

# **Program ISGN-7**

## **Sunday (5<sup>th</sup> August)**

**17.00**                      **Registration starts (open during entire event)**

**18.00-20.00**                **Get together**

## **Monday (6<sup>th</sup> August)**

**8.45-9.00**                    **Opening Ceremony (I. Grzegory)**

**9.00-10.40**                **Plenary Session I**

<b>Time</b>	<b>Plenary I (chair: Y Nanishi)</b>
<b>9.00-9.50</b>	Anniversary Lecture: S. Porowski – Is the phase diagram of GaN anomalous in respect to other tetrahedrally bonded semiconductors? <b>(plenary)</b>
<b>9.50 - 10.40</b>	S. Nakamura - LED and Laser Diodes <b>(plenary)</b>

**10.40-11.10**                **Coffee break**

**11.10-12.50**                **Plenary Session II (chair: T. Suski)**

<b>Time</b>	<b>Plenary II (chair: T. Suski)</b>
<b>11.10-12.00</b>	H. Amano – Transformative Electronics Based on GaN and Related Materials for Realizing Sustainable Smart Society <b>(plenary)</b>
<b>12.00-12.50</b>	Z. Sitar - AlGaIn - a semiconductor that nature has never intended <b>(plenary)</b>

**13.00-14.00**                **Lunch break**

**14.00-16.00**                **Parallel sessions: Growth and Characterization I & Optoelectronic Devices I**

<b>Time</b>	<b>G&amp;Ch I (chair: J. Suda)</b>	<b>Opto I (chair: V. Jmerik)</b>
<b>14.00-14.30</b>	H. Fujikura - HVPE as A New Tool for Homo-Epitaxial Growth of Highly-Pure and Thick GaN Drift Layers for Power Devices <b>(invited)</b>	H. Hirayama - Recent progress of AlGaIn deep-UV LEDs by increasing light-extraction efficiency <b>(invited)</b>
<b>14.30-15.00</b>	Ke Xu - Growth of GaN substrate by HVPE, progress and challenge <b>(invited)</b>	S. Hagedorn - Influence of AlN/sapphire substrate properties on growth and performance of AlGaIn-based UV LEDs <b>(invited)</b>
<b>15.00-15.30</b>	T. Sochacki - Recent progress in HVPE-GaN growth on ammonothermally grown GaN seeds <b>(invited)</b>	Y. Park - 375-nm Optically Pumped Vertical-Cavity Surface-Emitting Lasers with Air-Gap/Al <sub>0.05</sub> Ga <sub>0.95</sub> N Distributed Bragg Reflectors <b>(invited)</b>
<b>15.30-15.45</b>	T. Baker - HVPE Growth of Free-Standing GaN Wafers by Interlayer Separation	J. Enslin - Growth of InAlGaIn for efficient UVB light emitting diodes
<b>15.45-16.00</b>	Qiang Liu - Study of Low Cost Growth of Large Size Bulk GaN Crystal Growth by a New Vertical HVPE Reactor with Showerhead Nozzle	Yuh-Renn Wu - Three Dimensional Simulation on the Transport and Quantum Efficiency of UVC-LEDs with Random Alloy Fluctuations

**16.00-16.30**                **Coffee break**

**16.30-18.30**

**Parallel sessions: Growth and Characterization II & Optoelectronic Devices II**

<b>Time</b>	<b>G&amp;Ch II (chair: H. Fujioka)</b>	<b>Opto II (chair: R. Dupuis)</b>
<b>16.30-17.00</b>	Y. Kumagai - Thermodynamics on HVPE of group-III nitrides <b>(invited)</b>	V. Jmerik - Plasma-assisted molecular beam epitaxy of monolayer-thick GaN/AlN heterostructures for high efficient sub-250-nm UV emitters <b>(invited)</b>
<b>17.00-17.15</b>	T. Schneider - Defect and stress engineering in GaN layers grown by high temperature vapor phase epitaxy	Y. Itokazu - UVC LEDs on AlN/sapphire templates prepared by high-temperature annealing and regrowth process
<b>17.15-17.30</b>	N. Takekawa - Excess Chlorine and Growth Temperature Effects of N-Polar GaN Growth via Tri-halide Vapor Phase Epitaxy and its Theoretical Study	C. De Santi - Investigation of the Thermal Droop in InGaN-based Layers and UVA LEDs
<b>17.30-17.45</b>	I. Gamov - Carbon-doped GaN: Identification of tri-carbon defects formed at substantial fraction	M. A. Khan - Investigation of crystallinity and current injection issue in 310nm-AlGaIn UVB LED grown on AlN template in LP-MOVPE
<b>17.45-18.00</b>	F.C. Beyer - Photoluminescence of Carbon-doped HVPE GaN layers	M. Jo - UVC emission from (11-22) AlGaIn quantum wells grown by metal-organic chemical vapor deposition
<b>18.00-18.30</b>	J. Freitas – A new method to achieve efficient iron doping of HVPE GaN substrates <b>(invited)</b>	<b>18.00-18.15</b> P. Michałowski - Oxygen-induced high diffusion rate of magnesium dopant in GaN/AlGaIn based UV LED heterostructures <b>18.15-18.30</b> S. Zlotnik - Alternative Growth Approaches of p-Type Doped AlGaIn Epitaxial Structures

