

## SIMC-XIII-2004 DRAFT PROGRAMME SCHEDULE

<b>Monday, Sept. 20</b>	
9:00-12.00 <b>Registration</b> 12:00-13:00 Lunch	13.00 – 20.00 <b>Registration</b> 18:00-20:00 Dinner
<b>Tuesday, Sept.21</b>	
<b>8.00 - 12.00 Registration</b> 9.40 - 09.30 <b>Opening Ceremony</b> 09.30 - 11.00 <b>SESSION 1</b> <b>Wide gap materials</b> 11.00 - 11.20 Coffee break 11.20 - 12.30 <b>SESSION 2</b> <b>Non-stoichiometric III-V materials</b> 12.30 – 13.30 Lunch	<b>14.00 - 18.00 Registration</b> 14.30 - 16.00 <b>SESSION 3</b> <b>Nanomaterials and technologies</b> 16.00 - 16.20 Coffee break 16.20 - 17.50 <b>SESSION 4</b> <b>Wide gap materials</b> 17:50-18:30 Riber MBE system 19.00 - 20.00 Dinner
<b>Wednesday, Sept.22</b>	
<b>8.00 – 12.00 Registration</b> 08.30 - 10.30 <b>SESSION 5</b> <b>Novel materials and technologies</b> 10.30 - 10.50 Coffee break 10.50 - 12.40 <b>SESSION 6</b> <b>Nanomaterials and technologies</b> 12.40 - 13.40 Lunch	<b>14.00 - 18.00 Registration</b> 14.30 - 16.20 <b>SESSION 7</b> <b>Devices</b> 16.20 - 16.40 Coffee break 16.40 - 18.30 <b>SESSION 8</b> <b>Wide gap materials and Devices</b> 19.00 - 20.00 Dinner 19:30 - 22:00 <b>POSTER SESSION</b>
<b>Thursday, Sept.23</b>	
08.30 - 10.20 <b>SESSION 9</b> <b>Structure &amp; Characterization</b> 10.20 - 10.40 Coffee break 10.40 - 12.40 <b>SESSION 10</b> <b>Wide bandgap materials</b> 12.40 - 13.40 Lunch	14.30 - 16.30 <b>SESSION 11</b> <b>Narrow bandgap nitrides and Semi-insulating III-V Materials</b> 16.30 - 16.50 Coffee break 16.50 - 18.40 <b>SESSION 12</b> <b>Devices</b> 19.00 - 21.00 <b>Banquet</b>
<b>Friday, Sept.24 Conference Trip</b>	
Great Wall (morning)	Forbidden city (afternoon) Beijing Opera (evening, optional)
<b>Saturday. Sept.25 Post-conference Tour</b>	
Departure	

# PROGRAMME

## Monday, Sept. 20

09:00 – 12:00 **Registration**

12:00 – 13:00 **Lunch**

13:00 – 20:00 **Registration**

18:00 - 20:00 **Dinner**

## Tuesday, Sept.21

08.40 - 09.30 **Opening Ceremony**

Zhanguo Wang, SIMC-XIII-2004 Chair

**SESSION 1 Wide gap materials**

Chair: Zuzanna Lilienta-Weber

09:30-10:00 **Growth and material properties of 4H-SiC towards device applications** (*Invited*)

R. Yakimova, M. Syväjärvi, R.R. Ciecchonski

Department of Physics and Measurement Technology, Linköping University  
S-581 83, Linköping, Sweden

10:00-10:20 **Electrical Properties of Metal/Semi-conducting Diamond Interface**

Yigang Chen, Masahiko Ogura, Hiromitsu Kato, Satoshi Yamasaki and  
Hideyo Okushi

Diamond Research Center, National Institute of Advanced Industrial Science  
and Technology (AIST), and Core Research for Evolutional Science and  
Technology of Japan Science and Technology Corporation (CREST, JST),  
1-1-1, Umezono, Tsukuba, 305-8568, Ibaraki, Japan

10:20-10:40 **Comparisons Between Thick GaN Films Prepared by Direct Growth and Epitaxial Lateral Overgrowth on Sapphires Using Hydride Vapor Phase Epitaxy Technique**

Wei-I Lee<sup>1</sup>, Chi-Ling Lee<sup>1</sup>, Shih-Chang Lee<sup>1</sup>, Tsung Yu Chen<sup>2</sup>

<sup>1</sup>Department of Electrophysics, National Chiao Tung University

1001 Ta-Hsueh Road, Hsinchu, Taiwan, China

<sup>2</sup>Advanced Epitaxy Technology Inc., Hsinchu Industrial Park, Taiwan 303,  
China

