PL.1: Plenary I
Monday Morning, October 3, 2016
Room: International South and Center

8:45 AM OPENING REMARKS

9:00 AM *PL.1.01
Perspectives of III-N Optoelectronics Martin Strassburg; OSRAM Opto Semiconductors GmbH, Munich, Germany

9:45 AM *PL.1.02
Current Status and Future Directions in GaN-Based Electronics Umesh Mishra; Electrical and Computer Engineering Department, University of California, Santa Barbara, Santa Barbara , California, United States

10:30 AM BREAK

11:00 AM *PL.1.03
Current Status and Future of III-Nitride Ultraviolet and THz Emitters Hideki Hirayama; RIKEN, Wako, Japan

11:45 AM *PL.1.04
Wafer Scale Integration of GaN with Si CMOS for RF Applications Thomas E. Kazior; Raytheon Company, Andover, Massachusetts, United States

A1.1: Bulk Growth I: Bulk Crystal Growth
Monday Afternoon, October 3, 2016
Room: Azalea/Begonia

2:00 PM *A1.1.01
Recent Progress in Bulk GaN Growth by HVPE on Native Substrates Michal Bockowski; Crystal Growth Laboratory, Institute of High Pressure Physics PAS, Warsaw, Poland

2:30 PM A1.1.02
Low-Dislocation Density and 4 Inch GaN Substrates Grown by Hydride Vapor Phase Epitaxy Jianfeng Wang[1, 2], Guoqiang Ren[1], Yu Xu[1], Demin Cai[2], Mingyue Wang[1], Yuming Zhang[1], Xiaojian Hu[2] and Ke Xu[1, 2]; [1]Suzhou Institute of Nano-Tech and Nano-Bionics Chinese Academy of Science, Suzhou, China; [2]Suzhou Nanowin Science and Technology Co. Ltd, Suzhou, China

2:45 PM A1.1.03
Bulk GaN Substrate with Overall Dislocation Density in the Order of $10^4 – 10^5/cm^2$ by Hydride Vapor Phase Epitaxy Shin Goubara[1], Kota Yukizane[1], Naoki Arita[1], Tohoru Matsubara[1, 2], Keisuke Yamane[3], Ryo Inomoto[1], Narihito Okada[1] and Kazuyuki Tadatomo[1]; [1]Graduate School of Science and Engineering, Yamaguchi University, Ube, Japan; [2]UBE Scientific Analysis Laboratory, Ube, Japan; [3]Toyohashi University of Technology, Toyohashi, Japan

3:00 PM A1.1.04
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 Mikolaj Amilusik, Tomasz Sochacki, Boleslaw Lucznik, Malgorzata Iwinska, Michal Fijalkowski, Izabella Grzegory and Michal Bockowski; Institute of High Pressure Physics PAS, Warsaw, Poland

3:15 PM A1.1.05
Development of GaN Substrate with Large Diameter and Low Orientation Deviation Takehiro Yoshida, Toshio Kitamura, Kenji Othaka and Masatomo Shibata; SCIOCS, Hitachi, Japan

3:30 PM A1.1.06
Highly Conductive HVPE-GaN Grown on Native Seeds Tomasz Sochacki, Malgorzata Iwinska, Boleslaw Lucznik, Mikolaj Amilusik, Michal Fijalkowski, Izabella Grzegory and Michal Bockowski; Institute of High Pressure Physics PAS, Warsaw, Poland

3:45 PM BREAK

4:15 PM *A1.1.07
High Quality Bulk GaN Crystal Grown by Acidic Ammonothermal Method Makoto Saito[1, 2], Quanxi Bao[1, 3], Kohei Kurimoto[1, 3], Daisuke Tomida[1], Kazunobu Kojima[1], Yuji Kagamitani[2], Rinzo Kayano[3], Toru Ishiguro[1] and Shigefusa F. Chichibu[1]; [1]Tohoku University, Miyagi, Japan; [2]Mitsubishi Chemical, Ushiku, Japan; [3]The Japan Steel Works, Tokyo, Japan

4:45 PM *A1.1.08
Recent Developments on Growth and Applications of Ammonothermal GaN Substrates Marcin Zajac and R. Kurcharsk; Ammono, Nieporet, Poland

5:15 PM A1.1.09
Optical, Electrical, and Thermal Properties of N-Type Bulk Ammono-Acidic GaN Mark P. D'Evelyn[1], Wenkan Jiang[1], Jonathan Cook[1], Derrick S. Kamber[1], Rajeev T. Pakalapati[1], Dirk Ehrentraut[1], Tanja Heikkinen[2], Filip Tuomisto[2], Luke Yates[3] and Samuel Graham[3]; [1]Soraa, Inc., Goleta, California, United States; [2]Department of Applied Physics, Aalto University, FI-00076 Aalto Espoo, Finland; [3]School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States

5:30 PM A1.1.10
Enhancement of Lateral Growth of GaN Crystal with Extremely Low Dislocation Density by Na-Flux Point Seed Technique Masatoshi Hayashi, Masayuki Imanishi, Takumi Yamada, Daisuke Matsuo, Kosuke Murakami, Mihoko Maruyama, Mamoru Imade, Masashi Yoshimura and Yusuke Mori; Engineering, Osaka University, Suita, Japan

5:45 PM A1.1.11
Free-Standing HVPE-GaN Crystals—Slicing, Wafering and Preparation of Seeds Michal Fijalkowski; Institute of High Pressure Physics PAS, Warszawa, Poland

A2.1: Epitaxial Growth I
Monday Afternoon, October 3, 2016
Room: Camelia/Dogwood

2:00 PM *A2.1.01
Low Dislocation Density AlGaN Epilayers on Sapphire for UV Laser Diodes and Power Electronics Andrew Allerman, Mary H. Crawford, Andrew M. Armstrong, Albert G. Baca, Jeramy R. Dickerson, Michael P. King, Robert J. Kaplar and Stephen R. Lee; Sandia National Laboratories, Albuquerque, New Mexico, United States

2:30 PM A2.1.02
Phase Diagram for Island Growth, Step Flow Growth, and Step Bunching Growth of AlN Layers Konrad Bellmann, Tim Wernicke, Christian Kuhn and Michael Kneissl; Institute of Solid State Physics, Technical University of Berlin, Berlin, Germany

2:45 PM A2.1.03
Fabrication of High-Quality AlN Template on Sapphire by High-Temperature Annealing Hideto Miyake[2,1], Chia-Hung Lin[1], Yikang Liu[1] and Kazumasa Hiramatsu[1]; [1]Electrical and Electronic Engineering, Mie University, Tsu, Japan; [2]Graduate School of Regional Innovation Studies, Mie University, Tsu, Japan

3:00 PM A2.1.04
N-Face InN/GaN (000-1) Double Heterostructures Grown by Metalorganic Vapor Phase Epitaxy Tetsuya Akasaka, Monika Schied, Hideki Yamamoto and Kazuhide Kumakura; NTT Basic Research Laboratories, NTT Corporation, Atsugi, Japan

3:15 PM A2.1.05
Green and Amber Emission Thanks to Full InGaN Structure on Relaxed InGaN Substrate Armelle Even[1], Gautier Laval[1], Olivier Ledoux[2], Pierre Ferret[1], David Sotta[2], Eric Guiot[2], Francois Levy[1], Ivan-Christophe Robin[1] and Amelie Dussaigne[1]; [1]CEA, LETI, MINATEC Campus, University of Grenoble-Alpes, Grenoble, France; [2]Soitec, Bernin, France

3:30 PM A2.1.06

High Internal Quantum Efficiency Long Wavelength Semipolar Quantum Wells with and without Strain Controlling AlInN Layers Fedor A. Ketzer[1], Philipp Horenburg[1], Heiko Bremers[1], Uwe Rossow[1], Florian Tendille[2], Philippe Vennegues[2], Philippe De Mierry[2], Jesus Zuniga-Perez[2] and Andreas Hangleiter[1]; [1]Institute of Applied Physics, Braunschweig University of Technology, Braunschweig, Germany; [2]Centre de Recherche sur l'Hétéro-Epitaxie (CRHEA), Valbonne, France

3:45 PM BREAK

B1.1: Visible Devices I: Visible Light Emitters
Monday Afternoon, October 3, 2016
Room: International South and Center

2:00 PM *B1.1.01

High Power Blue and Green AlInGaN Laser Diodes Shingo Masui, Yoshitaka Nakatsu, Daiji Kasahara and Shin-ichi Nagahama; LD Development Department, Nichia Corporation, Tokushima, Japan

2:30 PM *B1.1.02

Recombination and Transport Dynamics of III-Nitride LEDs—New Experimental Insights Aurelien David, Christophe Hurni, Nathan G. Young and Michael D. Craven; Soraa Inc., Fremont, California, United States

3:00 PM B1.1.03

Nonpolar III-Nitride Vertical-Cavity Surface-Emitting Lasers Charles A. Forman[1], John T. Leonard[1], Erin C. Young[1], Seunggeun Lee[2], Daniel A. Cohen[1], Benjamin P. Yonkee[1], Robert M. Farrell[1], Tal Margalith[1], Steven P. DenBaars[1, 2], James S. Speck[1] and Shuji Nakamura[1, 2]; [1]Materials, University of California, Santa Barbara, Goleta, California, United States; [2]Electrical and Computer Engineering, University of California, Santa Barbara, Santa Barbara, California, United States

3:15 PM B1.1.04

3-mW RT-CW GaN-Based VCSELs and Their Temperature Dependence Kenjo Matsui[1], Takashi Furuta[1], Natsumi Hayashi[1], Yugo Kozuka[1], Takanobu Akagi[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1], Motoaki Iwaya[1] and Isamu Akasaki[1, 2]; [1]Meijo University, Nagoya, Japan; [2]Akasaki Research Center, Nagoya, Japan

3:30 PM B1.1.05

Thresholdless Lasing of Nitride Nanobeam Cavities on Silicon Stefan Jagsch[1], Noelia Vico Trivino[2], Gordon Callsen[1], Stefan Kalinowski[1], Ian M. Rousseau[2], Jean-Francois Carlin[2], Raphael Butte[2], Axel Hoffmann[1], Nicolas Grandjean[2] and Stephan Reitzenstein[1]; [1]Technische Universität Berlin, Berlin, Germany; [2]EPFL Laussanne, Laussanne, Switzerland

3:45 PM BREAK

C0.1: Electronic Devices I
Monday Afternoon, October 3, 2016
Room: Narcissus/Orange Blossom

2:00 PM INVITED TALK BY ANDREA CORRION

2:30 PM *C0.1.02
Key Reliability Issues and Degradation Mechanisms of GaN-Based Power HEMTs Matteo Meneghini, Gaudenzio Meneghesso and Enrico Zanoni; Department of Information Engineering, University of Padova, Padova, Italy

3:00 PM C0.1.03
Transferred-Substrate AlGaN/GaN HEMTs with Thermal Resistance Comparable with HEMTs on SiC Substrate Masanobu Hiroki, Kazuhide Kumakura and Hideki Yamamoto; NTT Basic Research Laboratories, Atsugi, Japan

3:15 PM C0.1.04
Q-Band High Power AlN/GaN HEMTs With Over 45% PAE Riad Kabouche, Ezgi Dogmus, Etienne Okada, Malek Zegaoui and Farid Medjdoub; IEMN-CNRS, Villeneuve d'Ascq, France

3:30 PM C0.1.05
Dependence of Resonant Tunneling Current on Barrier Thickness in GaN/AlN Resonant Tunneling Diodes Operating at Room Temperature Jimy J. Encomendero[1], S.M. M. Islam[1], Vladimir Protasenko[1], Patrick Fay[2], Debdeep Jena[1, 3] and Huili G. Xing[1, 3]; [1]Electrical and Computer Engineering, Cornell University, Ithaca, New York, United States; [2]Electrical Engineering, University of Notre Dame, South Bend, Indiana, United States; [3]Materials Science, Cornell University, Ithaca, New York, United States

3:45 PM BREAK

4:15 PM *C0.1.06
Rethinking Power Density—How GaN is Changing the Game in Power Electronics Steven R. Tom; GaN Technology, Texas Instruments, Dallas, Texas, United States

4:45 PM *C0.1.07
Current Status of Vertical GaN Power Devices Tetsu Kachi; Institute of Materials and System for Sustainability, Nagoya University, Nagoya, Japan

5:15 PM C0.1.08
GaN MOSHEMT on Free-Standing GaN Substrate with p-$Al_xGa_{1-x}N$ Back Barrier and 10^{10} On/Off Ratio Mingda Zhu[3, 1], Bo Song[3, 1], Zongyang Hu[3, 1], Kazuki Nomoto[3, 1], Ming Pan[4], Xiang Gao[4], Debdeep Jena[3, 2, 1] and Huili G. Xing[3, 2, 1]; [1]Electrical Engineering, University of Notre Dame, NOTRE DAME, Indiana, United States; [2]Material Science and Engineering, Cornell University, ITHACA, New York, United States; [3]Electrical and Computer Engineering, Cornell University, Ithaca, New York, United States; [4]IQE RF LLC., Somerset, New Jersey, United States

5:30 PM C0.1.09
Regrown Mg Doped GaN Interlayer to Enhance Breakdown Voltage in Trench MOSFET Chirag Gupta[1], Yuuki Enatsu[1], Silvia Chan[1], Anchal Agarwal[1], Davide Bisi[2, 1], Stacia Keller[1] and Umesh Mishra[1]; [1]Electrical and Computer Engineering, University of California, Santa Barbara, Goleta, California, United States; [2]University of Padova, Padova, Italy

5:45 PM C0.1.10
Time-Dependent Dielectric Breakdown in High-Voltage GaN MIS-HEMTs—The Role of Temperature Shireen Warnock, Allison Lemus and Jesus A. del Alamo; Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

D2.1: Theory and Simulation I: Basic Materials Properties - Theory
Monday Afternoon, October 3, 2016
Room: International North

2:00 PM *D2.1.01
Correct Implementation of Polarization Constants in Nitride Semiconductors Chris G. Van de Walle; Materials Department, University of California, Santa Barbara, Santa Barbara, California, United States

2:30 PM *D2.1.02
Ab Initio-Based Approach to Crystal Growth of Nitride Semiconductors—Contribution of Growth Orientation and Surface Reconstruction Yoshihiro Kangawa[1], Kenji Shiraishi[2], Koichi Kakimoto[1] and Akinori Koukitu[3]; [1]Research Institute for Applied Mechanics, Kyushu University, Fukuoka, Japan; [2]Institute of Materials and System for Sustainability, Nagoya University, Nagoya, Japan; [3]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Tokyo, Japan