## **Tuesday (7<sup>th</sup> August)**

**8.30 – 10.30**

**Parallel sessions: Growth and Characterization III & Optoelectronic Devices II**

<b>Time</b>	<b>G&amp;Ch III (H. Murakami)</b>	<b>Opto III (chair: D. Jena)</b>
<b>8.30-9.00</b>	S. Chichibu - Acidic ammonothermal growth of GaN ( <b>invited</b> )	Siddharth Rajan - Tunnel Junctions for Next Generation III-Nitride Optoelectronics ( <b>invited</b> )
<b>9.00-9.30</b>	M. Zajac - Basic ammonothermal growth of GaN ( <b>invited</b> )	Grzegorz Muziol - Long-living laser diodes grown by plasma assisted molecular beam epitaxy ( <b>invited</b> )
<b>9.30-9.45</b>	K. Endo - Fabrication of GaN Crystals with Low Threading Dislocation Density as well as Low Resistivity Grown with Thin-Flux-Growth Method in Na-flux Point Seed Technique	N. Chery - Structural Investigation Of InGaN/GaN Heterostructures Quantum Wells For Long Wavelength Emission
<b>9.45-10.00</b>	T. Yamada - Reduction of Li impurity in the Freestanding GaN Substrate Fabricated by the Na-Flux Sapphire Dissolution Technique	K. Hiraiwa - AlInN/GaN DBRs for Long-wavelength GaN-based VCSELs
<b>10.00-10.15</b>	N. Takeda - The effect of undissolved carbon on GaN crystal growth in Na flux method	<b>10.00-10.15</b> P. Drózdź - Green - blue InGaN/GaN LED array obtained by lateral band-gap engineering
<b>10.15-10.30</b>	Zionglang Liu - Growth of GaN Single Crystal by Na Flux Method Adding Nitrogen-doped Carbon	<b>10.15-10.30</b> E. Iliopoulos - Kinetic Mechanisms of InGaN(0001) by RF-MBE in the entire composition range: Phenomenological Model and Impact on Epilayer Properties

**10.30-11.00**

**Coffee break**

**11.00-13.00**

**Parallel sessions: Growth and Characterization IV & Electrical Devices I**

<b>Time</b>	<b>G&amp;Ch IV (chair: H. Miyake)</b>	<b>Electro I (chair: T. Palacios)</b>
<b>11.00-11.30</b>	Xinqiang Wang - InN films with high electron mobility <b>(invited)</b>	I. Kizilyalli - Vertical Power Devices based on Bulk GaN Substrates <b>(invited)</b>
<b>11.30-12.00</b>	J. Han - Stacking-fault-free (20-2-1) GaN on 4" sapphire substrates: a pathway to commercialize semipolar optoelectronics <b>(invited)</b>	J. Suda - Electrical characterization of homoepitaxial GaN layers for GaN vertical power devices <b>(invited)</b>
<b>12.00-12.15</b>	S. Walde - MOVPE grown AlN on nano-patterned sapphire substrates with different offcut angles	Y. Tokuda - Characterization of Shallower Level Traps in p-GaN Grown by MOVPE Using Low Frequency Capacitance DLTS
<b>12.15-12.30</b>	R. Mantach - Semi polar (10-11) GaN growth on silicon-on-insulator substrates for defect reduction and melt back etching suppression	K. Kanagae - Accurate estimation of H1 trap concentration in n-type GaN layers
<b>12.30-13.00</b>	M. Sarzynski - InGaN quantum structures on patterned substrates <b>(invited)</b>	<b>12.30-13.00</b> T. Narita - Donor states of carbon in p-type GaN grown by MOVPE <b>(invited)</b>