10:40-11:00 **Second growth in the solution route synthesis of ZnO nanorods and its potential application**

Hui Zhang, Deren Yang, Xiangyang Ma, Shenzhong Li, Duanlin Que

State Key Lab of Silicon Materials, Zhejiang University

Hangzhou 310027, People's Republic of China

11:00-11:20 **Coffee break**

**SESSION 2 Non-stoichiometric III-V materials**

Chair: Frantisek Dubecky

11:20-11:50 **Photoionization Spectroscopy on Low-Temperature Grown GaAs (Invited)**

G.H. Döhler<sup>1</sup>, C. Steen<sup>1</sup>, S. Malzer<sup>1</sup>, C. Metzner<sup>1</sup>, and P. Kiesel<sup>2</sup>

<sup>1</sup>Institut für Technische Physik, FAU Erlangen-Nürnberg, Erlangen, Germany

<sup>2</sup>Palo Alto Research Center Incorporated, Palo Alto, California

Invited

11:50-12:10 **Nonstoichiometric GaAs for terahertz optoelectronic applications**

A. Krotkus, K. Bertulis, R. Adomavicius, and A. Gežutis

*Semiconductor Physics Institute, A. Gostauto 11, Vilnius, Lithuania*

12:10-12:30 **Character of Non-Stoichiometric InP bulk crystal**

Luhong Mao<sup>1,3</sup>, Niefeng Sun<sup>1,2</sup>, Xiaolong Zhou<sup>2</sup>, et al

1 School of Electronic Information Engineering, Tianjin University, Tianjin, P. R. China,

2 Hebei Semiconductor Research Institute, P.O.Box 179, Shijiazhuang, Hebei, P. R. China,

3 Institute of Semiconductors, Chinese Academy of Sciences, Beijing, P. R. China

12:30 – 13:30 **Lunch**

**SESSION 3 Nanomaterials and technologies**

Chair: Kenzo Fujiwara

14:30-15:00 **Quantum Dots for Quantum Information Processing (Invited)**

Xiulai Xu<sup>1</sup>, David A. Williams<sup>2</sup>, John R. A. Cleaver<sup>1</sup>

<sup>1</sup>*Microelectronics Research Centre, Cavendish Laboratory, University of Cambridge, Madingley Road, Cambridge CB3 0HE, United Kingdom*

<sup>2</sup>*Hitachi Cambridge Laboratory, Cavendish Laboratory, Madingley Road, Cambridge CB3 0HE, United Kingdom*

15:00-15:20 **Relation between nanocavity shrinkage and preferential amorphisation during ion irradiation into silicon**

Xianfang. Zhu<sup>1</sup> and Zhanguo Wang<sup>2</sup>

<sup>1</sup>Department of Physics and Nanomaterials Center, Xiamen University, Xiamen, China

<sup>2</sup>Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China

15:20-15:40 **Catalytic synthesis and growth of indium nitride nanodots**

Z.L.Xie, Rong Zhang, Z.X.Bi, B.Liu, X.Q.Xiu, S.L.Gu, B.Shen, Y.Shi,

Y.D.Zheng

Jiangsu Provincial Key Laboratory of Photonic and Electronic Materials  
Science and Technology

Department of Physics, Nanjing University, Nanjing210093, P.R.China

15:40-16:00 **Capping process of the InAs/GaAs quantum dots studied by cross-sectional scanning tunneling microscopy**

Q. Gong, P. Offermans, R. Noetzel, P. M. Koenraad, and J. H. Wolter

eiTT/COBRA Inter-University Research Institute, Eindhoven

University of Technology, 5600 MB Eindhoven, The Netherlands

16:00 – 16:20 **Coffee break**

**SESSION 4 Wide gap materials**

Chair: Hideo Ohno and Tomasz Wojtowicz

16:20-16:50 **Growth and characterization of MOCVD-grown InGaN LED on Si (Invited)**

Takashi Egawa

Research Center for Nano-Device and System, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan

16:50-17:10 **Optical studies of carrier transport in layered structures and crystals of wide bandgap semiconductors**

Kestutis JARASIUNAS

Institute of Materials Science, Vilnius University, Sauletekio al. 9-3, Vilnius LT-10222, Lithuania

17:10-17:30 **Maskless lateral over-growth of GaN films on *in situ* etched sapphire substrates without any *ex situ* process step**

M. Hao, H. Ishikawa and T. Egawa

Research Center for Nano-Device and System, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan

17:30-17:50 **Codoped configuration effect on *p*-type doping efficiency in GaN**