3:00 PM D2.1.03
Nonlinear Thermoelectromechanical Analysis of III-N Devices Mario Ancona; Naval Research Laboratory, Washington, District of Columbia, United States

3:15 PM D2.1.04
Tuning the Topological Character of Wurtzite III-Nitrides—Interplay of Crystal-Field Splitting, Spin-Orbit Coupling, and *p-d* Hybridization Induced Repulsion Parijat Sengupta, Masahiko Matsubara and Enrico Bellotti; Electrical and Computer Engineering, Boston University, Boston, Massachusetts, United States

3:30 PM D2.1.05
Self-Compensation Due to Point Defects in Mg-Doped GaN Giacomo Miceli; École polytechnique fédérale de Lausanne, Lausanne, Switzerland

3:45 PM BREAK

F0.1: Novel Materials and Devices I
Monday Afternoon, October 3, 2016
Room: Poinsettia/Quince

2:00 PM *F0.1.01

AlScN, AlYN, and InYN—Emerging Nitride Solid Solutions Agne Zukauskaite[1], Christopher Tholander[2], Jens Birch[2], Lars Hultman[2], Yuan Lu[1], Anli Ding[3], Markus Reusch[4], Volker Cimalla[1] and Vadim Lebedev[1]; [1]Sensors, Fraunhofer Institute for Applied Solid State Physics IAF, Freiburg, Germany; [2]Department of Physics, Chemistry and Biology, Linköping University, Linköping, Sweden; [3]Technology, Fraunhofer Institute for Applied Solid State Physics IAF, Freiburg, Germany; [4]IMTEK - Department of Microsystems Engineering, University of Freiburg, Freiburg, Germany

2:30 PM *F0.1.02

Gallium Nitride Sensing Technology for Extreme Harsh Environments Debbie G. Senesky; Aeronautics and Astronautics, Stanford University, Stanford, California, United States

3:00 PM F0.1.03

Many-Particle Complexes Stabilized by a Degenerate Electron Gas in Highly Ge-Doped, Bulk GaN Gordon Callsen[1], Christian Nenstiel[1], Felix Nippert[1], Thomas Kure[1], Markus R. Wagner[1], Sarah Schlichting[1], Nadja Jankowski[1], Marcus Mueller[2], Frank Bertram[2], Peter Veit[2], Marc Hoffmann[2], Stefanie Fritze[2], Armin Dadgar[2], Alois Krost[2], Axel Hoffmann[1] and Friedhelm Bechstedt[3]; [1]Insitut für Festkörperphysik, Technische Universität Berlin, Berlin, Germany; [2]Insitut für Experimentelle Physik, Otto-von-Guericke-Universität Magdeburg, Magdeburg, Germany; [3]Insitut für Festkörpertheorie und -optik, Friedrich-Schiller-Universität, Jena, Germany

3:15 PM F0.1.04

Gallium Nitride-on-Silicon Photonic Crystal Platform for Second Harmonic Generation Mohamed S. Mohamed[1], Angelica Simbula[2], Dario Gerace[2], Matteo Galli[2], Momchil Minkov[1], Vincenzo Savona[1], Jean-Francois Carlin[1], Nicolas Grandjean[1] and Romuald Houdre[1]; [1]Institute of Physics, EPFL, Lausanne, Switzerland; [2]Dipartimento di Fisica, Università di Pavia, Pavia, Italy

3:30 PM F0.1.05

Excitonic Properties of Hexagonal BN Grown by High-Temperature Metal-Organic Vapor-Phase Epitaxy Mary Crawford[1], Andrew Allerman[1], Thomas Beechem[1], Taisuke Ohta[1], Douglas Medlin[2], Catalin Spataru[3], Anthony Rice[1], Jeffrey Figiel[1] and Michael Smith[1]; [1]Physical, Chemical, and Nanosciences Center, Sandia National Laboratories, Albuquerque, New Mexico, United States; [2]Energy Nanomaterials Department, Sandia National Laboratories, Livermore, California, United States; [3]Materials Physics Department, Sandia National Laboratories, Livermore, California, United States

B2.1: UV Devices I: UV Emitters
Monday Afternoon, October 3, 2016
Room: International South and Center

4:15 PM *B2.1.01

Exploring the Limits of AlGaN-Based Deep UV LEDs Michael Kneissl[1, 2], Johannes Enslin[1], Martin Guttmann[1], Christian Kuhn[1], Frank Mehnke[1], Christoph Reich[1], Luca Sulmoni[1], Tim Wernicke[1], Joerg Jeschke[2], Johannes Glaab[2], Sylvia Hagedorn[2], Arne Knauer[2], Tim Kolbe[2], Mikael Lapeyrade[2], Neyhsa Lobo-Ploch[2], Carsten Netzel[2], Jens Rass[2], Christoph Stoelmacker[2], Ute Zeimer[2], Sven Einfeldt[2] and Markus Weyers[2]; [1]Institute of Solid State Physics, Technische Universitaet Berlin, Berlin, Germany; [2]Ferdinand-Braun-Institut, Leibniz Institut fuer Hoechstfrequenztechnik, Berlin, Germany

4:45 PM B2.1.02

Engineering of Hole Transport in Tunneling Injected UV-A LEDs Yuewei Zhang[1], Sriram Krishnamoorthy[1], Fatih Akyol[1], Zane Jamal-Eddine[1], Andrew Allerman[2], Michael Moseley[2], Andrew Armstrong[2] and Siddharth Rajan[1]; [1]Electrical and Computer Engineering, Ohio State University, Columbus, Ohio, United States; [2]Sandia National Laboratories, Albuquerque, New Mexico, United States

5:00 PM B2.1.03

Optical Polarization Control of Photo-Pumped Stimulated Emission at 238 nm from AlGaN Multiple Quantum Wells on Bulk AlN Mohamed Lachab[1], Wenhong Sun[1], Rakesh Jain[1], Alex Dobrinsky[1], Mikhail Gaevski[1], Sergey Rumyantsev[2], Michael Shur[2] and Max Shatalov[1]; [1]Sensor Electronic Technology Inc., Columbia, South Carolina, United States; [2]Rensselaer Polytechnic Institute, Troy, New York, United States

5:15 PM B2.1.04

Pseudomorphic LEDs on AlN Substrates Emitting at 235 nm Craig G. Moe[1], James Grandusky[1], Jumpei Kasai[2] and Leo Schowalter[1]; [1]Crystal IS, Green Island, New York, United States; [2]Asahi Kasei, Fuji, Japan

5:30 PM B2.1.05

Ultraviolet Micro-Cavity Light Emitting Diodes with an Electrically Conducting *n*-AlGaN/GaN DBR Grown by Metalorganic Chemical Vapor Deposition Yuh-Shiuan Liu[1], Tsung-Ting Kao[1], Karan Mehta[1], Xiaojia Jia[1], Shuo Wang[2], Shyh-Chiang Shen[1], Paul D. Yoder[1], Fernando Ponce[2], Theeradetch Detchprohm[1] and Russell D. Dupuis[1]; [1]Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Arizona State University, Tempe, Arizona, United States

5:45 PM B2.1.06

Defect-Resistant Emission Properties of Nonpolar *m*-Plane $Al_{1-x}In_xN$ Epilayers for Deep-Ultraviolet to Visible Polarized-Light-Emitting Vacuum Fluorescent Display Devices Shigefusa F. Chichibu[1], Kazunobu Kojima[1], Akira Uedono[2] and Yoshitaka Sato[3]; [1]Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan; [2]University of Tsukuba, Tsukuba, Japan; [3]Futaba Corporation, Chosei-gun, Japan

B3.1: Photodetectors, Photovoltaics, Intersubband Devices I:
Photodetectors and Photovoltaics I
Monday Afternoon, October 3, 2016
Room: Poinsettia/Quince

4:15 PM *B3.1.01

Key Factors for Improvement of InGaN Photovoltaic Performance Masatomo Sumiya[1] and Liwen Sang[2]; [1]Widegap Materials Group, National Institute for Materials Science, Tsukuba, Japan; [2]National Institute for Materials Science, Tsukuba, Japan

4:45 PM *B3.1.02

III-Nitride Based Avalanche Photodetectors Manijeh Razeghi and Ryan McClintock; Center for Quantum Devices, Department of Electrical Engineering and Computer Science, Northwestern University, Evanston, Illinois, United States

5:15 PM B3.1.03

Demonstration of Uniform and Reliable GaN p-i-n Ultraviolet Avalanche Photodiode Arrays with Large Detection Area on Free-Standing GaN Substrates Mi-Hee Ji[1], Jeomoh Kim[1], Theeradetch Detchprohm[1], Russell D. Dupuis[1], Ashok Sood[2], Nibir Dhar[3] and Jay Lewis[4]; [1]Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Magnolia Optical Technologies, Woburn, Massachusetts, United States; [3]Night Vision and Electronic Sensors Directorate, Fort Belvoir, Virginia, United States; [4]DARPA/MTO, Arlington, Virginia, United States

5:30 PM B3.1.04

Influence of the Active Region Thickness on the Performance of InGaN/GaN Multi-Quantum-Well Solar Cells Anna Mukhtarova[2, 1], Sirona Valdueza-Felip[2, 1], Luca Redaelli[2, 1], Christophe Durand[2, 1], Catherine Bougerol[2, 3], Eva Monroy[2, 1] and Joel Eymery[2, 1]; [1]CEA/INAC, Grenoble, France; [2]University Grenoble Alpes, Grenoble, France; [3]CNRS - Institut Néel, Grenoble, France

5:45 PM B3.1.05

Optimization of (Al)GaN Based Betavoltaic Device Kasey Hogan, Jonathan Marini, Isra Mahaboob and Fatemeh (Shadi) Shahedipour-Sandvik; Nanoscale Engineering, SUNY Polytechnic Institute, Colleges of Nanoscale Science and Engineering, Albany, New York, United States

D1.1: Materials Characterization I: Basic Materials Properties - Characterization
Monday Afternoon, October 3, 2016
Room: Camelia/Dogwood

4:15 PM *D1.1.01

Cathodoluminescence Characteristic of InGaN/GaN MQWs Grown on Polar and Semi-Polar Substrates Mi-Hyang Sheen[3], Sung-Dae Kim[1], Jongjin Jang[2], Okhyun Nam[2], Jong-In Shim[3] and Youngwoon Kim[1]; [1]Materials Science and Engineering, Seoul National University, Seoul, Korea (the Republic of); [2]Korea Polytechnic University, Siheung, Korea (the Republic of); [3]Department of Electronics and Communications, Hanyang University, Ansan, Korea (the Republic of)

4:45 PM *D1.1.02

Positron Spectroscopy of III-Nitrides Filip Tuomisto; Department of Applied Physics, Aalto University, Espoo, Finland

5:15 PM D1.1.03

Basal Stacking Fault Domains as a Source of a-Type Threading Dislocations in Nitride Epitaxial Layers Julita Smalc-Koziorowska[1, 2], Calliope Bazioti[3], Martin Albrecht[4] and George P. Dimitrakopulos[3]; [1]Laboratory of Semiconductors, Institute of High Pressure Physics, Warsaw, Poland; [2]TopGaN Ltd, Warsaw, Poland; [3]Department of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece; [4]Leibniz Institute for Crystal Growth, Berlin, Germany

5:30 PM D1.1.04

Spatial Variations of Photoluminescence Polarization in *m*-Plane InGaN Quantum Wells Ruslan Ivanov[1], Mounir D. Mensi[1], Leah Y. Kuritzky[2], Daniel J. Myers[2], Saulius Marcinkevicius[1, 2], Oscar Martinez[3, 1], Shuji Nakamura[2] and James S. Speck[2]; [1]Department of Materials and Nano Physics, KTH Royal Institute of Technology, Kista, Sweden; [2]Materials Department, University of California, Santa Barbara, Santa Barbara, California, United States; [3]GdS Optronlab, Universidad de Valladolid, Valladolid, Spain

5:45 PM D1.1.05

Localization of Individual Electrons and Holes in Submonolayer InN Quantum Sheets Embedded in GaN Felix Feix, Timur Flissikowski, Caroline Cheze, Raffaella Calarco, Holger T. Grahn and Oliver Brandt; Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany

E0.1: Nanostructures I
Monday Afternoon, October 3, 2016
Room: International North

4:15 PM *E0.1.01

MBE Growth of Ordered InGaN/GaN Nanocolumns—Applications to Classical/Quantum Light Sources and Pseudosubstrates Enrique Calleja Pardo; Electronic Engineering, ISOM-Universidad Politecnica de Madrid, Madrid, Spain

4:45 PM E0.1.02

The Extreme Emission Properties of III-Nitride Quantum Dots and the Effects of Extreme Environments on Those Properties Mark J. Holmes[1], Satoshi Kako[2], Kihyun Choi[1], Munetaka Arita[1] and Y. Arakawa[1, 2]; [1]Institute for Nano Quantum Information Electronics, University of Tokyo, Meguro-ku, Japan; [2]Institute of Industrial Science, University of Tokyo, Tokyo, Japan

5:00 PM E0.1.03

Optical Pumped Lasing at Amber Region in Short Period Nanocolumn Arrays Yuzo Matsui[1], Shunsuke Ishizawa[1], Kai Motoyama[1] and Katsumi Kishino[1, 2]; [1]Sophia University, Tokyo, Japan; [2]Nanotechnology Research Center, Sophia University, Tokyo, Japan

5:15 PM E0.1.04

Nanoscale Cathodoluminescence Mapping of Three-Dimensional InGaN/GaN Core-Shell Microrod Light Emitting Diodes Marcus Mueller[1], Sebastian Metzner[1], Peter Veit[1], Frank Bertram[1], Christian Nenstiel[2], Gordon Callsen[2], Matin S. Mohajerani[3], Jana Hartmann[3], Hao Zhuo[3], Hergo H. Wehmann[3], Axel Hoffmann[2], Andreas Waag[3] and Juergen Christen[1]; [1]Institute of Experimental Physics, Otto-von-Guericke Universität Magdeburg, Magdeburg, Germany; [2]Institut für Festkörperphysik, Technische Universität Berlin, Berlin, Germany; [3]Institut für Halbleitertechnik, Technische Universität Braunschweig, Braunschweig, Germany

