, D. Camel<sup>1</sup>, N. Eustathopoulos<sup>2</sup>

<sup>1</sup>University Grenoble Alpes-INES/CEA, LITEN, France,

<sup>2</sup>University Grenoble Alpes-CNRS, SIMaP, France

## Fr1-T03

2D Materials

Room: Oral 5

9:40 Fr1-T03-1 Invited oral (25 min)

### Interlayer resonant Raman modes in few-layer 2D materials

N. Scheuschner\*, R. Gillen, M. Staiger, J. Maultzsch

Technische Universität Berlin, Germany

10:05 Fr1-T03-2 Oral (15 min)

### Robust Phonon-Plasmon Coupling in Quasi-Freestanding Graphene on Silicon Carbide

R. J. Koch<sup>1,2,3</sup>, S. Fryska<sup>2</sup>, M. Ostler<sup>1,2</sup>, M. Endlich<sup>3</sup>, F. Speck<sup>1,2</sup>, T. Hänse<sup>1,3</sup>, J. A. Schaefer<sup>3,4</sup>, Th. Seyller<sup>1,2</sup> \*

<sup>1</sup>Technische Universität Chemnitz, Germany,

<sup>2</sup>Universität Erlangen-Nürnberg, Germany, <sup>3</sup>Technische

Universität Ilmenau, Germany, <sup>4</sup>Montana State

University, USA

10:20 Fr1-T03-3 Oral (15 min)

### Graphene intercalation: A pathway towards stabilizing new 2D crystals

Z. Y. Al Balushi<sup>1,2</sup> \*, K. Wang<sup>3</sup>, R. Krishna Ghosh<sup>2,4</sup>, S. Datta<sup>2,3,4</sup>, J. A. Robinson<sup>1,2,3</sup>, J. M. Redwing<sup>1,2,3,4</sup>

<sup>1</sup>Dept. of Materials Science and Engr., <sup>2</sup>Center for

2-Dimensional and Layered Materials, <sup>3</sup>Materials

Research Institute, <sup>4</sup>Dept. of Electrical Engr., The

Pennsylvania State University, USA

10:35 Fr1-T03-4 Oral (15 min)

### Graphene/SiC(0001) interfaces induced by Si intercalation

A. Visikovskiy<sup>1</sup> \*, S. Kimoto<sup>1</sup>, T. Kajiwara<sup>1</sup>, M.

Yoshimura<sup>2</sup>, F. Komori<sup>3</sup>, S. Tanaka<sup>1</sup>

<sup>1</sup>Kyushu University, Japan, <sup>2</sup>Toyota Technological

Institute, Japan, <sup>3</sup>University of Tokyo, Japan

10:50 Fr1-T03-5 Oral (15 min)

### Tunable Structure Phase Patterning and Semiconductor-Metal Transition in MoTe<sub>2</sub>-WTe<sub>2</sub> Single Crystal Systems via Isovalent Substitution

Y.-Y. Lv<sup>1</sup>, B.-B. Zhang<sup>1</sup>, S. H. Yao<sup>1</sup> \*, Y. B. Chen<sup>2</sup>, J. Zhou<sup>1</sup>, Y. F. Chen<sup>1</sup>

<sup>1</sup>National Laboratory of Solid State Microstructures and

Department of Materials Science and Engineering,

<sup>2</sup>National Laboratory of Solid State Microstructure and

Department of Physics, Nanjing University, China.

11:05 Fr1-T03-6 Oral (15 min)

### Monolayer-to-bilayer transformation of silicenes in a CaSi<sub>2</sub> single crystal

R. Yaokawa<sup>1</sup> \*, T. Ohsuna<sup>1</sup>, H. Nakano<sup>1,2</sup>

<sup>1</sup>TOYOTA CENTRAL R&D LABS., INC., Japan, <sup>2</sup>JST

Presto, Japan

## Fr1-T04

II-VI and Oxide Materials

Room: Oral 4

9:40 Fr1-T04-3 Oral (15 min)

### Growth and Characterization of Large-Size ZnSe Single Crystals

S. Wang<sup>1</sup> \*, A. Kopec<sup>1</sup>, A. G. Timmerman<sup>1</sup>, B.

Rangothamachar<sup>2</sup>, M. Dudley<sup>2</sup>

<sup>1</sup>Fairfield Crystal Technology, USA, <sup>2</sup>Stony Brook

University, USA

9:55 Fr1-T04-4 Oral (15 min)

### Travelling-solvent Floating-zone growth, electrical properties of ZnO: Ga single crystals

Y.-F. Ma<sup>1,2</sup>, E. Bourret<sup>2</sup>, D. Perrodin<sup>2</sup>, Y. Zeng<sup>1</sup>, Y.-J.