Jinchai Li and Junyong Kang

Department of Physics, Pen Tung Sah MEMS Research Center, and Photonics Research Center, Xiamen University, Xiamen 361005, People's Republic of China

17:50-18:30 **Riber MBE product range application and process technology**

19:00-20:00 **DINNER**

**Wednesday, Sept.22**

**SESSION 5 Novel materials**

Chair: Rong Zhang

- 08:30-09:00 **Magnetic Semiconductor Spintronics (*Invited*)**  
Hideo Ohno<sup>1,2</sup>  
<sup>1</sup>Laboratory for Nanoelectronics and Spintronics  
 Research Institute of Electrical Communication, Tohoku University, Japan  
<sup>2</sup> ERATO Semiconductor Spintronics Project, JST, Japan
- 09:00-09:30 **Electronic Effects in Epitaxial Growth of Ferromagnetic  $\text{III}_{1-x}\text{Mn}_x\text{V}$  Alloys (*Invited*)**  
T. Wojtowicz<sup>a,b</sup>, X. Liu<sup>a</sup>, J. K. Furdyna<sup>a</sup>, K. M. Yu<sup>c</sup>, and W. Walukiewicz<sup>c</sup>  
<sup>a</sup>Department of Physics, University of Notre Dame, Notre Dame, IN 46556  
<sup>b</sup>Institute of Physics, Polish Academy of Sciences, 02-668 Warsaw, Poland  
<sup>c</sup> Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA 94720
- 09:30-09:50 **NEW TRANSPARENT CONDUCTING OXIDE THIN FILMS BASED IN ZINC OXIDE – TIN OXIDE.**  
Arturo I. Martinez and Dwight Acosta  
 Instituto de Fisica- Universidad Nacional Autonoma de Mexico,  
 Apartado Postal 20-364, Mexico D.F. 01000, México
- 09:50-10:10 **Effect of Au on the growth of ZnO micropillars**  
Xia Feng and Junyong Kang  
 Department of Physics, Pen Tung Sah MEMS Research Center, and Photonics Research Center, *Xiamen University, Xiamen 361005, People's Republic of China*
- 10:10-10:30 **Research of deep impurity levels in doped by osmium monocrystalline silicon by method of positron life time**  
A.Paiziev<sup>1</sup>, G.Nurkuziev<sup>2</sup>, S. Shamirzaev<sup>2</sup> and A.Karimov<sup>1</sup>  
<sup>1</sup>Institute of Electronics Academy Science of Uzbekistan, F.Khodjaeva str.33, Dept. of Positron Diagnostics, Tashkent 700143, UZBEKISTAN  
<sup>2</sup>Physical-Technical Institute Academy Science of Uzbekistan, G.Mavlyanova 2-b street Tashkent 700084, UZBEKISTAN
- 10:30 – 10:50 **Coffee break**
- SESSION 6 Nanomaterials and technologies**  
 Chair: G.H. Döhler
- 10:50-11:20 **Controlled Growth of III-V Compound Semiconductor Nano-Structures and Their Application in Quantum-Devices (*Invited*)**  
B. Xu, Z. G. Wang, Y. H. Chen, P. Jin, X. L. Ye and F. Q. Liu  
 Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Chinese Academy of Sciences, P. O. Box 912, Beijing, 100083, P. R. China
- 11:20-11:40 **InGaAs/GaAs quantum dots: Growth, physics and device technology**  
Mark Hopkinson

Department of Electronic & Electrical Engineering, EPSRC National Centre for III-V Technologies, University of Sheffield, Sheffield S1 3JD, United Kingdom

11:40-12:00 **Structural and optical properties of homogeneous columnar (In,Ga)As quantum dots on GaAs (100) substrates**  
J. He, R. Nö tzel, P. Offermans, P. M. Koenraad, Q. Gong, G. J. Hamhuis, T. J. Eijkemans, and J. H. Wolter  
eITT/COBRA Inter-University Research Institute, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands

12:00-12:20 **Structural Characteristics of Self-Assembled GeSi Quantum Dot Superlattices**  
B. YAN<sup>1</sup>, Z. YANG<sup>1</sup>, Y. SHI<sup>1</sup>, J. L. LIU<sup>2</sup>, R. ZHANG<sup>1</sup>, Y. D. ZHENG<sup>1</sup>, and K. L. WANG<sup>3</sup>  
<sup>1</sup>Department of Physics, Nanjing University, Nanjing 210093, P. R. China  
<sup>2</sup>Department of Electrical Engineering, University of California at Riverside, CA92521, USA  
<sup>3</sup> Department of Electrical Engineering, University of California at Los Angeles, CA90095, USA

12:20-12:40 **Preparation and characterization of polymer nano fibers and membranes by electrospinning technique**  
<sup>a</sup>R.Siddheswaran, <sup>a</sup>P.Sureshkumar, <sup>a</sup>M.Rathnakumari, <sup>b</sup>R.Jayavel  
<sup>a</sup>Material Research Center, Department of Physics, VITM Engineering College, Chennai-600 066. India  
<sup>b</sup>Crystal Growth Center, Anna University, Chennai-600 025. India.