5:30 PM E0.1.05

Closely-Packed Two-Dimensional Arrangement of Microscopic Area (10×10 mm^2) InGaN-Based Nanocolumn LEDs with Different Emission Colors Naoki Sakakibara[1], Tatsuya Kano[1], Jun Yoshida[1], Rin Miyagawa[1], Takao Oto[1] and Katsumi Kishino[1, 2]; [1]Sophia university, Chiyoda-ku, Japan; [2]Nanotechnology Research Center, Sophia University, Tokyo, Japan

5:45 PM E0.1.06

Optical Properties of Externally Biased AlGaN/GaN Nanowire Heterostructures Jan Mussener[1], Pascal Hille[1], Jorg Schormann[1], Joerg Teubert[1], Joel Bleuse[2], Bruno Gayral[2], Eva Monroy[2], Maria de la Mata[3], Jordi Arbiol[3, 4] and Martin Eickhoff[1]; [1]Institute of Physics, Justus-Liebig Universität Giessen, Giessen, Germany; [2]INAC-PHELIQS, CEA Grenoble, Grenoble, France; [3]Catalan Institute of Nanoscience and Nanotechnology, Autonomous University of Barcelona, Bellaterra, Spain; [4]Catalan Institution for Research and Advanced Studies, Barcelona, Spain

A2.2: Epitaxial Growth II: Epitaxial Growth for UV Emitters
Tuesday Morning, October 4, 2016
Room: International South

8:30 AM *A2.2.01

Progress and Remaining Challenges in UVC Laser Development Zlatko Sitar[2, 1], Ramon Collazo[2], Ronny Kirste[1], Biplab Sarkar[2], Felix Kaess[2], Isaac Bryan[2], Zachary Bryan[2], Seiji Mita[1] and James Tweedie[1]; [1]Adroit Materials Inc., Cary, North Carolina, United States; [2]North Carolina State University, Raleigh, North Carolina, United States

9:00 AM A2.2.02

AlGaN Material Structures for UV-LEDs Based on Dislocation-Free GaN Platelets Maryam Khalilian[1], David Lindgren[1], Filip Lenrick[2], Reine Wallenberg[2], Anders Gustafsson[1], B. J. Ohlsson[1] and Lars Samuelson [1]; [1]Solid State Physics, Lund University, Lund, Sweden; [2]Centre for Analysis and Synthesis, Lund, Sweden

9:15 AM A2.2.03

Effect of Optimized Buffers on Electro-Optical Characteristics of AlGaN-Based Deep-Ultraviolet PIN Photodetectors Mohammad Tollabi Mazraehno[2, 1], Peter Stauss[1], Alvaro Gomez-Iglesias[1], Lutz Hoeppel[1], Alexander Pfeuffer[1], Simon Englisch[1], Michael Hirmer[1], Georg Brüderl[1], Michael Binder[1] and Thomas Pertsch[2]; [1]OSRAM Opto Semiconductors GmbH, Regensburg, Germany; [2]Friedrich-Schiller-University Jena, Institute of Applied Physics, Jena, Germany

9:30 AM A2.2.04
Growth of Deep-UV (11-22) AlGaN Quantum Wells on m-Plane (1-100) Sapphire Substrates Takuma Matsumoto[1, 2], Issei Oshima[1, 2], Noritoshi Maeda[1], Masafumi Jo[1], Norihiko Kamata[2] and Hideki Hirayama[1]; [1]RIKEN, Wako, Japan; [2]Saitama University, Sakura-ku, Japan

9:45 AM A2.2.05
Boron Containing AlGaN Layers for UV Lighting Oliver Rettig[1], Jan-Patrick Scholz[2], Sebastian Bauer[2], Ferdinand Scholz[1] and Klaus Thonke[2]; [1]Institute of Optoelectronics, Ulm University, Ulm, Germany; [2]Institute of Quantum Matter / Semiconductor Physics Group, Ulm University, Ulm, Germany

10:00 AM A2.2.06
Ge Doping of AlGaN—Growth, Characterization and Applications Ronny Kirste[1, 2], Marc P. Hoffmann[1], Alexander Franke[1], Ramon Collazo[1] and Zlatko Sitar[1]; [1]North Carolina State University, Raleigh, North Carolina, United States; [2]Adroit Materials, Cary, North Carolina, United States

10:15 AM BREAK

B1.2: Visible Devices II: Long Wavelength Emitters
Tuesday Morning, October 4, 2016
Room: International Center

8:30 AM *B1.2.01
Green Gap and Droop in InGaN/GAN LEDs—The Role of Random Alloy Fluctuations Matthias Auf der Maur[1], Alessandro Pecchia[2], Gabriele Penazzi[3], Walter Rodrigues[1] and Aldo Di Carlo[1]; [1]Electronics Engineering, University of Rome Tor Vergata, Rome, Italy; [2]ISMN, Consiglio Nazionale delle Ricerche, Monterotondo, Italy; [3]BCCMS, University of Bremen, Bremen, Germany

9:00 AM B1.2.02
High Luminous Efficacy InGaN/AlGaN LED in the Green Spectral Region Abdullah I. Alhassan[1], Robert M. Farrell[1], Burhan Saifaddin[1], Asad Mughal[1], Feng Wu[1], Shuji Nakamura[1, 2], Steven P. DenBaars[1] and James S. Speck[1]; [1]Materials, University of California, Santa Barbara, Goleta, California, United States; [2]Department of Electrical and Computer Engineering, University of California Santa Barbara, Goleta, California, United States

9:15 AM B1.2.03
What Limits the Efficiency of Green (0001) InGaN LEDs Markus Pristovsek[1], Rachel A. Oliver[1], Tom Badcock[2], Muhammad Ali[2] and Andrew Shields[2]; [1]Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [2]Cambridge Research Laboratory, Toshiba Research Europe Ltd., Cambridge, United Kingdom

9:30 AM B1.2.04
The Comparative Internal Quantum Efficiency and Thresholds for Auger Recombination in Green, Yellow and Red InGaN-Based Light Emitters Grown along the Polar Direction Huong T. Ngo; University of Montpellier, Laboratory Charles Coulomb, Montpellier, France

9:45 AM B1.2.05
Cubic InGaN MQWs for Efficient Green LEDs David Wallis[1], Suman-Lata Sahonta[1], Martin Frentrup[1], Lok Yi Lee[1], Menno J. Kappers[1], Rachel A. Oliver[1], Daniel Nilsson[2], Jill Shaw[2], Peter Ward[2] and Colin J. Humphreys[1]; [1]University of Cambridge, Cambridge, United Kingdom; [2]Anvil Semiconductors Ltd, Coventry, United Kingdom

10:00 AM B1.2.06
Suppressing the Incorporation of Carbon Impurity in AlGaN:Mg for Green LDs with Low Operation Voltage Jianping Liu; Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, Suzhou, China

10:15 AM BREAK

C1.1: RF/mm Wave Devices I: Electronic Devices for RF Applications
Tuesday Morning, October 4, 2016
Room: Narcissus/Orange Blossom

8:30 AM *C1.1.01
High Frequency GaN HEMTs and MMICs with AlN-Interlayer Epitaxy Peter Brueckner[1], Dirk Schwantuschke[2], Ruediger Quay[2], Michael Mikulla[2] and Oliver Ambacher[2]; [1]III-V Technology, Fraunhofer Institute for Applied Solid State Physics IAF, Freiburg im Breisgau, Germany; [2]Fraunhofer Institute for Applied Solid State Physics IAF, Freiburg, Germany

9:00 AM C1.1.02
Ultra-Wide Bandgap AlGaN Channel MISFET with Low-Resistance Ohmics Sanyam Bajaj[1], Fatih Akyol[1], Sriram Krishnamoorthy[1], Yuewei Zhang[1], Andrew Armstrong[2], Andrew Allerman[2] and Siddharth Rajan[1]; [1]Electrical and Computer Engineering, Ohio State University, Columbus, Ohio, United States; [2]Sandia National Laboratories, Albuquerque, New Mexico, United States

9:15 AM C1.1.03
Control of Polarization Charges for Leakage Current Reduction in InAlN/AlN/GaN Heterostructures with In Situ AlN Cap Junji Kotani, Atsushi Yamada, Tetsuro Ishiguro and Norikazu Nakamura; Devices and Materials Laboratory, Fujitsu Laboratories. Ltd., Atsugi, Japan

9:30 AM C1.1.04
Anomalous Source-Side Degradation of InAlN/GaN HEMTs under ON-State Stress Yufei Wu and Jesus del Alamo; EECS, MIT, Cambridge, Massachusetts, United States

9:45 AM C1.1.05

Planar-Nanostrip-Channel InAlN/GaN HEMTs on Si with Improved g_m and f_T Linearity Weichuan Xing[1, 2], Zhihong Liu[1], Haodong Qiu[2], Geok Ing Ng[1, 2] and Tomas Palacios[3]; [1]Low Energy Electronic Systems, Singapore-MIT Alliance for Research and Technology, Singapore, Singapore; [2]Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore; [3]Microsystems Technology Laboratories, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

10:00 AM LATE NEWS

10:15 AM BREAK

D1.2: Materials Characterization II: Characterization of InGaN Films and QWs
Tuesday Morning, October 4, 2016
Room: International North

8:30 AM *D1.2.01

Electronic and Optical Properties of c- and m-Plane InGaN Quantum Wells—Influence of Structural Inhomogeneities and Random Alloy Fluctuations Stefan Schulz[1], Rachel A. Oliver[2], Colin J. Humphreys[2] and Philip Dawson[3]; [1]Tyndall National Institute, Cork, Ireland; [2]Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [3]University of Manchester, Manchester, United Kingdom

9:00 AM D1.2.02

Carrier Diffusion in m-Plane InGaN Single Quantum Well Measured by Dual Mode Scanning Near-Field Optical Microscopy Saulius Marcinkevicius[1, 2], Mounir Mensi[1], Ruslan Ivanov[1], Leah Y. Kuritzky[2], Shuji Nakamura[2] and James S. Speck[2]; [1]Materials and Nano Physics, KTH Royal Institute of Technology, Kista, Sweden; [2]Materials, University of California, Santa Barbara, Santa Barbara, California, United States

9:15 AM D1.2.03

Anisotropic Photo-Induced Bleaching of the Polarization-Dependent Absorption in a Strain-Compensated *a*-Plane InGaN/AlGaN Superlattice Antonio Llopis, Ryan W. Enck, Gregory A. Garrett, Blair C. Connelly, Grace D. Metcalfe, Paul Shen and Michael Wraback; Sensors and Electron Devices Directorate, Army Research Laboratory, Adelphi, Maryland, United States

9:30 AM D1.2.04

Influence of Inhomogeneous Broadening on the Optical Polarization Properties of m-Plane, (20-2-1) and (20-21) InGaN Quantum Wells Christian Mounir[1], Ingrid L. Koslow[2, 3], Tim Wernicke[2], Michael Kneissl[2, 3], Leah Y. Kuritzky[4], Nicholas L. Adamski[4], Sang H. Oh[4], Christopher D. Pynn[4], Steven P. DenBaars[4], Shuji Nakamura[4], James S. Speck[4] and Ulrich T. Schwarz[5]; [1]IMTEK, University of Freiburg, Freiburg, Germany; [2]Institute of Solid State Physics, Technische Universität Berlin, Berlin, Germany; [3]Ferdinand-Braun-Institut, Berlin, Germany; [4]Solid State Lighting and Energy Electronics Center, University of California, Santa Barbara, California, United States; [5]Experimentelle Sensorik, Technische Universität Chemnitz, Chemnitz, Germany

9:45 AM D1.2.05

Probing the Inhomogeneity of In-Rich InGaN Layers on Top of InGaN Compositional Grades by Nanoscale Cathodoluminescence Gordon Schmidt[1], Max Trippel[1], Peter Veit[1], Frank Bertram[1], Karine Hestroffer[2], Cory Lund[2], Haoran Li[2], Stacia Keller[2], Umesh Mishra[2] and Juergen Christen[1]; [1]Otto-von-Guericke-University Magdeburg, Magdeburg, Germany; [2]University of California Santa Barbara, Santa Barbara, California, United States

10:00 AM D1.2.06

Strain Relaxation via (a+c)-Type Misfit Dislocation Formation in InGaN Epilayers Grown on (0001) GaN by Plasma-Assisted Molecular Beam Epitaxy Joanna Moneta[1, 2], Tobias Schulz[1], Toni Markurt[1], Thilo Remmele[1], Albert Kwasniewski[1], Czeslaw Skierbiszewski[2, 3], Marcin Siekacz[2, 3], Torsten Ernst[3], Julita Smalc-Koziorowska[2, 3] and Martin Albrecht[1]; [1]Leibniz Institute for Crystal Growth, Berlin, Germany; [2]Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; [3]Top GaN Ltd, Warsaw, Poland

10:15 AM BREAK

E0.2: Nanostructures II: GaN Nanostructure Synthesis and Characterization
Tuesday Morning, October 4, 2016
Room: Camelia/Dogwood

8:30 AM *E0.2.01

Advanced Nanofocus X-Ray Diffraction and Electron Microscopy Study of 3D GaN Nanostructures Achim Trampert; Microstructure, Paul-Drude-Institute for Solid State Electronics, Berlin, Germany

9:00 AM E0.2.02

GaN Nanowire p-n Junctions Investigated by Kelvin Probe Force Microscopy Ana Cros[1], Albert Minj[1, 2], Thomas Auzelle[3, 5], Julien Pernot[4, 6, 7] and Bruno Daudin[3, 5]; [1]Institute of Materials Science, University of Valencia, Paterna, Spain; [2]ENSICAEN, Caen, France; [3]INAC-SP2M, CEA, Grenoble, France; [4] Institut NEEL, Community Grenoble Alpes University, Grenoble, France; [5]INAC-PHELIQS, CEA, Grenoble, France; [6]CNRS, Inst NEEL, Grenoble, France; [7]Institut Universitaire de France, Paris, France

9:15 AM E0.2.03

P-Type Doping of GaN Nanowires Characterized by Photoelectrochemical Measurements Jumpei Kamimura[1], Peter Bogdanoff[2], Manfred Ramsteiner[1], Pierre Corfdir[1], Felix Feix[1], Lutz Geelhaar[1] and Henning Riechert[1]; [1]Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany; [2]Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany

9:30 AM E0.2.04

Selective Area Growth and Optical Characterization of Ordered GaN Nanowire Arrays Matt Brubaker, Alexana Roshko, Bryan T. Spann, Paul T. Blanchard, Todd E. Harvey, Joel C. Weber, Norman A. Sanford and Kris A. Bertness; NIST, Boulder, Colorado, United States