**13.00-14.00**

**Lunch break**

**14.00-16.30**

**Parallel sessions: Growth and Characterization V & Theory I**

<b>Time</b>	<b>G&amp;Ch V (chair: R. Collazo)</b>	<b>T I (chair: J. Majewski)</b>
<b>14.00-14.30</b>	C. Hartmann - On the preparation of AlN single crystal boules and substrates, and subsequent epitaxy for AlGaIn devices <b>(invited)</b>	Y. Kangawa - Theoretical study: Impurity incorporation in GaN MOVPE <b>(invited)</b>
<b>14.30-15.00</b>	H. Miyake - Homoepitaxy of AlN on annealed AlN/sapphire template <b>(invited)</b>	S. Krukowski - Adsorption at nitride semiconductors surfaces - electronic aspects: surface states occupation, the equilibrium pressure, growth and doping <b>(invited)</b>
<b>15.00-15.15</b>	I Gamov - Di-carbon defects in AlN bulk crystals grown by physical vapor transport	T. Ito - A Simple Theoretical Approach to Growth Mode of III-Nitride Thin Films
<b>15.15-15.30</b>	H. Sun - Tuning the growth of AlN epilayers on Al <sub>2</sub> O <sub>3</sub> via TMAI preflow by MOCVD	K. Okhawa - AlGaIn MOVPE Growth Simulation under 10-100 kPa Considering Polymer formation
<b>15.30-15.45</b>	H. Yoshida - Controlling the growth mode and strain of AlN grown directly on 6H-SiC(0001) substrate by metal-organic chemical vapor deposition	A. Kusaba - Relationship between the CH <sub>4</sub> Adsorption Probability and the C Impurity Concentration in the Polar-GaN MOVPE System
<b>15.45-16.00</b>	H. Zhang - Hot-wall MOCVD growth of N-polar AlN nucleation layer on C-face vicinal and on-axis SiC substrates	P. Kempisty - Contribution of first principles phonon calculations to thermodynamics analysis of GaN surfaces
<b>16.00-16.15</b>	K. Uesugi - Crystal quality improvement of sputter-deposited AlN films on SiC substrates by high temperature annealing	J. Endres - Kinetic Monte Carlo simulation of MOVPE growth/sublimation of GaN on the vicinal GaN(0001) substrate

<b>16.15-16.30</b>	M. Masłyk - Effect of AlN Cap Protection on the Decomposition of High-Temperature Annealed GaN	P.Strak - Catalytic potential of AlN(0001) surface for N <sub>2</sub> + H <sub>2</sub> ammonia synthesis reaction
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**16.40-17.40**                      **Tutorial session:** (chair: tbd)

<b>Time</b>	<b>Tutorial session:</b> (chair: <b>L. Kirste</b> )	
<b>16.40-17.10</b>	L. Grieger - Williamson-Hall Analysis on Epilayers – A critical review of common practice ( <b>invited</b> )	
<b>17.10-17.40</b>	M. Leszczyński - X-ray Diffraction in Nitride Technology- most common mistakes and new opportunities ( <b>invited</b> )	

**17.45-20.45**                      **Poster Session** (chair: **M. Bockowski**):

1. Raman Spectroscopic Study of GaN Grown on (111)Si Using an AlInN Intermediate Layer by MOVPE, T. Sugiura et al., National Institute of Technology, Toyota College, Japan
2. Growth of InGaN Films by Reactive Sputtering, Q. Guo et al., Saga University, Japan
3. Effective approach for calculating absolute surface energies of polar and semipolar planes for group-III nitrides under MOVPE conditions, T. Akiyama et al., Department of Physics Engineering, Mie University, Japan
4. High temperature vapor phase epitaxy for the growth of GaN layers on sapphire substrates, M. Förste et al., Institute of Nonferrous Metallurgy and Purest Materials, TU Bergakademie Freiberg, Germany
5. InGaN Band Gap Compositional Dependence Determined by Means of Photoacoustic Spectroscopy, R.Oliva Vidal et al., Politechnika Wroclawska, Poland
6. Highly resistive HVPE-GaN grown on native seeds – investigation and comparison of different dopants, M. Iwinska et al., Unipress, Poland
7. TEM Investigations on High-Temperature Annealed epi-AlN on Sapphire, L. Cancellara et al., Leibniz-Institute for Crystal Growth, Germany
8. Study of Indium Incorporation in OMVPE Grown 200-nm Thick In<sub>x</sub>Al<sub>1-x</sub>N Layers, S. Hasenöhr et al., Institute of Electrical Engineering, Slovak Academy of Sciences, Slovakia
9. Structure of AlN films formed by nitriding the aluminum metal layers on the (0001) sapphire substrates, A. Muslimov et al., Federal Research Center “Crystallography and Photonics”, RAS, Russia
10. Crystallization of Thin GaN Layers by HVPE Method on Native and Foreign Substrates, M. Oklej et al., Institute of High Pressure Physics PAS, Poland
11. Diffusion and out-diffusion of Mn in gallium nitride, R. Jakiela et al., Institute of Physics Polish Academy of Sciences, Poland
12. HVPE Growth Method for Thick AlN Epilayer, H. Soo Ahn et al., Korea Maritime and Ocean University, Korea (South)
13. Mg-doped AlN Epilayer Grown by Mixed Source HVPE Method, H. Soo Ahn et al., Korea Maritime and Ocean University, Korea (South)
14. The Growth of High Al Composition Al<sub>x</sub>Ga<sub>1-x</sub>N Epilayers, Hyung Soo Ahn et al., Korea Maritime and Ocean University, Korea (South)
15. Impact of Si doping in different GaN layers on luminescence properties of InGaN/GaN multiple quantum well structure, F. Hájek et al., Institute of Physics, Czech Academy of Science, Czech Republic