12:40-13:40 **Lunch**

## SESSION 7 Devices

Chair: Jens Ludwig and Joseph Ya-min Lee

14:30-15:00 **Recent Progress in Radiation Detectors Based on Wide Band-gap Compound Materials (Invited)**  
Alan Owens  
Science Payloads and Advanced Concepts Office, ESA/ESTEC, Postbus 299, 2200AG Noordwijk, The Netherlands

15:00-15:20 **Impact of the forward bias on the radiative recombination efficiency in blue (In,Ga)N/GaN quantum-well diodes with an electron reservoir layer**  
N. Otsuji<sup>1</sup>, Y. Takahashi<sup>1</sup>, A. Satake<sup>1</sup>, K. Fujiwara<sup>1</sup>, J. K. Shue<sup>2</sup>, U. Jahn<sup>3</sup>, H. Kostial<sup>3</sup>, and H. T. Grahn<sup>3</sup>  
<sup>1</sup>Dep. of Electrical Eng., Kyushu Institute of Technology, Tobata, Kitakyushu 804-8550, Japan  
<sup>2</sup>Optical Science Center, National Central University, 32054 Chung-Li, Taiwan, China.  
<sup>3</sup>Paul Drude Institute for Solid-State Electronics, Hausvogteiplatz 5-7, 10117 Berlin, Germany

15:20-15:40 **Design and Simulation of a Terahertz GaN/Al<sub>0.15</sub>Ga<sub>0.85</sub>N Quantum Cascade Laser**

Gregory Sun<sup>1</sup>, Yanwu Lu<sup>2</sup>

<sup>1</sup>Physics Department, University of Massachusetts at Boston, Boston, MA 02125, U.S.A.

<sup>2</sup>Department of Physics, Beijing Jiaotong University, Beijing 100044, P.R. China

15:40-16:00 **Cubic InGaN/GaN multiple quantum wells and AlGaIn/GaN Bragg reflectors for green resonant cavity LEDs**

Shunfeng Li, J. Schörmann, D.J. As, K. Lischka

University of Paderborn, Department of Physics, 33098 Paderborn, Germany

16:00-16:20 **Performance study of radiation detector based on bulk semi-insulating GaAs grown in magnetic field**

F.Dubecký<sup>1</sup>, B. Zátka<sup>1</sup>, Y. Chen<sup>2</sup>, C. Ferrari<sup>3</sup>, M. Sekáčová<sup>1</sup>, E. Gombia<sup>3</sup>, P. Boháček<sup>1</sup>, Z. G. Wang<sup>2</sup> and J. Huran<sup>1</sup>

<sup>1</sup>Institute of Electrical Engineering, Slovak Academy of Sciences, Dúbravská cesta 9, Bratislava, SK-84239 Slovakia,

<sup>2</sup> Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China

<sup>3</sup>IMEM CNR, Area delle Scienze 37/A, I-43010 Fontanini, Parma, Italy

16:20 – 16:40 **Coffee break**

## **SESSION 8 Wide gap materials and Devices**

Chair: Takashi Egawa

16:40-17:10 **Electrical characterization of as-grown and particle irradiated n-type bulk ZnO (Invited)**

F. Danie Auret, J-M Nel, L. Wu, M. Hayes and W. E. Meyer

Physics Department, University of Pretoria, Pretoria 0002, South Africa

17:10-17:30 **The Study of ZnO Films by RF Magnetron Sputtering**

LI Jing<sup>a,c</sup>, WU Sun-tao<sup>a</sup>, SUN Shi-gang<sup>b</sup>, TIAN Zhong-Qun<sup>b</sup>, KANG Jun-Yong<sup>c\*</sup>

<sup>a</sup>Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen 361005, China ;

<sup>b</sup>State Key Laboratory for Physical Chemistry of Solid Surfaces, Xiamen University, Xiamen 361005, China

<sup>c</sup>Department of Physics, Xiamen University, Xiamen 361005, China

17:39-17:50 **Defects in p-GaN and their atomic structure**

Z. Liliental-Weber, T. Tomaszewicz, D. Zakharov, J. Jasinski and M. O'Keefe  
Lawrence Berkeley National Lab, Berkeley, CA