9:45 AM E0.2.05

MOCVD of GaN Micro- and Nanowires on Sapphire Substrates Initiated by Ti Thin Film Mariia Rozhavskaia[1], Wsevolod Lundin[2], Elena Lundina[2], Valery Davydov[2], Vladimir Popok[1], Sergey Troshkov[2], Aleksandr Vasilyev[2], Pavel Brunkov[2], Aleksandr Baklanov[2], Andrey Tsatsulnikov[2] and Vladimir Dubrovskii [2, 3, 4]; [1]Nano department, Aalborg University, Denmark, Aalborg, Denmark; [2]Ioffe Institute, Saint-Petersburg, Russian Federation; [3]St. Petersburg Academic University, Nanotechnology Centre, Saint-Petersburg, Russian Federation; [4]ITMO University, International laboratory "Laser Systems", Saint-Petersburg, Russian Federation

10:00 AM E0.2.06

GaN Nanowires Free of Inhomogeneous Strain Grown on a Metallic TiN Film Gabriele Calabrese, David Van Treeck, Pierre Corfdir, Bernd Jenichen, Vladimir M. Kaganer, Lutz Geelhaar, Sergio Fernandez-Garrido and Oliver Brandt; Paul-Drude-Institut for Solid State Electronics, Berlin, Germany

10:15 AM BREAK

10:45 AM *E0.2.07

STEM-CL Analysis of 3D GaN Nanostructures J. Christen, F. Bertram, G. Schmidt, M. Mueller and P. Veit; Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Madgeburg, Germany

11:15 AM E0.2.08

Ultra-Thin GaN-Based Nanowires Fabricated via a Selective Area Sublimation Approach Benjamin Damilano, Stephane Vezian, Blandine Alloing, Marc Portail, Julien Brault, Virginie Brandli and Jean Massies; CRHEA, CNRS, Valbonne, France

11:30 AM E0.2.09

Growth of Self-Organized Vertical GaN Nanocolumns Utilizing AlN as Nucleation Sites on Single Layer Graphene/Silica Glass by Molecular Beam Epitaxy Andreas Liudi Mulyo[1], Yuta Konno[1], Bjørn-Ove Fimland[2], Helge Weman[1, 2] and Katsumi Kishino[1]; [1]Department of Engineering and Applied Sciences, Sophia University, Tokyo, Japan; [2]Department of Electronics and Telecommunications, Norwegian University of Science and Technology, Trondheim, Norway

11:45 AM E0.2.10

Epitaxy of GaN Nanowires on Graphene Vishnuvarthan Kumaresan[1], Ludovic Largeau[1], Ali Madouri[1], Frank Glas[1], Hezhi Zhang[2], Fabrice Oehler[1], Antonella Cavanna[1], Andrey Babichev[2, 3], Noelle Gogneau[1], Maria Tchernycheva[2] and Jean-Christophe Harmand[1]; [1]CNRS - Laboratoire de Photonique et de Nanostructures, Marcoussis, France; [2]Institut d'Electronique Fondamentale, University Paris, Saclay, Saclay, France; [3]ITMO University, St. Petersburg 197101, Russian Federation

12:00 PM E0.2.11

Molecular Beam Epitaxy of GaN Nanowires on Graphene Layer Structures Synthesized on SiC Sergio Fernandez-Garrido[1], Manfred Ramsteiner[1], Lauren A. Galves[1], Bharat Sharma[1], Joao Marcelo J. Lopes[1], Pierre Corfdir[1], Ziani d. Shiaber[2], Guanhui Gao[1], Oliver Brandt[1] and Lutz Geelhaar[1]; [1]Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany; [2]Paulista São Paulo State University, Bauru, Brazil

12:15 PM E0.2.12

Comprehensive Study of the Growth Mode of InGaN Nanoparasols Xin Zhang[2, 1, 3], Benedikt Haas[2, 1], Eric Robin[2, 1], Jean-Luc Rouviere[2, 1] and Bruno Daudin[1, 2]; [1]CEA-Grenoble, Grenoble, France; [2]University Grenoble Alpes, Grenoble, France; [3]ALEDIA, Grenoble, France

F0.2: Novel Materials and Devices II:
Nitride MEMS and Other Novel GaN Device Architectures
Tuesday Morning, October 4, 2016
Room: Azalea/Begonia

8:30 AM F0.2.01

A GaN Technology for High-Performance MEMS Accelerometers Marc Faucher[1], Christophe Morelle[1], Paul Leclaire[1, 2], Yvon Cordier[2], Isabelle Roch[1], Eric Frayssinet[2], Bertrand Grimbert[1], Etienne Okada[1], Vanessa Avramovic[1], Lionel Buchaillot[1] and Didier Theron[1]; [1]NAM6 group, Institute of Electronics Microelectronics and Nanotechnology, CNRS UMR 8520, Villeneuve d'Ascq, France; [2]ELECTRO group, Centre de Recherches sur l'HeteroEpitaxie et ses Applications, CRHEA CNRS UPR 10, Sophia Antipolis, France

8:45 AM F0.2.02

Two- and Three-Dimensional Micro/Nano-Architectures on GaN for Electronic and Photonic Applications Ion Tiginyanu[1, 2]; [1]Academy of Sciences of Moldova, Chisinau, Moldova (the Republic of); [2]Technical University of Moldova, Chisinau, Moldova (the Republic of)

9:15 AM F0.2.03

Monolithically-Integrated GaN Photonic Systems Kwai H. Li[1], Yuk Fai Cheung[1], Kei May Lau[2] and Hoi Wai Choi[1]; [1]University of Hong Kong, Hong Kong, Hong Kong; [2]Hong Kong University of Science and Technology, Hong Kong, Hong Kong

9:30 AM F0.2.04

Second Harmonic Generation from a Three Dimensional GaN Micro-Cavity Emitter Arup Neogi[1], Sween Butler[1], Hongxing Jiang[2] and Jingyu Lin[2]; [1]Physics, University of North Texas, Denton, Texas, United States; [2]Texas Tech University, Lubbock, Texas, United States

9:45 AM F0.2.05

Polarization-Free Integrated Gallium Nitride Photonics Can Bayram[1, 2] and Richard Liu[1, 2]; [1]Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, United States; [2]Micro and Nanotechnology Laboratory, Urbana, Illinois, United States

10:00 AM LATE NEWS

10:15 AM BREAK

A1.2: Bulk Growth II:
Bulk (Al,Ga)N Growth and Optoelectronic Devices on Bulk AlN Substrates
Tuesday Morning, October 4, 2016
Room: Azalea/Begonia

10:45 AM *A1.2.01

Recent Progress in the Growth of AlN by HVPE on Native AlN Substrates Toru Kinoshita[1], Toru Nagashima[1], T. Obata[1], Rie Togashi[2], R. Schlesser[3], Ramon Collazo[4], Akinori Koukitu[2], Y. Kumagai[2] and Zlatko Sitar[4]; [1]Tsukuba Research Laboratories, Ibaraki, Japan; [2]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Tokyo, Japan; [3]HexaTech, Inc., Morrisville, North Carolina, United States; [4]Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States

11:15 AM A1.2.02

2-inch AlN Single Crystal Growth With Low UV Absorption Jianfeng J. Chen; Crystal IS, Inc., Ballston Lake, New York, United States

11:30 AM A1.2.03

Epitaxial Growth and Characterization of Deep UV AlGaN Devices on Bulk AlN Substrates Carsten Hartmann[1], Arne Knauer[2], Juergen Wollweber[1], Tobias Schulz[1], Sakari Sintonen[1], Andrea Dittmar[1], Joerg Jeschke[2], Christian Kuhn[3], Martin Guttmann[3], Martin Martens[3], Luca Sulmoni[3], Tim Wernicke[3], Knut Peters[4], Markus Weyers[2], Michael Kneissl[3] and Matthias Bickermann[1]; [1]Leibniz-Institute for Crystal Growth, Berlin, Germany; [2]Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany; [3]Institute of Solid State Physics, Technische Universität Berlin, Berlin, Germany; [4]CrysTec GmbH, Berlin, Germany

11:45 AM A1.2.04

AlGaN Layers Grown on Patterned Sapphire by HVPE Simon Fleischmann, Anna Mogilatenko, Eberhard Richter, Deepak Prasai, Markus Weyers and Gunther Trankle; Materials Technology, Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany

12:00 PM A1.2.05

Dislocation Generation during Homoepitaxial Growth of Bulk AlN by Physical Vapour Transport Sakari Sintonen, Carsten Hartmann, Juergen Wollweber, Martin Naumann, Matthias Bickermann and Martin Albrecht; Leibniz Institute for Crystal Growth, Berlin, Germany

12:15 PM A1.2.06

Nanopipe Formation via a Boron Impurity Segregation in GaN Grown by Halogen-Free Vapor Phase Epitaxy Taishi Kimura, Daisuke Nakamura, Yuko Aoki and Kayo Horibuchi; Toyota Central R&D Labs., Inc., Nagakute, Japan

A2.3: Epitaxial Growth III: Growth of Semipolar and Cubic GaN
Tuesday Morning, October 4, 2016
Room: International South

10:45 AM *A2.3.01

Progress in Heteroepitaxy of Semipolar GaN on Sapphire Jie Song[1, 2] and Jung Han[1]; [1]Electrical Engineering, Yale University, New Haven, Connecticut, United States; [2]Saphlux Inc., New Haven, Connecticut, United States

11:15 AM A2.3.02

Effect of Nano-Porous SiN_x Interlayer on Propagation of Extended Defects in Semi-Polar (11-22)-Orientated GaN Morteza Monavarian[1], Natalia Izyumskaya[1], Marcus Muller[2], Sebastian Metzner[2], Peter Veit[2], Saikat Das[1], Umit Ozgur[1], Frank Bertram[2], Juergen Christen[2], Hadis Morkoc[1] and Vitaliy Avrutin[1]; [1]Department of Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States; [2]Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany

11:30 AM A2.3.03

Defect Reduction via Laterally Induced Growth of Semipolar (10-11) GaN on Patterned Silicon Substrates Michel Khoury[1, 2], Nicolas Mante[2, 3], Mathieu Leroux[1], Vincent Delaye[2, 3], Guy Feuillet[2], Philippe Vennegues[1] and Jesus Zuniga-Perez[1]; [1]CRHEA, CNRS, Valbonne, France; [2]LETI, CEA, Grenoble, France; [3]Grenoble Alpes University, Grenoble, France

11:45 AM A2.3.04

Reduction of Basal Plane Stacking Faults in (11-22) Semipolar InGaN/GaN MQWs Fabricated on Patterned Si(113) Substrates by Introducing AlGaN Barrier Layers Kenjiro Uesugi, Toshiki Hikosaka, Hiroshi Ono, Tatsunori Sakano and Shinya Nunoue; Corporate Research and Development Center, Toshiba Corporation, Kawasaki-Shi, Japan

12:00 PM A2.3.05

Investigations about Parasitic n-Type Doping in Semipolar GaN Ferdinand Scholz, Marian Caliebe and Tobias Meisch; Institute of Optoelectronics, Ulm University, Ulm, Germany

12:15 PM A2.3.06

Structural and Morphological Characterisation of Cubic GaN Grown on 3C-SiC/Si Substrates Lok Yi Lee[1], Martin Frentrup[1], Suman-Lata Sahonta[1], Menno J. Kappers[1], L. J. Shaw[2], Peter J. Ward[2], Daniel Nilsson[2], Colin J. Humphreys[1], Rachel A. Oliver[1] and David J. Wallis[1]; [1]Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [2]Anvil Semiconductors, Cambridge, United Kingdom

B1.3: Visible Devices III: Visible LEDs and LDs
Tuesday Morning, October 4, 2016
Room: International Center

10:45 AM *B1.3.01

InGaN/GaN Quantum Dot Visible Lasers Thomas Frost and Pallab Bhattacharya; Electrical Engineering, University of Michigan, Ann Arbor, Michigan, United States

11:15 AM B1.3.02

Ultra-Efficient Solid-State Lighting Using III-Nitride Quantum Dots Jonathan J. Wierer[2], Nelson Tansu[2] and Jeffrey Y. Tsao[1]; [1]Sandia National Laboratories, Albuquerque, New Mexico, United States; [2]ECE, Lehigh University, Bethlehem, Pennsylvania, United States

11:30 AM B1.3.03

Flexible White Light Emitting Diodes Based on Nitride Nanowires and Nanophosphors Nan Guan[1], Xing Dai[1], Agnes Messanvi[1, 2, 3], Hezhi Zhang[1], Jianchang Yan[1, 4], Eric Gautier[2, 5], Catherine Bougerol[2, 6], Martin Vallo[2, 3], Francois H. Julien[1], Christophe Durand[2, 3], Joel Eymery[2, 3] and Maria Tchernycheva[1]; [1]Institut d'Electronique Fondamentale, Université Paris-Sud, Orsay, France; [2]Université Grenoble Alpes, Grenoble, France; [3]Nanophysique et Semiconducteurs Group, INAC-PHELIQS, CEA, Grenoble, France; [4]Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China; [5]INAC-SPINTEC, CEA, Grenoble, France; [6]Nanophysique et Semiconducteurs Group, Institut Néel,CNRS, Grenoble, France

11:45 AM B1.3.04

Nitride-on-Silicon Microdisk Lasers Covering the Blue to UV-C Spectral Range Julien Selles[1], Valentin Crepel[1], Christelle Brimont[1], Bruno Gayral[2], Meletios Mexis[3], Benjamin Damilano[3], Stephanie Rennesson[3], Fabrice Semond[3], Iannis Roland[4], Yijia Zeng[4], Xavier Checoury[4], Philippe Boucaud[4] and Thierry Guillet[1]; [1]Laboratoire Charles Coulomb (L2C), Université de Montpellier, Montpellier, France; [2]INAC-PHELIQS, CEA, Grenoble, France; [3]CNRS-CRHEA, Valbonne, France; [4]Institut d'Electronique Fondamentale, Université Paris-Sud, Orsay, France

12:00 PM B1.3.05

Ultra-Low-Threshold Quantum Dot Micro-Ring Lasers Danqing Wang[1], Tongtong Zhu[2], Rachel A. Oliver[2] and Evelyn L. Hu[1]; [1]John A. Paulson School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts, United States; [2]Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

12:15 PM B1.3.06

III-Nitride Laser Diode with Nanoporous GaN as Cladding Layers Ge Yuan, Kanglin Xiong, Cheng Zhang and Jung Han; Electrical Engineering, Yale University, New Haven, Connecticut, United States

C2.1: Power Devices I: Devices for Power Electronics I
Tuesday Morning, October 4, 2016
Room: Narcissus/Orange Blossom