Jiang<sup>1</sup> \*

<sup>1</sup>Beijing University of Technology, China, <sup>2</sup>Lawrence

Berkeley National Laboratory, USA

10:10 Fr1-T04-5 Oral (15 min)

### Solution Growth of Zinc Oxide on Aluminum Zinc Layered Double Hydroxides

C. Perfetti\*, K. Abe

Nagoya Institute of Technology, Japan

10:25 Fr1-T04-6 Oral (15 min)

### Growth and Characterization of CTGS and YCOB Crystals for Extreme Conditions Applications

Y. Q. Zheng<sup>1</sup> \*, X. N. Tu<sup>1,2</sup>, K. N. Xiong<sup>1</sup>, J. Xin<sup>1,2</sup>, H. K.

Kong<sup>1,2</sup>, E. W. Shi<sup>1</sup>

<sup>1</sup>Shanghai Institute of Ceramics, Chinese Academy of

Sciences, China, <sup>2</sup>University of Chinese Academy of

Sciences, China

10:40 Fr1-T04-7 Oral (15 min)

### Growth and characterization of ZnTe layers on severely lattice mismatched sapphire substrates by MBE

T. Nakasu<sup>1</sup> \*, W. Sun<sup>1</sup>, M. Kobayashi<sup>1,2</sup>, T. Asahi<sup>3</sup>

<sup>1</sup>Department of Electrical Engineering and Bioscience,

<sup>2</sup>Kagami Memorial Research Institute for Materials

Science and Technology, Waseda University, Japan, <sup>3</sup>JX

Nippon Mining & Metals Corporation, Japan

## Fr1-T05

Materials for Spintronics

Room: Oral 6

9:40 Fr1-T05-1 Invited oral (25 min)

### Rare earth nitrides: new materials for semiconductor-based spintronics

F. Natali<sup>1</sup> \*, S. Veziari<sup>2</sup>, B. Ruck<sup>1</sup>, J. Trodahl<sup>1</sup>

<sup>1</sup>Victoria University of Wellington, New Zealand,

<sup>2</sup>Centre de Recherche sur l'Hétéro-Épitaxie et ses

Applications (CRHEA), Centre National de la Recherche

Scientifique, France

10:05 Fr1-T05-2 Oral (15 min)

### Magnetic and magneto-optical properties of Ga<sub>1-x</sub>Gd<sub>x</sub>N/GaN superlattices with GdN mole fraction enhanced up to 100%

Y. Sugeta\*, S. Hasegawa

Osaka University, Japan

10:20 Fr1-T05-3 Oral (15 min)

### Spin-dependent tunneling in La<sub>0.67</sub>Sr<sub>0.33</sub>MnO<sub>3</sub>-based magnetic tunnel junctions with an LaMnO<sub>3</sub> barrier

T. Matou\*, K. Takeshima, M. Tanaka, S. Ohya

The University of Tokyo, Japan

10:35 Fr1-T05-4 Oral (15 min)

### Crystal Growth and Spin Reorientation Transition in Sm<sub>1-x</sub>Re<sub>x</sub>FeO<sub>3</sub> Orthoferrite

X.-Y. Zhao<sup>1,2</sup>, P.-W. Man<sup>1,2</sup>, T. Xie<sup>1,3</sup>, G.-H. Ma<sup>4</sup>, S.-X.