17:50-18:10 **Molecular beam epitaxial growth of GaN on 3c-SiC/ Si(1 1 1) substrates using a thick AlN buffer layer**

Gao Xin, Sun Guosheng, Li Jinmin, Zhang Nanhong, Wang Lei, Zhao Wanshun, Zeng Yiping

Novel Semiconductor Material Laboratory, Institute of Semiconductors,  
Chinese Academy of Sciences, Beijing 100083, China

- 18:10-18:30 **Preparation and characterization of ZnO nanotubes**  
Weizhong Xu, Zhizhen Ye, Dewei Ma, Liping Zhu, Binghui Zhao  
State Key Laboratory of Silicon Materials, Zhejiang University, Hangzhou  
310027, P. R. China
- 19:00 – 20:00 **DINNER**
- 19:30 - 22:00 **POSTER SESSION**

## Thursday, Sept.23

### SESSION 9 Structure & Characterization

Chair: Zhaoqiang Fang

- 08:30–09:00 **Impurity free vacancy disordering of quantum wells and quantum dots for optoelectronic/photonic integrated circuits (*Invited*)**  
L. Fu, P. Lever, H. H. Tan, M. Buda, J. Wong-Leung, P. Reece\*, M. Gal\*,  
and C. Jagadish  
Department of Electronic Materials Engineering, Research School of  
Physical Sciences and Engineering, The Australian National University,  
Canberra, ACT 0200, Australia  
\*School of Physics, University of New South Wales, Sydney 2052,  
Australia
- 09:00-09:20 **Noise processes and their origin in Mg-doped GaN**  
Djelloul Seghier, Haflidi Gislason  
Science Institute, University of Iceland
- 09:20-09:40 **The formation of edge dislocations with the Burgers vector= $0.5a[001]$  during the InAs nanostructure self-organization process**  
Y. L. Wang<sup>1</sup>, J. Wu<sup>1</sup>, Y. H. Chen<sup>1</sup>, Z. G. Wang<sup>1</sup>, Y. P. Zeng<sup>2</sup>  
<sup>1</sup>Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, China  
<sup>2</sup>Novel Materials Laboratory, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, China
- 09:40-10:00 **Deep-Level Effects on Slow Current Transients and Current Collapse in GaN MESFETs**  
K. Yonemoto and K. Horio  
Faculty of Systems Engineering, Shibaura Institute of Technology  
307 Fukasaku, Minuma-ku, Saitama 337-8570, Japan
- 10:00-10:20 **Study of unintentionally doped GaN grown on SiC by Laplace defect**



**spectroscopy**

Huahan Zhan, Junyong Kang

Department of Physics, Photonics Research Center, and Pen Tung Sah MEMS Research Center, Xiamen University, Xiamen 361005, People's Republic of China

10:20 – 10:40

**Coffee break**

**SESSION 10**

**Wide bandgap materials**

Chair: Wladek Walukiewicz

10:40 – 11:10

**Deep Centers in Conductive and Semi-insulating GaN (Invited)**

Zhaoqiang Fang<sup>1</sup>, Gary Farlow<sup>2</sup>, Bruce Claflin<sup>1</sup>, David Look<sup>1</sup>,

<sup>1</sup>Semiconductor Research Center, Wright State University, Dayton, OH 45435

<sup>2</sup>Physics Department, Wright State University, Dayton, OH 45435

11:10-11:40

**Wide-gap Semiconductor Spintronic Materials (Invited)**

R. Zhang, X. Q. Xiu, Z. L. Xie, S. L. Gu, B. Shen, Y. Shi, and Y. D. Zheng

Jiangsu Provincial Key Laboratory of Photonic and Electronic Materials Science and Technology, and Department of Physics, Nanjing University, Nanjing 210093, People's Republic of China

11:40-12:00

**Development of SiC Substrate: an Industry Perspective**

T. E. Anderson, D.L. Barrett, J. Chen, E. Emorhokpor, A. Gupta, R.H. Hopkins, T. Kerr, C. Martin, E. Semenas, A.E. Souzis, C.D. Tanner, M. Yoganathan, I. Zwieback

II-VI, Inc. 20 Chapin Rd, Suite 1005, Pine Brook, NJ 07058 USA

12:00-12:20

**Temperature dependence of strain in Al<sub>x</sub>Ga<sub>1-x</sub>N/GaN heterostructures**

D.J. Chen, B. Shen, K.X. Zhang, X.S. Wu, J. Xu, H. Zhao, R. Zhang, and Y.D. Zheng