10:45 AM *C2.1.01
Challenges in GaN Technology for Automobile Applications Toshihide Kikkawa; Transphorm, Kohoku-ku, Kanagawa, Japan

11:15 AM C2.1.02
GaN-on-Si Power HEMTs with Blocking Field >70V/µm Yuanzheng Yue[1], Jianyi Gao[1], Saptarshi Mandal[1], Shirong Zhao[1], Dong Ji[1], Wenwen Li[1] and Srabanti Chowdhury[2]; [1]Arizona State University, Tempe, Arizona, United States; [2]University of California, Davis, Davis, California, United States

11:30 AM C2.1.03
Optimization of Epitaxial Growth and Processing for High-Breakdown, Low-Leakage and Fast-Switching GaN High Voltage Transistors on Si Subtrates Patrick Waltereit, Richard Reiner, Matthias Wespel, Beatrix Weiss, Heiko Czap, Michael Dammann, Stefan Muller, Steffen Breuer, Ruediger Quay, Michael Mikulla and Oliver Ambacher; Fraunhofer IAF, Freiburg, Germany

11:45 AM C2.1.04
600 V GaN MOSHEMTs Fabricated on a 200 mm-Diameter 725 μm-Thick Si(111) Substrate Using CMOS-Compatible Process Zhihong Liu[1], Weichuan Xing[2, 1], Haowen Hou[3, 1], Chieh-Chih Huang[1], Geok Ing Ng[2, 1] and Tomas Palacios[4]; [1]Singapore-MIT Alliance for Research and Technology, Singapore, Singapore; [2]Nanyang Technological University, Singapore, Singapore; [3]National University of Singapore, Singapore, Singapore; [4]Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

12:00 PM C2.1.05
High Temperature Performances of 600V AlGaN/GaN and AlInN/GaN (MIS)HFETs on Silicon Substrates—A Comparative Study Kean B. Lee[1], Sheng Jiang[1], Syed Zaffar Haider Zaidi[1], Hongtu Qian[1], Ivor Guiney[2], David Wallis[2], Colin Humphreys[2] and Peter Houston[1]; [1]Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; [2]Department of Material Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

12:15 PM C2.1.06
AlN Filled Trenches for Thermal Improvement in Etched Back GaN-on-Si HEMTs Georges Pavlidis[1], Luke Yates[1], Farid Medjdoub[2] and Samuel Graham[1]; [1]Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Institute of Electronics, Microelectronics and Nanotechnology, Villeneuve d'Ascq, France

12:30 PM C2.1.07

High Voltage All GaN Integrated Cascode MISHFETs Sheng Jiang[1], Kean B. Lee[1], Pablo Fernandez[2], Ivor Guiney[3], Syed Zaffar Haider Zaidi[1], Hongtu Qian[1], David Wallis[3], Andrew Forsyth[2], Colin Humphreys[3] and Peter Houston[1]; [1]Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; [2]School of Electrical and Electronic Engineering, University of Manchester, Manchester, United Kingdom; [3]Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

D1.3: Materials Characterization III: Characterization of (Al,Ga,In)N films and QWs
Tuesday Morning, October 4, 2016
Room: International North

10:45 AM *D1.3.01

Structural Characterization of GaInN Quantum Wells using Transmission Electron Microscope and Atom Probe Tomography Shigetaka Tomiya; Advanced Materials Laboratories, Sony Corporation, Kanagawa, Japan

11:15 AM D1.3.02

Bandgap Dependence of InGaN/GaN Short Period Superlattices Grown by Metal-Organic Vapor Phase Epitaxy (MOVPE) Grzegorz Staszczak[1], Robert Czernecki[1, 2], Grzegorz Targowski[2], Marcin Siekacz[1, 2], Izabela Gorczyca[1], Ewa Grzanka[1, 2], Julita Smalc-Koziorowska[1, 2], Szymon Grzanka[1, 2], Czeslaw Skierbiszewski[1, 2] and Tadeusz Suski[1]; [1]Institute of High Pressure Physics, Unipress, Warsaw, Poland; [2]TopGaN Ltd, Warsaw, Poland

11:30 AM D1.3.03

Limitations for Indium Incorporation in Coherently Grown (In,Ga)N Layers Tobias Schulz[1], Mariia Anikeeva[1], Martin Albrecht[1], Christoph Freysoldt[2], Liverios Lymperakis[2], Jorg Neugebauer[2], Caroline Cheze[3], Marcin Siekacz[4], Czeslaw Skierbiszewski[4] and Xinqiang Wang[5]; [1]Leibniz-Institute for Crystal Growth, Berlin, Germany; [2]Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany; [3]Paul Drude Institut, Berlin, Germany; [4]Institute of High Pressure Physics Unipress, Warsaw, Poland; [5]School of Physics, Peking University, Peking, China

11:45 AM D1.3.04

Mechanism of Thermal Degradation of InGaN Quantum Wells Julita Smalc-Koziorowska[1, 2], Ewa Grzanka[1, 2], Slawomir Kret[3], Robert Czernecki[1, 2], Dario Schavion[1, 2], Lucja Marona[1, 2], Grzegorz Staszczak[1], Izabella Grzegory[4], Piotr Perlin[1, 2], Michal Leszczynski[1, 2] and Tadeusz Suski[1]; [1]Laboratory of Semiconductors, Institute of High Pressure Physics, Warsaw, Poland; [2]TopGaN Ltd., Warsaw, Poland; [3]Institute of Physics PAS, Warsaw, Poland; [4]Laboratory of Crystal Growth, Institute of High Pressure Physics, Warsaw, Poland

12:00 PM D1.3.05

Atom Probe Tomography Characterization of Alloy Fluctuations in InAlN Grown by Plasma Assisted Molecular Beam Epitaxy Bastien Bonef, Erin Kyle, Richard Kramer and James S. Speck; Department of

Materials, University of California, Santa Barbara, Santa Barbara, California, United States

12:15 PM D1.3.06

Local Structural Analysis around In Atoms in $Al_{0.82}In_{0.18}N$ alloy by Using X-Ray Absorption Fine-Structure Measurements Ryoma Seiki[1], Daisuke Komori[1], Kazuki Ikeyama[1], Toshiaki Ina[2], Takeyoshi Onuma[3], Takao Miyajima[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1], Motoaki Iwaya[1] and Isamu Akasaki[1]; [1]Meijo University, Nagoya, Japan; [2]Japan Synchrotron Radiation Research Institute, Sayo-cho, Japan; [3]Kogakuin University, Hachioji, Japan

D2.2: Theory and Simulation II: Theory: Carrier Localization, Ordering Phenomena and Crystal Growth
Tuesday Afternoon, October 4, 2016
Room: Camelia/Dogwood

2:00 PM *D2.2.01

A New Approach to Carrier Localization in Disordered Random Alloy Structures Marcel Filoche[1], Svitlana Mayboroda[2], Marco Piccardo[1], Yuh-Renn Wu[3], James Speck[4] and Claude Weisbuch[4]; [1]Physique de la Matière Condensée, Ecole Polytechnique, Palaiseau, France; [2]School of Mathematics, University of Minnesota, Minneapolis, Minnesota, United States; [3]Graduate Institute of Photonics and Optoelectronics and Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan; [4]Materials Department, University of California, Santa Barbara, California, United States

2:30 PM *D2.2.02

Ordering Phenomena in InGaN Alloys—An Ab-Initio Thermodynamics Study Liverios Lymperakis[1], Christoph Freysoldt[1], Tobias Schulz[2], Sascha Maisel[1], Martin Albrecht[2] and Jorg Neugebauer[1]; [1]Computational Materials Design, MPIE, Düsseldorf, Germany; [2]Leibniz-Institut für Kristallzüchtung , Berlin, Germany

3:00 PM D2.2.03

Consideration of MOVPE Growth Process of GaN by First Principles Calculations and Thermodynamic Analysis Kazuki Sekiguchi[1], Hiroki Shirakawa[1], Yoshihiro Yamamoto[1], Masaaki Araidai[2, 1], Yoshihiro Kangawa[3], Koichi Kakimoto[3] and Kenji Shiraishi[2, 1]; [1]Graduate School of Engineering, Nagoya University, Nagoya, Japan; [2]Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; [3]Research Institute for Applied Mechanics, Kyushu University, Kasuga, Japan

3:15 PM D2.2.04

Influence of Growth Orientation on Driving Force for InN Deposition by MOVPE Akira Kusaba[1], Yoshihiro Kangawa[2], Michael von Spakovsky[3], Kenji Shiraishi[4], Koichi Kakimoto[2] and Akinori Koukitu[5]; [1]Department of Aeronautics and Astronautics, Kyushu University, Fukuoka, Japan; [2]Research Institute for Applied Mechanics, Kyushu University, Kasuga, Japan; [3]Department of Mechanical Engineering, Virginia Tech, Blacksburg, Virginia, United States; [4]Institute of Materials and System for Sustainability, Nagoya University, Nagoya, Japan; [5]Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Koganei, Japan

3:30 PM D2.2.05

First-Principles Study of Surface Phase Diagrams of GaN(0001) and (000-1) under the Oxide Vapor Phase Epitaxy Growth Conditions Takahiro Kawamura[1, 2], Akira Kitamoto[2], Mamoru Imade[2], Masashi Yoshimura[2], Yusuke Mori[2], Yoshitada Morikawa[2], Yoshihiro Kangawa[3] and Koichi Kakimoto[3]; [1]Graduate School of Engineering, Mie University, Tsu, Japan; [2]Graduate School of Engineering, Osaka University, Suita, Japan; [3]Research Institute for Applied Mechanics, Kyushu University, Kasuga, Japan

3:45 PM BREAK

4:15 PM *D2.2.06

Radiative and Non-Radiative Processes in InGaN-Based LEDs Sergey Karpov; STR Group - Soft-Impact, Ltd., St. Petersburg, Russian Federation

4:45 PM *D2.2.07

Role of Auger Recombination and Extreme Quantum Confinement in Nitrides Emmanouil Kioupakis; Materials Science and Engineering, University of Michigan, Ann Arbor, Michigan, United States

5:15 PM D2.2.08

Electrical Properties of III-Nitride LEDs—Recombination-Based Injection Model and Theoretical Limits to Electrical Efficiency and Electroluminescent Cooling Aurelien David, Christophe H. Hurni, Nathan G. Young and Michael D. Craven; Soraa Inc., Fremont, California, United States

5:30 PM D2.2.09

Solutions to Carrier Leakage in III-N Based Light Emitters by Numerical Simulation Karan Mehta[1], Yuh-Shiuan Liu[1], Tsung-Ting Kao[1], Theeradetch Detchprohm[1], Young Jae Park[1], Shuo Wang[2], Shyh-Chiang Shen[1], Russell D. Dupuis[1], Fernando Ponce[2] and Paul D. Yoder[1]; [1]Center for Compound Semiconductors and School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Physics and Astronomy, Arizona State University, Tempe, Arizona, United States

5:45 PM D2.2.10

Simulation of Carrier-Exciton-Phonon Dynamics in GaN in Non-Equilibrium State Bei Ma and Yoshihiro Ishitani; Graduate Course of Electrical and Electronic Engineering, Chiba University, Chiba, Japan

A2.4: Epitaxial Growth IV: Growth of Light Emitters and (In,Ga)N
Tuesday Afternoon, October 4, 2016
Room: International South

2:00 PM *A2.4.01

Characteristics of GaN-Based LED on Alumina Cavity Engineered Sapphire Substrate Yongjo Park[1], Daeyoung Moon[2], Yoon Jong Moon[3], Jeonghwan Jang[2], Jin Young Na[3], Jung-Hwan Song[4], Min-Kyo Seo[4], Sunghee Kim[5], Dukkyu Bae[5], Eun Hyun Park[6], Sun-Kyung Kim[3] and Euijoon Yoon[2, 1]; [1]Energy Semiconductor Center, Advanced Institute of Convergence Technology, Suwon, Korea (the Republic of); [2]Department of Materials Science and Engineering, Seoul National University, Seoul, Korea (the Republic of); [3]Department of Applied Physics, Kyung Hee University, Suwon, Korea (the Republic of); [4]Department of Physics, KAIST, Daejeon, Korea (the Republic of); [5]Hexa Solution Co., Ltd., Suwon, Korea (the Republic of); [6]Semicon Light Co., Ltd., Yongin, Korea (the Republic of)

2:30 PM A2.4.02

Polarization Control for Direct Emitting LEDs across the Visible Spectrum—Nanopatterning and Cubic Structure Growth John Howell-Clark, Adam Bross, Mark Durniak, David Elsaesser and Christian Wetzel; Rensselaer Polytechnic Institute, Troy, New York, United States

2:45 PM A2.4.03

Grouped and Multistep Nanoheteroepitaxy—Towards High-Quality GaN on Quasi-Periodic Nano-Mask Xiaohui Feng[1], Tongjun Yu[1], Yang Wei[2], Cheng Ji[1], Yutian Cheng[1], Hua Zong[1], Kun Wang[1], Zhijian Yang[1], Xiangning Kang[1], Guoyi Zhang[1] and Shoushan Fan[2]; [1]School of Physics, Peking University, Beijing, China; [2]Physics and Tsinghua-Foxconn Nanotechnology Research Center, Tsinghua University, Beijing, China

3:00 PM A2.4.04

Direct Growth of Single-Crystal-Like III-Nitride Structures on Metal Tape for Flexible Wide-Bandgap Semiconductor Devices Shahab Shervin[1], Kamrul Alam[1], Kaveh Shervin[1], Seung-Hwan Kim[1, 2], Tae-Hoon Chung[3], Ruiteng Li[1], Jie Chen[1], Bharath Dixit[1], Mojtaba Asadirad[1], Weijie Wang[1], Sara Pouladi[1], Rebecca Forrest[1], Jiming Bao[1] and Jae-Hyun Ryou[1]; [1]University of Houston, Houston, Texas, United States; [2]Hongik University, Seoul, Korea (the Republic of); [3]Korea Photonics Technology Institute, Gwangju, Korea (the Republic of)

3:15 PM A2.4.05

Compositionally Graded InGaN Layers on Vicinal N-Face GaN Substrates Karine Hestroffer[1], Cory Lund[1], Onur Koksaldi[1], Gordon Schmidt[2], Max Trippel[2], Peter Veit[2], Frank Bertram[2], Ning Lu[3], Qingxiao Wang[3], Haoran Li[1], Moon Kim[3], Juergen Christen[2], Umesh Mishra[1] and Stacia Keller[1]; [1]Electrical and Computer Engineering, University of California - Santa Barbara, Santa Barbara, California, United States; [2]Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany; [3]Department of Materials Science and Engineering, University of Texas at Dallas, Richardson, Texas, United States