Cao<sup>4</sup>, L.-B. Su<sup>1</sup>, J.-Y. Xu<sup>3</sup>, A.-H. Wu<sup>1</sup> \*

<sup>1</sup>Shanghai Institute of Ceramics, Chinese Academy of Science, China, <sup>2</sup>Graduate School of the Chinese Academy of Sciences, China, <sup>3</sup>Shanghai Institute of Technology, China, <sup>4</sup>Shanghai University, China

10:50 Fr1-T05-5 Oral (15 min)

**Studies on the structural and magnetic properties of nanocrystalline Ba<sub>0.5</sub>Sr<sub>0.5</sub>Fe<sub>12-2x</sub>(ZnCo)<sub>x</sub>O<sub>19</sub> synthesized by sol gel combustion method**

V. Hari Krishnan<sup>1</sup>, R. Ezhil Vizhi<sup>1\*</sup>, D. Rajan Babu<sup>1</sup>, P. Saravanan<sup>2</sup>

<sup>1</sup>VIT University, India, <sup>2</sup>Defence Metallurgical Research Laboratory, India

11:05 Fr1-T05-6 Oral (15 min)

**Crystal growth and electronic properties of BiTeI crystals**

K. Kokh<sup>1,2,3\*</sup>, V. Golyashov<sup>2,3,4</sup>, O. Tereshchenko<sup>2,3,4</sup>

<sup>1</sup>Sobolev Institute of Geology and Mineralogy, Russia, <sup>2</sup>Novosibirsk State University, Russia, <sup>3</sup>Saint-Petersburg State University, Russia, <sup>4</sup>Rzhanov Institute of Semiconductor Physics, Russia

## Fr1-T06

Materials for Optical Devices

Room: Oral 7

9:40 Fr1-T06-1 Oral (15 min)

**Applications Based on Novel Effects Derived to the Si Bulk Crystal Growth inside Si Melt without Contact to Crucible Wall Using Noncontact Crucible Method**

K. Nakajima<sup>1\*</sup>, S. Ono<sup>1</sup>, Y. Kaneko<sup>1</sup>, R. Murai<sup>1</sup>, K. Shirasawa<sup>2</sup>, T. Fukuda<sup>2</sup>, H. Takato<sup>2</sup>, S. Castellanos<sup>3</sup>, M. A. Jensen<sup>3</sup>, A. Youssef<sup>3</sup>, T. Buonassisi<sup>3</sup>, F. Jay<sup>4</sup>, Y. Veschetti<sup>4</sup>, A. Jouini<sup>4</sup>

<sup>1</sup>JST, FUTURE-PV Innovation, Japan, <sup>2</sup>FREA, AIST, Japan, <sup>3</sup>Massachusetts Institute of Technology, USA, <sup>4</sup>CEATECH, LITEN, INES, France

9:66 Fr1-T06-3 Oral (15 min)

**Growth of single crystal sapphire for applications in X-ray backscattering**

V. E. Asadchikov<sup>1</sup>, P. Alexeev<sup>2,5</sup>, D. Bessas<sup>3</sup>, A. V. Buzmakov<sup>1</sup>, A. Cecilia<sup>6</sup>, A. Chumakov<sup>3</sup>, A. Danilewsky<sup>7</sup>, A. N. Deryabin<sup>1</sup>, J. Härtwig<sup>3</sup>, R. P. Hermann<sup>2,4,8</sup>, A. Jafari<sup>2,3,4</sup>, V. M. Kanevsky<sup>1</sup>, I. A. Prokhorov<sup>1</sup>, B. S. Roshchin<sup>1\*</sup>, I. Sergueev<sup>5</sup>, H.-C. Wille<sup>5</sup>

<sup>1</sup>Shubnikov Institute of Crystallography RAS, Russia, <sup>2</sup>Jülich Centre for Neutron Science JCNS and Peter Grünberg Institute PGI, Germany, <sup>3</sup>European Synchrotron Radiation Facility, France, <sup>4</sup>University of Liège, Belgium, <sup>5</sup>Deutsches Elektronen-Synchrotron, Germany, <sup>6</sup>Karlsruhe Institute of Technology, Germany, <sup>7</sup>Albert-Ludwigs University Freiburg, Germany, <sup>8</sup>Oak Ridge National Laboratory, USA

10:10 Fr1-T06-4 Oral (15 min)

**High-Performance CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Perovskite Bulk Single Crystal /PCBM Planar-Type Photodetector**

Z.-P. Lian<sup>1\*</sup>, Q.-F. Yan<sup>1</sup>, J.-L. Sun<sup>2</sup>

<sup>1</sup>Department of Chemistry, <sup>2</sup>Collaborative Innovation Center of Quantum Matter, State Key Laboratory of Low-Dimensional Quantum Physics, Department of Physics, Tsinghua University, China