Jiangsu Provincial Key Laboratory of Photonic and Electronic Materials Science and Technology, and National Laboratory of Solid State Microstructures, Nanjing University, Nanjing 210093, China

12:20-12:40

**Photoelectrochemical Wet Etching and CV-Profilng of Nitride semiconductors**

T. Wolff<sup>1</sup>, M. Rapp<sup>1</sup>, and T. Rotter<sup>2</sup>

<sup>1</sup>Ingenieurbüro WEP, Bregstrasse 90, D-78120 Furtwangen, Germany

<sup>2</sup>Lehrstuhl für Elektronische Bauelemente (LEB), Universität Erlangen-Nürnberg, Cauerstrasse 6, D-91058 Erlangen, Germany

12:40 – 13:40

**Lunch**

- SESSION 11**      **Narrow gap nitrides and Semi-insulating III-V Materials**  
Chair: Arunas Krotkus
- 14:30–15:00      **Defect Spectroscopy on (Ga,In)/N,As materials (*Invited*)**  
Manfred Ramsteiner  
Paul Drude Institut for Solid State Electronics, Hausvogteiplatz 5-7,  
10117 Berlin, Germany
- 15:00-15:30      **Electronic Structure and Properties of Highly Mismatched Alloys (*Invited*)**  
W. Walukiewicz  
Materials Sciences Division, Lawrence Berkeley National Laboratory,  
Berkeley, CA 94720
- 15:30-15:50      **Influence of dislocation on high-electric-field property in semi-insulating GaAs crystal**  
M. Kiyama<sup>1), 2)</sup>, M. Yamada<sup>2)</sup> and M. Tatsumi<sup>1)</sup>  
1) Sumitomo Electric Industries, 1-1-1 Koya-kita, Itami, Hyogo  
664-0016, Japan  
2) Kyoto Institute of Technology, Matsugasaki Sakyo-ku, Kyoto  
606-8585, Japan
- 15:50-16:10      **The Growth and Characterization of 4 inch Vapor Controlled Cz GaAs Crystal**  
Zhang Fengyi, Tu Hailing, Zheng Ansheng, Qian Jiayu  
General Research Institute for Non-ferrous Metals, 100088, Beijing,  
China
- 16:10-16:30      **Monolithic array of semi-insulating GaAs detectors: Technology, performance and application in digital X-ray scanner**  
F. Dubecký<sup>1</sup>, P. Šcepko<sup>2</sup>, B. Zátka<sup>1</sup>, V. Šekerka<sup>2</sup>, V. Necas<sup>3</sup>, M. Sekáčová<sup>1</sup>, M. Hudec<sup>3</sup>, P. Boháček<sup>1</sup>, and J. Huran<sup>1</sup>  
<sup>1</sup>Institute of Electrical Engineering, Slovak Academy of Sciences  
Dúbravská cesta 9, SK-84239 Bratislava, Slovak Republic  
<sup>2</sup>T&N Systems, Ltd., Severná 8, SK-97401 Banská Bystrica, Slovak Republic  
<sup>3</sup>Slovak University of Technology, Faculty of Electrical Engineering and Information Technology, Dept. of Nuclear Physics and Technology, SK-81219 Bratislava, Slovak Republic
- 16:30 – 16:50      ***Coffee break***
- SESSION 12**      **Devices**  
Chair: H.P. Gialason and R. Yakimova
- 16:50 –17:20      **GaAs and other compound sensor systems for medical diagnostics (*Invited*)**  
Jens Ludwig

Physikalisches Institut, Albert-Ludwigs-Universitaet,  
Hermann-Herder-Strasse 3, D-79104 Freiburg,  
Deutschland

- 17:20-17:40 **Sub-monolayer Deposited InGaAs/GaAsQuantum Dot Heterostructures and Lasers**  
Zhangcheng Xu  
College of Physics Science, Nankai University, Tianjin, P. R. CHINA  
Research Center COM, Technical University of Denmark, Lyngby, Denmark  
Department of Physics, University of Vermont, Burlington, Vermont, USA
- 17:40-18:00 **Theoretical model of transport characteristics of AlGaIn/GaN High electron mobility transistors**  
A. Asgari<sup>1</sup>, M. Kalafi<sup>1</sup>, L. Faraone<sup>2</sup>  
<sup>1</sup>Research Institute for Applied Physics, Tabriz University, Tabriz 51664-163, Iran,  
<sup>2</sup>School of Electrical, Electronic and Computer Engineering, The University of Western Australia, Crawley, WA 6009, Australia
- 18:00-18:20 **The Electrical Properties of Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFET) Fabricated With La<sub>2</sub>O<sub>3</sub> Gate Dielectric**  
Hong-Wen Chou and Joseph Ya-min Lee  
Department of Electrical Engineering and Institute of Electronics  
Tsing-Hua University, Hsinchu, Taiwan, China
- 18:20-18:40 **The encapsulation of power top LED**  
Devy G, Chunsheng Zhou, Allen H  
Shenzhen Refond Opt-Ele Co., Ltd, 1/F., A1 Wing, Tefa Tech. Industry,  
West Heping Road, Longhua Town, Shenzhen, Ghangdong, China
- 19:00 – 21:00 *Banquet*