16. Increasing scintillator active region thickness by InGaN/GaN QW number, T. Vaněk et al., Czech Academy of Science, Institute of Physics, Czech Republic
17. Effect of dust contamination on GaN/InGaN multiple quantum well growth morphology, K. Kuldová et al., Institute of Physics, Czech Academy of Sciences v.v.i., Czech Republic
18. Inhomogeneous Luminescence of InGaN/GaN Quantum Wells: Effect of Growth Temperature, Carrier Gas and the Buffer Layer Growth, F. Dominec et al., Institute of Physics, v.v.i., Academy of Sciences of the Czech Republic, Czech Republic
19. Effects of Nitrogen Radical Irradiation on InN Growth by RF-MBE, F. Bin Abas et al., Ritsumeikan University, Japan
20. Influence of Different InGaN/(In)GaN Growth Modes on Indium Incorporation and Quality of Layers, T. Hubacek et al., Institute of Physics, Czech Academy of Sciences, Czech Republic
21. Use of Low Temperature Buffer Layer to Suppress the Contamination of InGaN/GaN Quantum Wells, M. Zíková et al., Institute of Physics, Czech Academy of Sciences, Czech Republic
22. Synchrotron radiation x-ray topography and defect selective etching analysis of threading dislocations in HVPE-GaN, J. Weyher et al., Institute of High Pressure Physics PAS, Poland
23. Highly conductive HVPE-GaN grown on native seeds – investigation and comparison of different dopants, B. Lucznik et al., Institute of High Pressure Physics PAS, Poland
24. Influence of electron concentration on chemo-mechanical polishing rate of gallium nitride wafers, G. Kamler et al., Institute of High Pressure Physics Polish Academy of Sciences, Poland
25. Growth of thick AlGaN layers by HVPE method on GaN seeds, M. Fijalkowski et al., Institute of High Pressure Physics PAS, Poland
26. UV Emitting Defects in Hexagonal Boron Nitride, K. Korona et al., University of Warsaw, Poland
27. MOVPE Growth and Surface Morphology Investigation of High Quality GaN,  $\text{Al}_{0.14}\text{Ga}_{0.86}\text{N}$  Epilayers and  $\text{Al}_{0.14}\text{Ga}_{0.86}\text{N}/\text{GaN}$  Superlattice, K. Moszak et al., Wrocław Research Center EIT+ Sp. z o.o., Poland
28. Plasma-assisted MBE and structural properties of AlGaN nanorods selectively grown on  $\mu$ -cone patterned c-sapphire substrates, A. Semenov et al., Ioffe Institute, Russia
29. AlN layers grown by Ga-Al liquid phase epitaxy on nitrated r-plane sapphire substrate, N. Kanno et al., Tohoku University, Japan
30. Morphology and Electrical Properties of InGaN:Mg/InGaN:Si Tunnel Junctions Grown by Plasma-assisted Molecular Beam Epitaxy, M. Žak et al., Institute of High Pressure Physics Polish Academy of Sciences, Poland
31. Homoepitaxial Semi Polar Growth of GaN on Ammono Seeds by HVPE, M. Amilusik et al., Institute of High Pressure Physics PAS, Poland
32. Optical modulation spectroscopy of  $\text{Al}_x\text{Ga}_{1-x}\text{N}$  epilayers and  $\text{Al}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$  quantum wells in the UV spectral range, E. Zdanowicz et al., Wrocław Research Center EIT+, Poland
33. Excess Carrier Lifetime in Ammonothermal GaN Doped with Si, Mg, and Mn, Ł. Janicki et al., Wrocław University of Science and Technology, Poland
34. Influence of Depletion Layer on Spatial Distribution of Cathodoluminescence Intensity in GaN Nanowires, B. Adamowicz et al., Institute of Physics - CND, Silesian University of Technology, Poland
35. Characteristics of aluminum nitride films on hexagonal boron nitride buffer layers using various growth methods through metal organic chemical vapor deposition, M. Han et al., Chonbuk National University, Korea (South)
36. GaN crystallization from iron based solution at 1 and 6 GPa pressures – investigation of critical points of this experimental approach, B. Sadovyi et al., Institute of High Pressure Physics, Polish Academy of Sciences, Poland
37. Growth of low Threading Dislocation Density GaN single crystal during the Na-flux Point Seed Method at low supersaturation, Y. Sawada et al., Osaka University, Japan
38. On-chip near-ultraviolet multicomponent system toward the internet of things, Yongjin Wang et al., Nanjing University of Posts and Telecommunications, China