10:25 Fr1-T06-5 Oral (15 min)

**Structural, Mechanical and Nonlinear Properties of KDP Single Crystals with Embedded Nanoparticles and Organic Molecules**

I. M. Pritula<sup>1\*</sup>, O. N. Bezkravnaya<sup>1</sup>, E. I. Kostenyukova<sup>1</sup>, E. F. Dolzhenkova<sup>1</sup>, V. Ya. Gayvoronsky<sup>2</sup>, V. G. Grachev<sup>3</sup>, R. Tse<sup>3</sup>, G. I. Malovichko<sup>3</sup>

<sup>1</sup>Institute for Single Crystals NAS of Ukraine, Ukraine, <sup>2</sup>Institute of Physics NAS of Ukraine, Ukraine, <sup>3</sup>Montana State University, USA

10:40 Fr1-T06-6 Oral (15 min)

**Fabrication of Optical Element from Inversely Soluble Lithium Sulfate Monohydrate Single Crystals for SHG Applications**

A. Silambarasan<sup>1\*</sup>, P. Rajesh<sup>1</sup>, P. Ramasamy<sup>1</sup>, A. K. Karnal<sup>2</sup>, R. Bhatt<sup>2</sup>, I. Bhaumik<sup>2</sup>, P. K. Gupta<sup>2</sup>

<sup>1</sup>SSN College of Engineering, India, <sup>2</sup>Raja Ramanna Centre for Advanced Technology, India

10:55 Fr1-T06-7 Oral (15 min)

**Structural and optical properties of a novel three dimensional crystal complex: Piperazinium bis (2 carboxypyridine) monohydrate**

P. Rekha<sup>1\*</sup>, G. Peramaiyan<sup>2</sup>, R. Mohan Kumar<sup>1</sup>, R. Kanagadurai<sup>1</sup>

<sup>1</sup>Presidency College, India, <sup>2</sup>Academia of Sinica, Taiwan

## Fr1-T08

Materials for Organic Devices and Bio Applications

Room: Oral 3

9:40 Fr1-T08-1 Invited oral (25 min)

**Molecular Orientation Control by using Epitaxial Growth of Organic Materials for Organic Transistor**

K. Yase\*

AIST, Japan

10:05 Fr1-T08-2 Invited oral (25 min)

**"Solution-epitaxy" Two-dimensional Crystals of Organic Semiconductors in Large Area**

C.-H. Xu<sup>1,2</sup>, P. He<sup>1,2</sup>, J. Liu<sup>1,2</sup>, A. Cui<sup>1</sup>, H.-L. Dong<sup>1</sup>, Y.-G. Zhen<sup>1</sup>, W. Chen<sup>4</sup>, W.-P. Hu<sup>1,3\*</sup>

<sup>1</sup>Institute of Chemistry, Chinese Academy of Sciences, China, <sup>2</sup>University of Chinese Academy of Sciences, China, <sup>3</sup>Tianjin University, China, <sup>4</sup>National University of Singapore, Singapore

10:30 Fr1-T08-4 Oral (15 min)

**Crystallization dynamics of organolead-halide perovskite measured by real-time grazing incident wide angle X-ray scattering**

T. Miyadera<sup>1\*</sup>, T. N. Murakami<sup>1</sup>, T. Koganezawa<sup>2</sup>, T. Sugita<sup>1</sup>, M. Chikamatsu<sup>1</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>2</sup>Japan Synchrotron Radiation Research Institute (JASRI), Japan

10:45 Fr1-T08-5 Oral (15 min)

**Characteristics of PTB7-Th:C<sub>70</sub> bulk heterojunction photocells under low-light illumination**

K. Tada\*

University of Hyogo, Japan

11:00 Fr1-T08-6 Oral (15 min)

**Growth and Transformation Kinetics of**

**Hydroxyapatite in the Presence of Alginate Additives**

S. Ucar<sup>1\*</sup>, S. H. Bjørnøy<sup>2</sup>, D. C. Bassett<sup>2</sup>, B. L. Strand<sup>3</sup>,  
P. Sikorski<sup>2</sup>, J. P. Andreassen<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering, <sup>2</sup>Department of  
Physics, <sup>3</sup>Department of Biotechnology, NTNU, Norway