3:30 PM A2.4.06

Compositional Pulling Effect of InGaN Films Grown on $ScAlMgO_4$ (0001) Substrates by Metal-Organic Vapor Phase Epitaxy Takuya Ozaki, Mitsuru Funato and Yoichi Kawakami; Electronic Science and Engineering, Kyoto University, Kyoto-shi, Japan

3:45 PM BREAK

B2.2: UV Devices II: UV LEDs
Tuesday Afternoon, October 4, 2016
Room: International Center

2:00 PM *B2.2.01

Status of DUV LED on Sapphire and their Applications Cyril Pernot[1], Tetsuhiko Inazu[1], Hiroyasu Ichinokura[1], Tetsumi Ochi[1], Hidemasa Tomozawa[2], Hisanori Ishiguro[1], Hiroshi Amano[3] and Isamu Akasaki[4]; [1]UV-LED Division, NIKKISO GIKEN, Hakusan, Japan; [2]Hakusan Factory, NIKKISO, Hakusan, Japan; [3]Center for Integrated Research of Future Electronics, Nagoya University, Nagoya, Japan; [4]Faculty of Science and Technology, Meijo University, Nagoya, Japan

2:30 PM B2.2.02

Underfilling and Encapsulation for AlGaN-Based DUV-LED Yoshihiko Sakane[3], Ko Aosaki[2], Akira Hirano[1], Yosuke Nagasawa[1], Kiho Yamada[1], Shoko Nagai[1], Masamichi Ippommatsu[1], Yoshio Honda[4], Hiroshi Amano[4, 5] and Isamu Akasaki[4, 5]; [1]UV Craftory Co., Ltd., Nagoya, Japan; [2]Asahi Glass Co.,Ltd., Tokyo, Japan; [3] Research and Development, Asahi Glass Co., Ltd., Yokohama, Japan; [4]Nagoya University, Nagoya, Japan; [5]Meijo University, Nagoya, Japan

2:45 PM B2.2.03

Improved Performance of AlGaN-Based Deep Ultraviolet Light-Emitting Diodes with Nano-Patterned AlN/Sapphire Substrates Donghyun Lee[1], Jong Won Lee[2], Jeonghwan Jang[1], In-Su Shin[1], Lu Jin[1], Jun Hyuk Park[2], Jungsub Kim[3], Jinsub Lee[3], Hye-Seok Noh[3], Yong-Il Kim[3], Youngsoo Park[3], Gun-Do Lee[1], Yongjo Park[1, 4], Jong Kyu Kim[2] and Euijoon Yoon[1, 4]; [1]Department of Materials Science and Engineering, Seoul National University, Seoul, Korea (the Republic of); [2]Department of Materials Science and Engineering, Pohang University of Science and Technology, Pohang, Korea (the Republic of); [3]LED business, Samsung Electronics, Yongin, Korea (the Republic of); [4]Energy Semiconductor Research Center, Advanced Institutes of Convergence Technology, Suwon, Korea (the Republic of)

3:00 PM B2.2.04

Close Coupled Showerhead MOCVD Tool for AlGaN UVC LEDs H. Behmenburg[1], A. R. Boyd[1], O. Rockenfeller[1], Arne Debald[2], F. Crawley[1], T. Korst[1], Holger Kalisch[2], Andrei Vescan[2] and Michael Heuken[1]; [1]AIXTRON SE, Herzogenrath, Germany; [2]GaN Device Technology, RWTH Aachen University, Aachen, Germany

3:15 PM B2.2.05

Development of Deep UV LEDs for Nitrogen Oxide Sensing Frank Mehnke[1], Martin Guttmann[1], Johannes Enslin[1], Christian Kuhn[1], Christoph Reich[1], Jakob Jordan[1], Simon Kapanke[1], Arne Knauer[2], Sylvia Hagedorn[2], Mikael Lapeyrade[2], Hendrik Krueger[3], Marian Rabe[3], Sven Einfeldt[2], Tim Wernicke[1], Markus Weyers[2] and Michael Kneissl[1, 2]; [1]Institute of Solid State Physics, Technische Universität Berlin, Berlin, Germany; [2]Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany; [3]Institut für Allgemeine Elektrotechnik, Universität Rostock, Rostock, Germany

3:30 PM B2.2.06

Efficient UV Emission from Simple Tunnelling MIS Diodes Chen-Sheng Lin[1], Kate Cavanagh[2], Duncan Allsopp[2] and Michelle Moram[1]; [1]Imperial College London, London, United Kingdom; [2]University of Bath, Bath, United Kingdom

3:45 PM BREAK

B3.2: Photodetectors, Photovoltaics, Intersubband Devices II:
Photovoltaics and Photodetectors II
Tuesday Afternoon, October 4, 2016
Room: Azalea/Begonia

2:00 PM B3.2.01

High Indium-Content MBE-Grown InGaN Solar Cells Evan Clinton, Chloe Fabien, Joseph Merola, Brendan Gunning and William A. Doolittle; Georgia Institute of Technology, Atlanta, Georgia, United States

2:15 PM B3.2.02

Theoretical Study on Efficiency Limits and Loss Analysis for Single-Junction InGaN Solar Cells Using a Semi-Analytical Model Xuanqi Huang, Houqiang Fu, Hong Chen, Ding Ding and Yuji Zhao; School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, Arizona, United States

2:30 PM B3.2.03

Nitride Photovoltaic—Exploring the Concept Szymon Grzanka[1], Piotr R. Laskowski[2], Lucja Marona[1, 3], Grzegorz Targowski[3], Barbara Zareba[2], Krzysztof Wincel[2], Marcin Klimasz[2], Tomasz Lotz[2], Piotr Perlin[1, 3] and Tadeusz Suski[1]; [1]Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; [2]National Centre for Nuclear Research, Otwock, Poland; [3]TopGaN Ltd, Warsaw, Poland

2:45 PM B3.2.04

Ultrafast Indium Nitride Based VIS-NIR Photo-Detector Shibin Krishna[1, 2], Alka Sharma[2, 3], Neha Aggarwal[1, 2], Sudhir C. Husale[3] and Govind Gupta[1, 2]; [1]Physics of Energy Harvesting, CSIR-National Physical Laboratory, New Delhi, India; [2]Academy of Science & Innovative Research (AcSIR), CSIR- NPL Campus, New Delhi, India; [3]Quantum Phenomena and Applications, CSIR-National Physical Laboratory, New Delhi, India

3:00 PM B3.2.05
Record High Responsivity in III-Nitride Solar Blind MSM Photodetectors Shashwat Rathkanthiwar, Swanand Solanke, Anisha Kalra, Srinivasan Raghavan and Digbijoy N. Nath; Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore, India, Bangalore, India

3:15 PM B3.2.06
Impact of Internal Interfaces on AlGaN Metal-Semiconductor-Metal Photodetectors Moritz Brendel, Andrea Knigge, Viola Kueller, Arne Knauer, Frank Brunner, Sven Einfeldt, Ute Zeimer and Markus Weyers; Ferdinand-Braun-Institut, Leibniz-Insititut fuer Hoechstfrequenztechnik, Berlin, Germany

3:30 PM B3.2.07
Highest Responsivity in III-Nitride sub-260 nm Photodetectors Anisha Kalra, Shashwat Rathkanthiwar, Swanand Solanke, Srinivasan Raghavan and Digbijoy N. Nath; Centre for Nanoscience and Engineering, Indian Institute of Science, Bangalore, India

3:45 PM BREAK

C0.2: Electronic Devices II: Electronic Devices for RF and Power Applications
Tuesday Afternoon, October 4, 2016
Room: Narcissus/Orange Blossom

2:00 PM *C0.2.01
Recent Work of GaN Devices/Circuits for RF and Power Electronics Applications Shuichi Nagai, Yasuhiro Yamada, Yasufumi Kawai, Osamu Tabata, Songbaek Choe and Noboru Negoro; Panasonic Corporation, Moriguchi, Japan

2:30 PM C0.2.02
NBTI in GaN MOSFETs—SiO_2 vs. SiO_2/Al_2O_3 Gate Dielectric Alex Guo and Jesus del Alamo; EECS, MIT, Cambridge, Massachusetts, United States

2:45 PM C0.2.03
High Breakdown, Low Interface State PEALD Al_2O_3/SiO_2 Gate Stack for AlGaN/GaN MOS-HEMT Jianyi Gao[1], Yuanzheng Yue[2], Mei Hao[1], Wenwen Li[1], Dong Ji[1], Robert Nemanich[1] and Srabanti Chowdhury[3]; [1]Arizona State University, Tempe, Arizona, United States; [2]NXP Semiconductor, Chandler, Arizona, United States; [3]University of California, Davis, Davis, California, United States

3:00 PM C0.2.04
Effect of Surface Plasma Treatments on Hysteresis and Threshold Voltage Stability in AlGaN/GaN Metal-Semiconductor-Insulator (MIS) HEMTs Syed Zaffar Haider Zaidi[1], Kean B. Lee[1], Joseph Roberts[2], Sheng Jiang[1], Ivor Guiney[3], Hongtu Qian[1], David Wallis[3], Colin Humphreys[3], Paul Chalker[2] and Peter Houston[1]; [1]Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; [2]Centre for Materials and Structures, University of Liverpool, Liverpool, United Kingdom; [3]Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

3:15 PM C0.2.05
Lossless Turn-off Switching Projection of Lateral and Vertical GaN Power Field-effect Transistors Zhibo Guo, Collin Hitchcock and T. Paul Chow; Rensselaer Polytechnic Institute, Troy, New York, United States

3:30 PM C0.2.06
Electric Field Control Using a Distributed Impedance "Field Cage" to Extend AlGaN/GaN HEMT Operation to the Kilovolt Regime Brian D. Tierney[1], Sandeepan Dasgupta[2], Sukwon F. Choi[3], Jeramy Dickerson[1], Shahed Reza[1], Sapan Agarwal[1], Albert G. Baca[1], Robert J. Kaplar[1] and Matthew J. Marinella[1]; [1]Sandia National Laboratories, Albuquerque, New Mexico, United States; [2]Intel Corporation, Santa Clara, California, United States; [3]The Pennsylvania State University, State College, Pennsylvania, United States

3:45 PM BREAK

D1.4: Materials Characterization IV: Atomic Structure and Dislocation Effects
Tuesday Afternoon, October 4, 2016
Room: International North

2:00 PM *D1.4.01
The Atomic Structure of Polar and Non-Polar InGaN Quantum Wells Revealed by Combining Different Microscopy and Spectroscopy Methods Colin J. Humphreys[1], James T. Griffiths[1], Philip Dawson[2], Stefan Schulz[3] and Rachel A. Oliver[1]; [1]Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [2]Physics and Astronomy, University of Manchester, Manchester, United Kingdom; [3]Photonics Theory Group, Tyndall National Institute, Cork, Ireland

2:30 PM D1.4.02
Pronounced Blue-Shift at Threading Dislocations in a Thick, Nanostripe-Patterned InGaN/GaN MQW Stack Directly Evidenced by Nano-Cathodoluminescence Frank Bertram[1], Max Trippel[1], Gordon Schmidt[1], Peter Veit[1], Cory Lund[2], Stacia Keller[2], Umesh K. Mishra[2] and Juergen Christen[1]; [1]Experimental Physics, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany; [2]Electrical and Computer Engineering, University of California, Santa Barbara, Santa Barbara, California, United States

2:45 PM D1.4.03
A Comparative Study of the Optoelectronic Properties of Dislocations in AlGaN and InGaN F.C.P. Massabuau[1], T.J. O'Hanlon[1], M.S. Zielinski[2], Menno J. Kappers[1], Colin J. Humphreys[1] and Rachel A. Oliver[1]; [1]University of Cambridge, Cambridge, United Kingdom; [2]Attolight AG, Lausanne, Switzerland

3:00 PM D1.4.04
Quantitative Analysis of Threading Dislocations in Si-Doped Low Resistivity AlGaN Layers Using Electron Channeling Contrast Imaging M. Nouf-Allehiani[1], G. Kusch[1], Frank Mehnke[3], G. Naresh-Kumar[1], Tim Wernicke[3], S. Kraeusel[1], E. Pascal[1], Ben Hourahine[1], Paul R. Edwards[1], Johannes Enslin[3], Christian Kuhn[3], Robert W. Martin[1], Michael Kneissl[3, 2] and Carol Trager-Cowan[1]; [1]Department of Physics, University of Strathclyde, Glasgow, United Kingdom; [2]Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany; [3]Institute of Solid State Physics, Technische Universität Berlin, Berlin, Germany

3:15 PM D1.4.05

Effect of Dislocations on the Growth of p-Type GaN and Device Characteristics Shigeyoshi Usami[1], Ryosuke Miyagoshi[1], Kentaro Nagamatsu[2], Atsushi Tanaka[2], Manato Deki[2], Shugo Nitta[2], Yoshio Honda[2] and Hiroshi Amano[2, 3, 4]; [1]Electrical Engineering and Computer Science, Nagoya University, Nagoya-shi, Nakagawa-ku, Japan; [2]Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; [3]Akasaki Research Center, Nagoya University, Nagoya, Japan; [4]Venture Business Laboratory, Nagoya University, Nagoya, Japan

3:30 PM LATE NEWS

3:45 PM BREAK

A2.5: Epitaxial Growth V: Growth for Electronic Devices & Basic Growth Studies
Tuesday Afternoon, October 4, 2016
Room: International South

4:15 PM A2.5.01

AlN/GaN HEMTs Grown by MBE and MOCVD—Impact of Al Distribution Birte-Julia Godejohann, Erdin Ture, Stefan Mueller, Mario Prescher, Lutz Kirste, Rolf Aidam, Vladimir Polyakov, Peter Brueckner, Steffen Breuer, Klaus Koehler, Ruediger Quay and Oliver Ambacher; Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany

4:30 PM A2.5.02

Pure N-Polar AlN in GaN/AlN/GaN Heterostructures Grown by Metal-Organic Chemical Vapor Deposition Haoran Li[1], Baishakhi Mazumder[2], Stacia Keller[1], Steven Wienecke[1], Steven P. DenBaars[1] and Umesh K. Mishra[1]; [1]Electrical and Computer Engineering, University of California, Santa Barbara, Santa Barbara, California, United States; [2]Intel Corporation, Hillsboro, Oregon, United States