39. Influence of Macrosteps on Deep-ultraviolet Emission from AlGaN/AlGaN Multiple Quantum wells, K. Kataoka et al., Toyota Central R&D Labs., Inc., Japan
40. Characteristics of Epilayers in Light Emitting Diode Grown by HVPE Method, H. Soo Ahn et al., Korea Maritime and Ocean University, Korea (South)
41. Influence of Mg-doped Layers on Internal Optical Losses in InGaN Laser Diodes, M. Hajdel et al., Institute of High Pressure Physics Polish Academy of Sciences, Poland
42. Comparison between MBE-grown InGaN/GaN Blue LEDs with Standard p-contact and Tunnel Junction p-contact, S. Bharadwaj et al., Cornell University, Ithaca, USA
43. Kelvin probe force microscopy study of High electron mobility transistors, A. Minj et al., Centre National de Recherche Scientifique, France
44. Probing piezoelectric polarization and hole trapping induced surface band bending at interface dislocations in InGaN/GaN heterostructures, A. Minj et al., Centre National de Recherche Scientifique, France
45. Stress and surface defects control for optimization of AlGaN/GaN/Si(111) HEMT-type structures properties, T. Szymanski et al., Wroclaw University of Science and Technology, Poland
46. Growth of 2-inch HVPE-GaN doped with Si – numerical simulations and experiments, S. Sakowski et al., Institute of High Pressure Physics Polish Academy of Sciences, Poland
47. Monte Carlo simulation of carbon incorporation in GaN MOVPE, S. Yamamoto et al., Kyushu University, Japan
48. Migration Energy of a N Atom around Ga Vacancy in GaN, M. Oda, Wakayama University, Japan
49. Compositional Dependence of Band Gaps in III-Nitride Semiconductor Superlattices, T. Kawamura et al., Graduate School of Engineering, Mie University, Japan
50. Electronic and Thermodynamic Properties of the AlN/diamond Interfaces – a DFT Studies, M. Sznajder et al., University of Rzeszow, Faculty of Mathematics and Natural Sciences, Poland
51. On determination of the dominant recombination mechanisms from time resolved photoluminescence in nitride semiconductor heterostructures, K. Sakowski et al., Institute of High Pressure Physics, Polish Academy of Sciences, Poland

## Wednesday (8<sup>th</sup> August)

### 8.30-10.10                      Plenary Session III

Time	Plenary III (chair: <b>I. Grzegory</b> )
<b>8.30-9.20</b>	Y. Mori - Recent Progress of GaN Growth by Na-flux Method <b>(plenary)</b>
<b>9.20 – 10.10</b>	C.G. Van de Walle - Acceptors in nitrides: doping, compensation, and impact on device performance <b>(plenary)</b>

### 10.10-10.30                      Coffee break

### 10.30-13.00                      Parallel sessions: Characterization I & Theory II

Time	Ch I (chair: <b>M. Leszczynski</b> )	T II (chair: <b>S. Krukowski</b> )
<b>10.30-11.00</b>	L. Kirste - Defect Structure Analysis of GaN Substrates by Synchrotron X-Ray Diffraction Techniques <b>(invited)</b>	A. Toropov - Optical properties of 1ML GaN in AlN: what happens beyond the envelope function approach <b>(invited)</b>
<b>11.00-11.30</b>	Rachel Oliver - Multi-microscopy of defects in nitride semiconductors <b>(invited)</b>	K. Shiraishi - First Principles and Thermodynamic Studies on GaN MOVPE Processes <b>(invited)</b>
<b>11.30-12.00</b>	P. Ruterana - Spontaneous formation of quantum wells, ordering and composition fluctuations in (11-22) semipolar AlGaIn/GaN heterostructures grown by plasma enhanced MBE <b>(invited)</b>	D. Irving - Compensation in Si-doped AlN: Mechanisms and opportunities <b>(invited)</b>
<b>12.00-12.15</b>	Y. Yao - Observation of Dislocations in AlN Single Crystal by Using Synchrotron X-Ray Topography, Etch Pit Method and Transmission Electron Microscope	Y. Inatomi - A theoretical model for carbon incorporation during step-flow growth of GaN by MOVPE
<b>12.15-12.30</b>	Lok Yi Lee - Investigation of Stacking Faults in Zincblende GaN Grown on 3C-SiC on Si templates with TEM and XRD	M. Wierzbowska- Perovskite Solar Cells with n-type GaN Electrodes
<b>12.30-12.45</b>	J. Stanska-Matejova - Strain relaxation in InGaIn/GaN epilayers by formation of V-pit defects: XRD experiments and numerical simulations	<b>12.30-13.00</b> A. Jamroz - Morphology and Electronic Structure of Carbon Doped Hexagonal Boron Nitride <b>(invited)</b>
<b>12.45-13.00</b>	K. Shida - Nanobeam X-ray Diffraction Analysis of Local Lattice Distortions in the Growth Direction of a Modified Na-Flux GaN Bulk Crystal	