**Fr1-T10**

*Silicon Carbide*

Room: Oral 9

9:40 Fr1-T10-1 Invited oral (25 min)

**Extended and Point Defects in 4H-SiC Epitaxial**

**Layers**

T. Kimoto\*, C. Kawahara, A. Iijima, T. Okuda, E. Saito,  
J. Suda

*Kyoto University, Japan*

10:05 Fr1-T10-2 Invited oral (25 min)

**Fast crystal growth of 4H-SiC by gas-source method**

H. Tsuchida<sup>1\*</sup>, N. Hoshino<sup>1</sup>, I. Kamata<sup>1</sup>, Y. Tokuda<sup>2,3</sup>, E.  
Makino<sup>2</sup>, N. Sugiyama<sup>2</sup>, J. Kojima<sup>2</sup>

<sup>1</sup>Central Research Institute of Electric Power Industry  
(CRIEPI), Japan, <sup>2</sup>DENSO CORPORATION, Japan,

<sup>3</sup>National Institute of Advanced Industrial Science and  
Technology (AIST), Japan

10:30 Fr1-T10-3 Oral (15 min)

**Dislocation velocity of Shockley partials for stacking  
fault expansion in heavily-nitrogen-doped 4H-SiC**

Y. Tokuda<sup>1,3,4\*</sup>, I. Kamata<sup>2</sup>, N. Hoshino<sup>2</sup>, T. Kato<sup>1</sup>, H.  
Okumura<sup>1</sup>, T. Kimoto<sup>4</sup>, H. Tsuchida<sup>2</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and  
Technology (AIST), Japan, <sup>2</sup>Central Research Institute of

Electric Power Industry (CRIEPI), Japan, <sup>3</sup>DENSO

CORPORATION, Japan, <sup>4</sup>Kyoto University, Japan

10:45 Fr1-T10-4 Oral (15 min)

**Difference of stacking faults expansion in highly  
nitrogen doped and nitrogen-boron co-doped n-type  
4H-SiC crystals**

H. Suo<sup>1,2\*</sup>, K. Eto<sup>1</sup>, T. Ise<sup>1,3</sup>, Y. Tokuda<sup>1,4</sup>, H. Osawa<sup>2</sup>,  
H. Tsuchida<sup>5</sup>, T. Kato<sup>1</sup>, H. Okumura<sup>1</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and  
Technology (AIST), Japan, <sup>2</sup>Showa Denko K. K, Japan,

<sup>3</sup>Asahi Diamond Industrial Corporation, Japan, <sup>4</sup>DENSO  
CORPORATION, Japan, <sup>5</sup>Central Research Institute of

Electric Power Industry (CRIEPI), Japan

11:00 Fr1-T10-5 Oral (15 min)

**Photoluminescence imaging of SiC epilayers for  
prediction of reliable bipolar devices**

J. Friedrich<sup>1\*</sup>, L. Wehrhahn-Kilian<sup>2</sup>, K. O. Dohnke<sup>2</sup>, D.  
Kaminzky<sup>1</sup>, B. Kallinger<sup>1</sup>, P. Berwian<sup>1</sup>, S. Opper<sup>3</sup>

<sup>1</sup>Fraunhofer IISB, Germany, <sup>2</sup>Infineon Technologies AG,  
Germany, <sup>3</sup>Intego GmbH, Germany

11:15 Fr1-T10-6 Oral (15 min)

**A simple interpretation for polytypism in SiC with  
lattice defects**

T. Ito\*, T. Akiyama, K. Nakamura

*Mie University, Japan*

11:30 Fr1-T10-7 Oral (15 min)

**Intrasurface Electron Transition Contribution to  
Energy of Adsorption of Silicon at the SiC(0001)  
Surface – A Density Functional Theory (DFT) Study**

S. Krukowski<sup>1\*</sup>, J. Soltys<sup>2</sup>, J. Piechota<sup>2</sup>

<sup>1</sup>Institute of High Pressure Physics, PAS, Poland,

<sup>2</sup>University of Warsaw, Poland

**Closing Ceremony**

Friday afternoon, 12 August, 12:00

Shirotori Hall