4:45 PM A2.5.03

Characterization of AlGaN/GaN Heterostructure by *In Situ* X-Ray Diffraction Attached Metal Organic Vapor Phase Epitaxy Ryousuke Kanayama[1], Junya Osumi[1], Motoaki Iwaya[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1] and Isamu Akasaki[1, 2]; [1]Faculty of Science and Technology, Meijo University, Nagoya, Japan; [2]Akasaki Research Center, Nagoya University, Nagoya, Japan

5:00 PM A2.5.04

Growth of 10 nm-Thick AlInN/GaN Heterostructure with High Electron Mobility and Low Sheet Resistance Jeong-Gil Kim, Chul-Ho Won, Yong Soo Lee and Jung-Hee Lee; School of Engineering, Kyungpook National University, Daegu, Korea (the Republic of)

5:15 PM A2.5.05

Development of Stretchable Geometry AlGaN/GaN HEMTs with Selective Area Epitaxial Growth Technique Isra Mahaboob[1], Jonathan Marini[1], Kasey Hogan[1], Randy P. Tompkins[2], Nathan Lazarus[2] and Fatemeh(Shadi) Shahedipour-Sandvik[1]; [1]Colleges of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, New York, United States; [2]U.S. Army Research Laboratory, Adelphi, Maryland, United States

5:30 PM A2.5.06

***In Situ* Studies of the Atomic Layer Epitaxial Growth Process for III-N Semiconductors** Charles R. Eddy[1], Neeraj Nepal[1], Virginia R. Anderson[2], Scooter D. Johnson[1], Zachary R. Robinson[3], Alex C. Kozen[2], Alex DeMasi[4] and Karl F. Ludwig[4]; [1]U.S. Naval Research Laboratory, Washington, District of Columbia, United States; [2]American Society for Engineering Education, Washington, District of Columbia, United States; [3]Department of Physics, State University of New York at Brockport, Brockport, New York, United States; [4]Physics Department, Boston University, Boston, Massachusetts, United States

5:45 PM A2.5.07

Atomic Level C-AFM Characterization of GaN Grown Under Spiral Mode Kazuki Komura[1], Tsutomu Araki[1], Yasushi Nanishi[1] and Tetsuya Akasaka[2]; [1]Ritsumeikan University, Kusatsu, Japan; [2]NTT Basic Research Laboratories, Atsugi, Japan

6:00 PM LATE NEWS

B2.3: UV Devices III: UV Lasers and Lasing
Tuesday Afternoon, October 4, 2016
Room: International Center

4:15 PM *B2.3.01

Toward Deep-UV AlGaN-Based Lasers via Electron-Beam Excitation Noble M. Johnson; Palo Alto Research Center, Palo Alto, California, United States

4:45 PM B2.3.02

Opposing Approaches for Low Threshold in AlGaN-Based UV-C Laser—High Internal Quantum Efficiency vs Homogeneity Carsten Netzel[1], Ute Zeimer[1], Martin Martens[2], Christian Kuhn[2], Arne Knauer[1], Viola Kuller[1], Tim Wernicke[2], Michael Kneissl[2, 1] and Markus Weyers[1]; [1]Materials Technology, Ferdinand-Braun-Institute, Berlin, Germany; [2]Institute of Solid State Physics, Technical University of Berlin, Berlin, Germany

5:00 PM B2.3.03

AlGaN Nanowire Deep UV LEDs and Lasers Operating Below 240 nm Songrui Zhao[1], X. Liu[1], S. Y. Woo[2], Y. Wu[1], S. Sadaf[1], R. Rashid[1], Y. Wang[1], D. Laleyan[1], G. A. Botton[2] and Zetian Mi[1]; [1]McGill University, Montreal, Canada; [2]McMaster University, Hamilton, Canada

5:15 PM B2.3.04
Stimulated Emission at 250 nm from Optically-Pumped Semipolar (1-102) AlGaN/AlN Quantum Wells Shuhei Ichikawa, Mitsuru Funato and Yoichi Kawakami; Kyoto University, Kyoto, Japan

5:30 PM B2.3.05
Observation of Stimulated Emission of AlGaN-Based GRINSCH Structures Grown by MBE Emitting in Deep UV Spectrum Haiding Sun and Theodore Moustakas; Electrical and Computer Engineering, Boston University, Boston, Massachusetts, United States

5:45 PM B2.3.06
Second Harmonic Generation of UV Laser Light in AlN Periodic Lateral Polar Structures Dorian E. Alden[1, 2], Tinkara Troha[3], Ronny Kirste[1], Felix Kaess[1], Alexander Franke[1], Michael Gerhold[4], Axel Hoffmann[2], Marko Zgonik[3], Ramon Collazo[1] and Zlatko Sitar[1]; [1]Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States; [2]Fakultät für Festkörperphysik, Technische Universität Berlin, Berlin, Germany; [3]Faculty of Mathematics and Physics, University of Ljubljana, Ljubljana, Slovenia; [4]Engineering Science Directorate, Army Research Office, Research Triangle Park, North Carolina, United States

C0.3: Electronic Devices III: Devices for Power Electronics, Traps and Dielectrics
Tuesday Afternoon, October 4, 2016
Room: Narcissus/Orange Blossom

4:15 PM *C0.3.01
Low-Cost High-Voltage GaN Lateral-Superjunction Power Transistors Hiroji Kawai[1], Syuichi Yagi[1], Shoko Hirata[1], Fumihiko Nakamura[1], Takeshi Saito[1], Yusuke Kamiyama[1], Masayoshi Yamamoto[2] and Hiroshi Amano[3]; [1]Powdec K.K., Oyama, Japan; [2]Shinane University, Interdisciplinary Graduate School of Science and Engineering, Matsue, Japan; [3]Institute of Material and Systems for Sustainability, Nagoya University, Nagoya, Japan

4:45 PM C0.3.02
Processes behind Suppressed Current Collapse Buffer Architectures Ben Rackauskas[1], Michael J. Uren[1], Martin Kuball[1] and Steve Stoffels[2]; [1]University of Bristol, Bristol, United Kingdom; [2]imec, Heverlee, Belgium

5:00 PM C0.3.03
Identification of Electron Trap Energy at Different Spatial Locations and Dynamics of Charge Redistribution in AlGaN/GaN HEMT Structures Shlomo Mehari[1], Arkady Gavrilov[1], Moshe Eizenberg[2] and Dan Ritter[1]; [1]Electrical Engineering, Technion - Israel Institute of Technology, Haifa, Israel; [2]Materials Science and Engineering, Technion - Israel Institute of Technology, Haifa, Israel

5:15 PM C0.3.04

On the Origin of Surface Donors in AlGaN/GaN Metal-Oxide-Semiconductor Heterostructures with Al_2O_3 Gate Dielectric—Correlation of Electrical, Structural, and Chemical Properties Milan Tapajna[1], Roman Stoklas[1, 2], Dagmar Gregusova[1], Lukas Valik[1], Filip Gucmann[1], Kristina Husekova[1], Stefan Hascik[1], Karol Frohlich[1], Lajos Toth[3], Bela Pecz[3], Matej Micusik[4], Frank Brunner[5], Tamotsu Hashizume[2] and Jan Kuzmik[1]; [1]Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia; [2]Research Center for Integrated Quantum Electronics (RCIQE), Hokkaido University, Sapporo, Japan; [3]Institute of Technical Physics and Materials Sciences, EK MTA, Budapest, Hungary; [4]Institute of Polymers, Slovak Academy of Sciences, Bratislava, Slovakia; [5]Ferdinand-Braun-Institut, Berlin, Germany

5:30 PM C0.3.05

AlGaN/GaN MOSHEMT with P_{OUT}=4.18 W/mm at f=35 GHz Enabled by Atomic Layer Epitaxy MgCaO Dielectric Hong Zhou; ECE, Purdue University, West Lafayette, Indiana, United States

5:45 PM C0.3.06

Effect of Proton Irradiation on the Characteristics of AlGaN/GaN MISHEMT—Comparison between Al2O3 and Si3N4 Gate Insulator Jun-Hyeok Lee[1], Hee-Sung Kang[1], Won-Sang Park[1], Jeong-Gil Kim[1], Chul-Ho Won[1], Youngho Bae[2] and Jung-Hee Lee[1]; [1]School of Electronics Engineering, Kyungpook National University, Daegu, Korea (the Republic of); [2]Division of steel IT, Uiduk University, Gyeongju, Korea (the Republic of)

D1.5: Materials Characterization V: Characterization of GaN and InN
Tuesday Afternoon, October 4, 2016
Room: International North

4:15 PM D1.5.01

Quantifying Absolute Value of Quantum Efficiency of Radiation in High Quality GaN Single Crystals Kazunobu Kojima[1], Tomomi Ohtomo[1], Makoto Saito[1, 2], Hirotaka Ikeda[2], Kenji Fujito[2] and Shigefusa F. Chichibu[1]; [1]Tohoku University, Sendai, Japan; [2]Mitsubishi Chemical Corporation, Ibaraki, Japan

4:30 PM D1.5.02

Infrared Absorption of Hydrogen-Related Defects in Ammonothermal GaN Sami Suihkonen[1] and Siddha Pimputkar[2]; [1]Department of Micro- and Nanosciences, Aalto University, Espoo, Finland; [2]Materials Department, University of California, Santa Barbara, Santa Barbara, California, United States

4:45 PM D1.5.03

Optical and Electronic Properties HVPE GaN Wafers with Improved Crystallinity Jaime A. Freitas; ESTD, Naval Research Laboratory, Washington, District of Columbia, United States

5:00 PM D1.5.04

Thermal Conductivity of Bulk GaN Grown by HVPE—Effect of Si Doping Michael Slomski[1], Plamen P. Paskov[2, 1], Jacob Leach[3], John Muth[1] and Tania Paskova[1]; [1]ECE, North Carolina State University, Raleigh, North Carolina, United States; [2]Linkoping University, Linkoping, Sweden; [3]Kyma Technology, Raleigh, North Carolina, United States

5:15 PM D1.5.05
Raman Scattering Study of the High-Pressure Wurtzite to Rocksalt Phase Transition of GaN Grown on Serpentine Channel Patterned Sapphire Substrate Qingbin Ji; School of Physics, Peking University, Beijing, China

5:30 PM D1.5.06
Surface and Bulk Electronic Structures of Heavily Mg-Doped InN Epilayer by Hard X-Ray Photoelectron Spectroscopy Masataka Imura[1], Shunsuke Tsuda[1], Takahiro Nagata[1], Anli Yang[1], Yoshiyuki Yamashita[1, 4], Hideki Yoshikawa[1, 4], Yasuo Koide[1], Keisuke Kobayashi[4, 2], Tomohiro Yamaguchi[3, 5], Masamitsu Kaneko[5], Nao Uematsu[5], Ke Wang[5], Tsutomu Araki[5] and Yasushi Nanishi[5]; [1]National Institute for Materials Science, Tsukuba, Japan; [2]Japan Atomic Energy Agency, Sayo-gun, Japan; [3]Kogakuin University, Hachiouji, Japan; [4]Spring-8 (NIMS), Sayo-gun, Japan; [5]Ritsumeikan University, Kusatsu, Japan

5:45 PM D1.5.07
Tunneling Spectroscopy at Clean Non-Polar InN Surfaces—Absence of Electron Accumulation Holger Eisele[1], Michael Schnedler[2], Andrea Lenz[1], M. Duchamp[2], Verena Portz[1], Christian Nenstiel[1], Axel Hoffmann[1] and Philipp Ebert[2]; [1]Institut für Festkörperphysik, Technische Universität Berlin, Berlin, Germany; [2]Forschungszentrum Jülich, Jülich, Germany

F0.3: Novel Materials and Devices III: Epitaxial Lift Off and Group-V Alloys
Tuesday Afternoon, October 4, 2016
Room: Azalea/Begonia

4:15 PM *F0.3.01
GaN-Based Epitaxial Lift-off for Device Applications Patrick Fay; University of Notre Dame, Notre Dame, Indiana, United States

4:30 PM F0.3.02
Realization of GaN, InGaN/GaN MQW and Semi-Bulk Based PIN Structures on the Ultrathin 2D Layered h-BN for Simple Mechanical Lift-Off Suresh Sundaram[1], Taha Ayari[1, 2], Xin Li[1], Saiful Alam[1, 2], Youssef El Gmili[1], Paul L. Voss[1, 2], Jean Paul Salvestrini[3] and Abdallah Ougazzaden[1, 2]; [1]Georgia Tech Lorraine, Metz, France; [2]School of Electrical and Computer Engineering, Georgia Institute of technology, Atlanta, Georgia, United States; [3]LMOPS, Université de Lorraine and Centrale Supélec, Metz, France

4:45 PM F0.3.03
Determination of the Site of Sb Occupation in MOCVD-Grown $GaN_{1-x}Sb_x$ Using X-Ray Absorption Fine-Structure Measurements Takao Miyajima[1], Daisuke Komori[1], Toshiaki Ina[2], Ryoma Seiki[1], Kiyofumi Nitta[2], Tetsuya Takeuchi[1], Tomoya Uruga[2], Satoshi Kamiyama[1], Motoaki Iwaya[1] and Isamu Akasaki[1]; [1]Meijo University, Nagoya, Japan; [2]Japan Synchrotron Radiation Research Institute, Sayo-cho, Japan

5:00 PM F0.3.04

Nanoscale Electrical Characterisation of GaNAs/GaN PN Junction Diode Fung Sing Choi[1], Ivor Guiney[1], Shahrzad H. Vajargah[1], Siyuan Zhang[1], James T. Griffiths[1], Sergei Novikov[2], Hongtu Qian[3], Kean B. Lee[3], David Wallis[1], Tom Foxon[2], Colin Humphreys[1] and Rachel Oliver[1]; [1]Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [2]Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; [3]Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom

5:15 PM F0.3.05

Behavior of Arsenic in GaN at Densities Ranging from Isovalent Doping to Dilute Ternary Alloys Louis J. Guido[1, 2], Timothy A. Ciarkowski[2], Eric P. Carlson[2] and Noah P. Allen[1]; [1]Electrical and Computer Engineering, Virginia Tech, Blacksburg, Virginia, United States; [2]Materials Science and Engineering, Virginia Tech, Blacksburg, Virginia, United States

5:30 PM F0.3.06

How Can Dilute-Anion III-Nitride Be Used for Light Emitters Chee-Keong Tan, Wei Sun, Damir Borovac, Jonathan J. Wierer and Nelson Tansu; Center for Photonics and Nanoelectronics, Department of Electrical and Computer Engineering, Lehigh University, Bethlehem, Pennsylvania, United States