### 13.00-14.00                      Lunch break

### 14.00-18.00                      Excursion

### 19.30-22.00                      Gala Dinner



## Thursday (9<sup>th</sup> August)

**9.00-11.00**

**Parallel sessions: Electrical Devices II & Characterization II**

<b>Time</b>	<b>Electro II (chair: T. Anderson)</b>	<b>Ch II (chair: M. Kamińska)</b>
<b>9.00-9.30</b>	T. Palacios - GaN Nanostructures (or how to Take Transistor Linearity to new Levels) <b>(invited)</b>	T. Tanikawa - Two-photon-excitation photoluminescence and its recent progress <b>(invited)</b>
<b>9.30-10.00</b>	D. Jena - Growth, Physics, and Applications of Tunneling Nitride Structures <b>(invited)</b>	A. Tanaka - Observation of Dislocation Propagation in GaN on GaN Structure with a Multiphoton Excitation Photoluminescence Microscope <b>(invited)</b>
<b>10.00-10.15</b>	Z. Feng - High Reliability and Frequency Performances of InAlN/GaN HFETs	<b>10.00- 10.30</b> M. Sumiya - Evaluation of Structural Disorder and In-Gap States of III-V nitrides by Photothermal Deflection Spectroscopy <b>(invited)</b>
<b>10.15-10.30</b>	R. Tanaka - Demonstration of GaN vertical double implanted MOSFET	
<b>10.30-10.45</b>	F. Bouazzaoui - Optimized Ohmic Contacts For InAlGa <sub>N</sub> /Ga <sub>N</sub> HEMTs	A. Kaminska - Origin of the Yellow Luminescence in Be-doped GaN revealed by hydrostatic pressure studies
<b>10.45-11.00</b>	I. Sanyal - Improving the Performance of AlInN/GaN and AlInGa <sub>N</sub> /Ga <sub>N</sub> HEMTs by Using a Triethylgallium-Grown Channel Layer and Barrier	K. K. Madapu - Imaging of Surface Plasmon Polaritons of 2D Plasmons of InN Nanostructures having Surface Electron Accumulation

**11.00-11.15**

**Coffee break**

**11.15-13.00**

**Parallel sessions: Electrical Devices III & Nanowires I**

<b>Time</b>	<b>Electro III (chair: C. Skierbiszewski)</b>	<b>Nanowires I (chair: Xinqiang Wang)</b>
<b>11.15-11.45</b>	T. Anderson - Navy Application of Wide Bandgap (WBG) semiconductors enabling future Power and Energy Systems. <b>(invited)</b>	<b>11.15-11.30</b> M. Takebayashi - Fabrication and characterization of GaN nanowires optoelectronic devices
		<b>11.30-11.45</b> M. Terazawa - Optical simulation of GaInN-based multi-quantum-shell (MQS)-Light-Emitting-Diodes (LEDs)
<b>11.45 -12.15</b>	J. Hite - Vertical Power Devices Enabled by Bulk GaN Substrates <b>(invited)</b>	<b>11.45-12.00</b> G. Avit - Self-Induced InGa <sub>N</sub> Nanowires with a Controlled Indium Composition and Selective Area Growth of InN by HVPE
		<b>12.00-12.15</b> V. Zubialevich - Material Redistribution during Thermal Annealing of GaN Nanocolumns and Conditions for Their Maskless Overgrowth by MOVPE
<b>12.15-12.30</b>	M. Takahashi - Characterizations of high-temperature Mg ion implantation in GaN	A. Suzuki - Device fabrication of GaInN-based multi-quantum-shell LEDs
<b>12.30-12.45</b>	H. Sakurai - Non-cap thermal activation	<b>12.30-12.45</b> J. Kierdaszuk - Surface-

	process of Mg-ion implanted Ga-polar GaN using ultra high pressure N <sub>2</sub> annealing	enhanced Raman scattering in graphene induced by Al <sub>x</sub> Ga <sub>1-x</sub> N/GaN axial heterostructure nanowire substrate
<b>12.45-13.00</b>	M. Deki - Improvement of Electrical Stability of ALD-Al <sub>2</sub> O <sub>3</sub> /GaN Interface by UV/O <sub>3</sub> Oxidation and Postdeposition Annealing	