## Friday, Sept.24 Conference Trip

Morning	Great Wall
Afternoon	Forbidden City
Evening	Beijing Opera (optional)

## Saturday. Sept.25

Departure  
Post-conference Tour

## Poster Session

Wednesday, Sept.22, 19:30-22:00

- P1 **High-energy excitonic photoluminescence due to carrier injection from the barriers into the first excited subband in a GaAs/Al<sub>x</sub>Ga<sub>1-x</sub>As quantum well**  
T. Tsukamoto<sup>1</sup>, N. Shiraishi<sup>1</sup>, A. Satake<sup>1</sup>, K. Fujiwara<sup>1</sup>, and H. T. Grahn<sup>2</sup>  
<sup>1</sup>Dep. of Electrical Eng., Kyushu Institute of Technology, Tobata, Kitakyushu 804-8550, Japan  
<sup>2</sup>Paul Drude Institute for Solid-State Electronics, Hausvogteiplatz 57, 10117 Berlin, Germany
- P2 **Lasing wavelength of GaAs single quantum well diodes with thin AlAs carrier blocking layers**  
Y. Terashita, M. Okazaki, K. Kamimura, and K. Fujiwara  
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- P3 **Photogenerated charge effects on photoluminescence signals in a GaAs/AlAs superlattice p-i-n diode with thicker barriers**  
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- P4 **Micro-fabricated Al<sub>0.3</sub>Ga<sub>0.7</sub>As pyramids for potential SPM applications**  
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- P5 **A novel sulfide-assisted growth of silicon nano-wires**  
Junjie Niu<sup>1</sup>, Jian Sha<sup>1,2</sup>, Zhihong Liu<sup>1</sup>, Jun Yu<sup>1</sup>, Zixue Su<sup>2</sup>, Qing Yang<sup>1</sup>, Deren Yang<sup>1</sup>  
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- P6 **Synthesis of Boron and Boride Compounds Nanowire Arrays by Chemical Vapor Deposition**  
Qing Yang<sup>1</sup>, Jian Sha<sup>2,1</sup>, XiangyangMa<sup>1</sup>, Jun Wang<sup>1</sup>, Junjie Niu<sup>1</sup>, Deren yang<sup>1</sup>

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**P7 Raman scattering study on diluted magnetic semiconductor Ga<sub>1-x</sub>Mn<sub>x</sub>As**

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**P8 Study on the Homogeneity of Wafers of InP Single Crystal Grown from P-rich Melt**

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**P9 Formation of GaN pyramids by photo-assisted electroless chemical etching**

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**P10 Structure prediction of ternary Ge-C-N system**

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**P11 First-principles study on Ga-N codoped wurtzite ZnO**

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**P12 Growth and Characterization of 4H-SiC by Hot-Wall LPCVD**

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**P13 Preparation of large area  $\beta$ -SiC film by hot filament assisted with radio frequency plasma CVD**

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P14 **Characterization of electron traps in n-GaN thin layers by deep-level transient spectroscopy using low-frequency capacitance measurements**

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P15 **THERMODYNAMIC MODEL AND SIMULATION OF GaAs' ELECTRICAL PROPERTIES.**

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P16 **Shallow donor defect formation and its influence on semi-insulating indium phosphide after high temperature annealing with long duration**

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P17 **ON THE NATURE OF THE REVERSE BIAS CONDUCTIVITY OF Nb<sub>2</sub>O<sub>5</sub> SOLID DIELECTRICS IN THE MDS-STRUCTURE ON NIOBIUM**

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P18 **PL-mapping and EPD-mapping of Fe-doped Semi-Insulating InP wafers**

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P19 **Space-charge limited free carrier transport in semi-insulating III-V compounds**

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P20 **N doped a-SiC:H films deposited by PECVD and annealed by pulse electron beam**

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P21 **Molecular-beam epitaxial growth of position controlled InAs islands on cleaved e InGaAs/GaAs superlattice**

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P22 **Effect of thin InAlAs layer on the microstructure and optical properties of InAs/GaAs quantum dots during rapid thermal annealing**

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P23 **InGaN(0001) surface morphology**