**13.00-14.00**

**Lunch break**

**14.00-16.00**

**Parallel sessions: Growth and Characterization VI & Nanowires II**

<b>Time</b>	<b>G&amp;Ch VI (chair: J. Hite)</b>	<b>Nanowires II (chair: J. Freitas)</b>
<b>14.00-14.15</b>	Y. Yamagata - In-situ observation of AlN growth on levitated Ni-Al droplet	S. Parida - Role of Oxygen Antisite Defects in Al <sub>0.07</sub> Ga <sub>0.93</sub> N Nanowires for the Enhanced CH <sub>4</sub> Response Near Room Temperature
<b>14.15-14.30</b>	M. Noorprajuda - Effect of Reaction Temperature on AlN Formation at Interface of Al Layer Deposited on GaN Substrate	K. Sasai - Two-step epitaxial growth of GaN nanowires by MOVPE
<b>14.30-14.45</b>	Y. Mogami - Evolution of morphology and crystalline quality of sputtered AlN films with high-temperature annealing	N. Goto - Study on emission wavelength control of GaInN multi-quantum-shell/GaN nanowire
<b>14.45-15.00</b>	T. Fudetani - Characteristics of highly conductive p-type GaN films prepared by pulsed sputtering	A Kapoor - Green/Yellow/Red Emission From m-plane Core-shell InGaN/GaN Nanowires
<b>15.00-15.15</b>	M. Sakamoto - Improvement of electron mobility of polycrystalline InN on glass substrates by AlN buffer layers	S. Ishimoto - Improvement of emission efficiency in green LEDs by sputtered AlN buffer layer
<b>15.15-15.30</b>	Y. Sakurai - Structural and Electrical Properties of AlN and AlGaN Prepared by Pulsed Sputtering	H. Zhou - MOVPE Growth Optimization of Shell Layers of InGaN/GaN Core-Shell Microrod LED Structures
<b>15.30-15.45</b>	M. Mazraehno - Surface Morphology Control and Si-Doping of MOVPE-Grown High-Al-Content AlGaIn Layers	<b>15.30-15.45</b> H. Zhou - Insights into the Quantum Efficiency and Recombination Dynamics of InGaN/GaN Core-Shell Microrod LED Structures
<b>15.45-16.00</b>	X. Shen- Effects of N <sub>2</sub> and H <sub>2</sub> carrier gases on the growth of AlGaIn epilayers on Si(110) substrates by MOCVD	

**16.00-16.30**

**Coffee break**

**16.30-18.30**

**Parallel sessions: Electrical Devices IV & Boron Nitride and Related Materials**

<b>Time</b>	<b>Electro IV (chair: M. Deki)</b>	<b>BN (chair: D. Hommel)</b>
<b>16.30-17.00</b>	G. Cywinski -EdgeFET Devices Fabricated on 2DEG GaN/AlGaIn Heterostructures for Basic and Applied Sciences ( <b>invited</b> )	<b>16.30 - 16.45</b> J. Baranowski - MOCVD of Boron Nitride on Sapphire
		<b>16.45-17.00</b> K. Pakula - Investigation of MOVPE Boron Nitride Growth
<b>17.00-17.15</b>	P. Sai - AlGaIn/GaN EdgeFET Based on Two Lateral Schottky Barrier Gates as	F. Liu - Growth of BN thin films by MBE: effect of post thermal annealing

	Terahertz Detector	
<b>17.15-17.30</b>	A. Yamamoto - A Study on 2DEG Properties of AlGaN/GaN Structures Formed on Stepped GaN Surfaces for Vertical Power Devices	<b>17.15-17.45</b> A. Wyszomolek - Excitonic spectra of ultra-thin epitaxial boron nitride layers grown by MOCVD <b>(invited)</b>
<b>17.30-17.45</b>	Yung-Ting Ho - Modified Small-Signal Model for High Frequency GaN-on-Si HEMT with the Leaky Buffer	
<b>17.45-18.00</b>	Y. Ando - Schottky Barrier Diodes Fabricated on Miscut m-plane Substrates	H. Sun - Novel BAlN/Al <sub>x</sub> Ga <sub>1-x</sub> N heterostructures for optical and power devices
<b>18.00-18.15</b>	E. Lutsenko - AlGaN/GaN HEMT Heterostructures Grown by Ammonia and Combined Plasma-Assisted/Ammonia MBE on Sapphire Substrates	U. Ooe - Nitrogen Plasma Effects on MBE Growth of GaN on Graphitic Substrate
<b>18.15-18.30</b>		J. Schmitt - New AlScN growth and annealing for used as lattice matched substrate for deep UV LEDs

## Friday (10<sup>th</sup> August)

**8.30-10.15**

### Parallel sessions: Characterization III & Electrical Devices V

<b>Time</b>	<b>Ch III (chair: R. Oliver)</b>	<b>Electro V (chair: G. Cywinski)</b>
<b>8.30-9.00</b>	M. Albrecht - InGaN still to be discovered <b>(invited)</b>	A. Yamada - Ultralow-sheet-resistance high-electron-mobility transistor structures with strain-controlled high-Al-composition AlGa <sub>N</sub> barrier <b>(invited)</b>
<b>9.00-9.30</b>	J. Smalc-Koziorowska - Differences in the mechanism of strain relaxation of InGaN buffer layers deposited on GaN/sapphire templates and GaN bulk substrates <b>(invited)</b>	<b>9.00-9.15</b> T. Hamachi - Leakage current analysis for individual dislocations in the modified Na-flux GaN bulk single crystal <b>9.15-9.30</b> S. Usami - Dependency of the reverse leakage current on the MOVPE growth pressure of vertical p-n diodes on a GaN free-standing substrate
<b>9.30-9.45</b>	R. Mohamad - Investigation of the spontaneous crystallographic degradation in nearly lattice-matched InAlN layers to GaN	K. Matsumoto - Reduction of Carrier Concentration Increase near the Surface of Silicon Substrate after GaN Growth
<b>9.45 – 10.00</b>	J. Moneta - The Upper Limit for InGaN Plastic Relaxation – Could We Obtain Fully Relaxed InGaN Layer?	Yu-En Jeng - RF-Loss Suppression of AlGa <sub>N</sub> /Ga <sub>N</sub> -on-Si HEMT With Superlattice Buffer
<b>10.00-10.15</b>	A. Lachowski - Structural Studies of the Processes Occurring During Thermal Annealing of InGaN Quantum Wells	JunShuai Xue- Growth and Characterization of InAlN/AlGa <sub>N</sub> Heterostructures

**10.15-10.45**

### Coffee break

**10.45-12.45**

### Parallel sessions: Growth and Characterization VII & Optoelectronic Devices IV

<b>Time</b>	<b>G&amp;Ch VII (chair: J. Baranowski)</b>	<b>Opto IV (chair: S. Chichibu)</b>
<b>10.45-11.00</b>	B. Rackauskas - Self-Compensation of Carbon in AlGa <sub>N</sub>	A. Hospodkova - Design of InGa <sub>N</sub> /Ga <sub>N</sub> MQW structure for scintillator applications
<b>11.00-11.15</b>	H. Turski - Alloying as an effective way to increase Mg incorporation into Ga <sub>N</sub>	<b>11.00-11.30</b> Xiaohang Li- Significantly enhanced performance for AlGa <sub>N</sub> UV LED by employing a thin BAlN electron blocking layer <b>(invited)</b>
<b>11.15-11.30</b>	M. Deppe - Germanium doping of Cubic Al <sub>x</sub> Ga <sub>1-x</sub> N Grown by Molecular Beam Epitaxy	
<b>11.30-11.45</b>	M. Sawicka - InAlN growth peculiarities on vicinal Ga <sub>N</sub> substrates	<b>11.30 -12.00</b> Mi-Hee Ji - Growth and Device Characterization of III-N Deep-Ultraviolet Avalanche Photodiodes and Arrays <b>(invited)</b>
<b>11.45-12.15</b>	L. Janicki - Determination of the Fermi Level in Doped Ga <sub>N</sub> by Contactless Electroreflectance <b>(invited)</b>	<b>12.00-12.30</b> N. Grandjean - Burying surface defects in InGa <sub>N</sub> underlayer to increase blue LED efficiency <b>(invited)</b>
<b>12.15-12.45</b>	R. Collazo - Controlling Si Doping Limits in Al Rich AlGa <sub>N</sub> : Knee Behavior and Low Doping Limits <b>(invited)</b>	

**12.45-13.15**

**Closing Ceremony** (chair: I. Grzegory and Y. Nanishi)

**13.15-14.15**

**Lunch**