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P24 **Influences of different InP (001) vicinal surface substrates on the morphological and optical properties of multi-layer InAs/In<sub>0.52</sub>Al<sub>0.48</sub>As/InP self-organized nanostructures**

Y. L. Wang, J. Wu, P. Jin, X. L. Ye, C. L. Zhang, R.Y. Li, G. X. Shi, Y. H. Chen, Z. G. Wang  
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P25 **TRANSPARENT CONDUCTING OXIDES PREPARED BY SPRAY PYROLYSIS CONTROLLED BY A MICROPROCESSOR**

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P26 **Magnetoresistance in GaCrN-based ferromagnet/ nonmagnet/ferromagnet trilayer structures**

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P27 **Effects of the insertion of InAs strain-compensating layers on photoluminescence properties of GaAsN/GaAs quantum-well structures**

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**P28 Subband studies of AlGaIn/GaN coupled double quantum wells**

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**P29 Structure and magnetic properties of ZnO-based DMS**

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**P30 ELECTRICALLY ACTIVE DEFECTS OF GaAs LAYERS GROWN ON  
MONOLITHIC AND POROUS GaAs SUBSTRATES**

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Novgorod, Russia; \*A.M. Prokhorov General Physics Institute, Russian Academy of  
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**P31 Photoluminescence study of 4H-SiC grown on AlN/Si(100) by chemical vapor  
deposition**

Z. Qin, P. Han, T. T. Han, B. Yan, J. Shi, J. Zhu, Z. B. Li, C. X. Liu, K. Fu,

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**P32 Influence of the Partial Pressure to the Character of SiC Grown on Si(111) and  
AlN/Si by Chemical Vapor Deposition**

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- P33 **Electrical Properties of Au/BrAlPc/Au Thin Film**  
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- P34 **The temperature dependence of Indium Nitride oxidation properties**  
B. Liu, R. Zhang, Z. X. Bi, Z. L. Xie<sup>2</sup>, X. Q. Xiu, Y. D. Ye,  
 S. L. Gu, B. Shen, Y. Shi, Y. D. Zheng  
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 Technology and Department of Physics, Nanjing University, Nanjing 210093, China
- P35 **The impact of V/III ratio on thick GaN growth on sapphire by hydride vapor  
 phase epitaxy**  
 YU Hui-Qiang ) ,CHEN Lin,ZHANG Rong, XIU Xiang-Qian, XIE Zi-Li, YE  
 Yu-Da, GU Shu-Lin, SHEN Bo, SHI Yi and ZHENG You-Dou  
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- P36 **The growth and characteristics of P type materials of GaAs and AlGaAs using  
 only silicon dopant**  
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- P37 **Growth and characteristics of InP/In<sub>x</sub>Ga<sub>1-x</sub>As/In<sub>0.53</sub>Ga<sub>0.47</sub>As HEMTs**  
 Zili Xie<sup>a</sup> , Kai Qiu<sup>b</sup> , Juan Sun<sup>b</sup>  
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- P38 **DEEP DEFECT RELATED GENERATION-RECOMBINATION NOISE IN  
 GaAs**  
 D.Seghier, Th.M.Arnbjarnarson and H.P.Gislason  
 Science Institute, University of Iceland,  
 Dunhaga 3, 107-Reykjavík, Iceland
- P39 **The Electrical Properties of Metal-Ferroelectric-Insulator-Semiconductor  
 (MFIS) Structures**  
 Yu-Ping Hu and Joseph Ya-min Lee  
 Department of Electrical Engineering and Institute of Electronics  
 Tsing-Hua University, Hsinchu, Taiwan, China
- P40 **Effects of the polarization fields on the responsivity of the AlN/GaN  
 Photodetectors**

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P41 **Triple axis mode x-ray diffraction measurements of stoichiometry in undoped semi-insulating GaAs**

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P42 **Growth of ZnO Micro-/Nano-Whiskers by Vapor Transportation**

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P43 **IN-SITU OBSERVATIONS OF STABILITY OF NANOSIZED AMORPHOUS ZONES IN GE AS INDUCED BY HEAVY ION IMPLANTATION**

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P44 **Studies on the Magnetic Properties of Epitaxial Iron Film on Si Substrate**

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P45 **Improving optical properties of 1.55- $\mu$ m GaInNAs/GaAs multiple quantum wells by GaInNAs quaternary barrier and space layer**

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P46 **Growth and Characterization of Nano Diamond Powder Fabricated by Microwave Plasma Torch**

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P47 **Role of blocking electrode technology in charge carrier transport through structure based on bulk semi-insulating GaAs**

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