A1.3: Bulk Growth III: Bulk Growth
Wednesday Morning, October 5, 2016
Room: Azalea/Begonia

8:00 AM *A1.3.01

Chemistry of the Ammonothermal Method for Growth of Nitrides as GaN, InN and Zn_3N_2 Rainer Niewa[1], Jan Hertrampf[1], Theresia M. Richter[1], Nicolas S. Alt[2] and Eberhard Schluecker[2]; [1]Institut für Anorganische Chemie, Universität Stuttgart, Stuttgart, Germany; [2]Institute of Process Machinery and System Engineering, University Erlangen-Nuremberg, Erlangen, Germany

8:30 AM A1.3.02

GaN Solubility and Dissolution Kinetics Investigated Using Direct Insight into Ammonothermal Autoclaves by *In Situ* X-Ray Imaging Saskia Schimmel[1], Martina Koch[1], Philipp Macher[1], Thomas G. Steigerwald[2, 3], Anna C. Kimmel[2], Nicolas S. Alt[2], Eberhard Schluecker[2] and Peter J. Wellmann[1]; [1]Materials Department, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany; [2]Institute of Process Machinery and Systems Engineering, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany; [3]Erlangen Graduate School in Advanced Optical Technologies, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany

8:45 AM A1.3.03

Detailed Study of Homoepitaxial HVPE-GaN Growth in c-Direction Boleslaw Lucznik, Mikolaj Amilusik, Tomasz Sochacki, Malgorzata Iwinska, Michal Fijalkowski, Izabella Grzegory and Michal Bockowski; Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland

9:00 AM A1.3.04

Gradient of Silicon Concentration in HVPE-GaN Malgorzata Iwinska, Mikolaj Amilusik, Michal Fijalkowski, Tomasz Sochacki, Boleslaw Lucznik, Izabella Grzegory and Michal Bockowski; Crystal Growth Laboratory, Institute of High Pressure Physics PAS, Warsaw, Poland

9:15 AM A1.3.05

Study on Reduction of H_2O in OVPE Process for Improving GaN Crystallinity Yohei Yamaguchi[1], Hirokazu Gunji[1], Yuuki Taniyama[1], Akira Kitamoto[1], Mamoru Imade[1], Masashi Yoshimura[1], Masashi Isemura[2] and Yusuke Mori[1]; [1]Osaka University, Suita, Japan; [2]Itochu Plastics Inc., Shibuya-ku, Japan

9:30 AM A1.3.06

Na-Flux Growth on the Tiling HVPE Wafer for the Suppression of V-Shape Valley Formation at the Coalescence Boundary Masayuki Imanishi[1], Kosuke Murakami[1], Masatomo Honjo[1], Hiroki Imabayashi[1], Daisuke Matsuo[1], Mihoko Maruyama[1], Mamoru Imade[1], Masashi Yoshimura[1], Takehiro Yoshida[2], Toshio Kitamura[2], Masatomo Shibata[2] and Yusuke Mori[1]; [1]Osaka University, Osaka, Japan; [2]Sciocs Company Limited, Hitachi, Ibaraki, Japan

9:45 AM A1.3.07

Evaluation of Freestanding GaN Substrates by Dissolution of Sapphire Substrates Using Li after the Na-Flux Growth Yamada Takumi, Imanishi Masayuki, Kosuke Nakamura, Kosuke Murakami, Hiroki Imabayashi, Daisuke Matsuo, Masatomo Honjo, Mihoko Maruyama, Mamoru Imade, Masashi Yoshimura and Yusuke Mori; Osaka University, Osaka, Japan

10:00 AM BREAK

A2.6: Epitaxial Growth VI: Molecular Beam Epitaxy of III-Nitrides
Wednesday Morning, October 5, 2016
Room: International South

8:00 AM *A2.6.01

Atomic Level Manipulation in Molecular Beam Epitaxy of III-Nitrides Xinqiang Wang; Peking University, Beijing , China

8:30 AM A2.6.02

The Impact of Barrier Width on Photoluminescence Wavelength in InGaN/InGaN Short Period Superlattices Grown by Plasma Assisted MBE Marcin Siekacz[1, 2], Grzegorz Staszczak[2], Tadeusz Suski[2], Ewa Grzanka[2, 1], Izabela Gorczyca[2], Henryk Turski[2], Torsten Ernst[1], Mariia Anikeeva[3], Tobias Schulz[3], Martin Albrecht[3] and Czeslaw Skierbiszewski[2, 1]; [1]TopGaN Ltd., Warsaw, Poland; [2]Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; [3]Leibniz-Institute for Crystal Growth, Berlin, Germany

8:45 AM A2.6.03

Ge Doping of GaN beyond Mott Transition Using Plasma Assisted Molecular Beam Epitaxy Akhil Ajay[1, 2], Jorg Schormann[3], Marco Jimenez-Rodriguez[4], Caroline B. Lim[1, 2], Martien den Hertog[1, 5], Felix Walther[3], Marcus Rohnke[6], Martin Eickhoff[3] and Eva Monroy[1, 2]; [1]Université Grenoble-Alpes, Grenoble, France; [2]INAC-PHELIQS, CEA-Grenoble, Grenoble, France; [3]I. Physikalisches Institut, Justus-Liebig-Universität Gießen and Center for Materials Science, Heinrich-Buff-Ring, Gießen, Germany; [4]Department of Electrónica, University of Alcalá, Madrid, Spain; [5]CNRS-Institute Néel, 25 av. des Martyrs, Grenoble, France; [6]Physikalisch-Chemisches Institut and Center for Materials Science, Justus-Liebig-Universität Gießen, Heinrich-Buff-Ring, Gießen, Germany

9:00 AM A2.6.04

Metal Modulated Epitaxy of High Carrier Concentration Mg Doped p-Type and Ge Doped n-Type AlGaN Evan Clinton, Joseph Merola, Brendan Gunning and William A. Doolittle; Georgia Institute of Technology, Atlanta, Georgia, United States

9:15 AM A2.6.05

Impact of Substrate Temperature on Magnesium Incorporation in MBE Grown Al-rich $Al_xGa_{1-x}N$ S.M. M. Islam, Kazuki Nomoto, Vladimir Protasenko, Shyam Bharadwaj, Grace Xing and Debdeep Jena; Electrical and Computer Engineering, Cornell University, Ithaca, New York, United States

9:30 AM A2.6.06

Impact of Surfactant Gallium on the Morphology of III-Nitrides Grown by MBE Christopher Hein, Andreas Kraus, Heiko Bremers, Uwe Rossow and Andreas Hangleiter; Institute of Applied Physics, Braunschweig University of Technology, Braunschweig, Germany

9:45 AM A2.6.07

Combining High Hole Concentration in p-GaN and High Hole Mobility in u-GaN for High p-Type Conductivity in a p-GaN/u-GaN Alternating-Layer Nanostructure Hao-Tsung Chen, Charng-Gan Tu, Yu-Feng Yao, Chun-Han Lin, Yuh-Renn Wu, Yean-Woei Kiang and Chih-Chung Yang; National Taiwan University, Taipei, Taiwan

10:00 AM BREAK

B1.4: Visible Devices IV:
Visible Emitters: Alloy Disorder, Loss Mechanisms, and Strain Engineering
Wednesday Morning, October 5, 2016
Room: International Center

8:00 AM *B1.4.01

Impact of Atomic Disorder in InGaN MQW LEDs Yuh-Renn Wu[1], Chi-Kang Li[1], Marco Piccardo[2], Lucio Martinelli[2], Marcel Filoche[2], James S. Speck[3] and Claude Weisbuch[2, 3]; [1]Graduate Institute of Photonics and Optoelectronics and Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan; [2]Physique de la Matière Condensée, Ecole Polytechnique, Palaiseau, France; [3]Materials Department, University of California, Santa Barbara, Santa Barbara, California, United States

8:30 AM *B1.4.02

Recombination Coefficients in InGaN Quantum Well Light-Emitting Diodes Felix Nippert[1], Sergey Y. Karpov[2], Bastian Galler[3], Gordon Callsen[1], Thomas Kure[1], Christian Nenstiel[1], Martin Strassburg[3], Hans-Juergen Lugauer[3] and Axel Hoffmann[1]; [1]TU Berlin, Institute of Solid State Physics, Berlin, Germany; [2]STR Group -- Soft-Impact Ltd., St. Petersburg, Russian Federation; [3]OSRAM Opto Semiconductors GmbH, Regensburg, Germany

9:00 AM B1.4.03

Performance of InGaN-Based Light Emitting Diodes under High Current Density on Low Dislocation Density Liquid Phase Grown GaN Substrates Tomohiko Sugiyama[1], Yoshitaka Kuraoka[1], Makoto Iwai[1], Takashi Yoshino[1], Shigeyoshi Usami[2], Yoshio Honda[3] and Hiroshi Amano[3, 4]; [1]Corporate R&D, NGK Insulators, Ltd., Nagoya, Japan; [2]Department of Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; [3]Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; [4]Akasaki Research Center, Nagoya University, Nagoya, Japan

9:15 AM B1.4.04

Is the Electron Blocking Layer Still Needed in Modern Designs of InGaN Laser Diodes Agata Bojarska[1], Jakub Goss[1], Irina Makarowa[2], Robert Czernecki[1, 2], Tadeusz Suski[1] and Piotr Perlin[1, 2]; [1]Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; [2]TopGaN Limited, Warsaw, Poland

9:30 AM B1.4.05

Relaxed InGaN Engineered Substrate for LED Droop Reduction Eric Guiot, David Sotta and Olivier Ledoux; Soitec, Bernin, France

9:45 AM B1.4.06

Vertical Thin Film LEDs from Island Patterned Epilayers Grown on Relaxed InGaN Engineered Substrates Francois Levy[2, 1], Christophe Largeron[2, 1], Yohan Desieres[2, 1], Marc Rabarot[2, 1], Raphael Caulmilone[3], Quentin Lalauze[2, 1], Jonathan Garcia[2, 1], Carole Granier[2, 1], Maryse Reymermier[2, 1], Gaid Moulin[2, 1], Olivier Ledoux[3] and Eric Guiot[3]; [1]CEA, LETI, MINATEC, Grenoble, France; [2]University of Grenoble, Grenoble, France; [3]SOITEC S.A., Bernin, France

10:00 AM BREAK

C2.2: Power Devices II: Devices for Power Electronics II
Wednesday Morning, October 5, 2016
Room: Narcissus/Orange Blossom

8:00 AM *C2.2.01

AlGaN/GaN-on-Si Power Device Technology—From Simple 1D Characterization Techniques to Reliable and Current-Collapse Free Large Area Power Devices Peter Moens, Abhishek Banerjee, Peter Coppens, Markus Caesar, Aurore Constant, Zilan Li and Marnix Tack; Corporate R&D, ON Semiconductor, Oudenaarde, Belgium

8:30 AM C2.2.02
Low-Cost and High-Performance Vertical GaN Power Transistors on Bulk GaN Substrates Min Sun[1], Ming Pan[2], Xiang Gao[2] and Tomas Palacios[1]; [1]Massachusetts Institute of Technology, Cambridge, Massachusetts, United States; [2]IQE RF LLC, Somerset, New Jersey, United States

8:45 AM C2.2.03
Demonstration of Normally off GaN Trench-CAVET for High Power Application Dong Ji[1], Matthew A. Laurent[2], Anchal Agarwal[2], Stacia Keller[2], Umesh K. Mishra[2] and Srabanti Chowdhury[3]; [1]School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, Arizona, United States; [2]Electrical and Computer Engineering, University of California, Santa Barbara, California, United States; [3]Electrical and Computer Engineering, University of California, Davis, California, United States

9:00 AM C2.2.04
Vertical GaN Transistors on Bulk-GaN Substrates Anneli Munkholm; Avogy Inc., San Jose, California, United States

9:15 AM C2.2.05
Novel GaN-Based Vertical Heterostructure Field Effect Transistor Structures Using Crystallographic KOH Etching and Channel Overgrowth Hongtu Qian[1], Kean B. Lee[1], Shahrzad H. Vajargah[2], Sergei V. Novikov[3], Ivor Guiney[2], Syed Zaffar Haider Zaidi[1], Sheng Jiang[1], David Wallis[2], Tom Foxon[3], Colin Humphreys[2] and Peter Houston[1]; [1]Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; [2]Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [3]Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom

9:30 AM C2.2.06
Electrical and Thermal Characterization of Vertical GaN PIN Diodes Georges Pavlidis[1], Tsung-Ting Kao[2], Jeomoh Kim[2], Mi-Hee Ji[2], Sukwon Choi[3], Theeradetch Detchprohm[2], Russell D. Dupuis[2], Shyh-Chiang Shen[2] and Samuel Graham[1]; [1]Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States; [3]Mechanical and Nuclear Engineering, The Pennsylvania State University, University Park, Pennsylvania, United States

9:45 AM C2.2.07
Towards Vertical GaN Power Electronics—Nanowire Arrays for Vertical Field-Effect Transistors Feng Yu[1, 2], Shengbo Yao[1], Friedhard Roemer[3], Bernd Witzigmann[3], Hutomo Suryo Wasisto[1, 2] and Andreas Waag[1, 2]; [1]Institute of Semiconductor Technology, Technische Universitaet Braunschweig, Braunschweig, Germany; [2]Laboratory for Emerging Nanometrology, Technische Universität Braunschweig, Braunschweig, Germany; [3]Computational Electronics and Photonics, Universität Kassel, Kassel, Germany

10:00 AM BREAK

D1.6: Materials Characterization VI: Characterization of Electronic Devices
Wednesday Morning, October 5, 2016
Room: International North

8:00 AM D1.6.01

Physical Explanation of Richardson Constant Values Observed in J-V-T Measurements of III-N Schottky Diodes Matthew Laurent[1, 2], Onur Koksaldi[1], Donald Suntrup[1, 3] and Umesh Mishra[1]; [1]University of California, Santa Barbara, Santa Barbara, California, United States; [2]University of California, Davis, Davis, California, United States; [3]Infinera, Sunnyvale, California, United States

8:15 AM D1.6.02

Determination of Polarization Fields in (0001) AlInN/GaN and AlGaN/GaN Heterostructures by Capacitance-Voltage-Measurements Monir Rychetsky[1], Baran Avinc[1], Konrad Bellmann[1], Ingrid Koslow[1, 2], Tim Wernicke[1], Veit Hoffmann[2], Markus Weyers[2], Bernd Witzigmann[3] and Michael Kneissl[1, 2]; [1]Technical University of Berlin, Berlin, Germany; [2]Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztech, Berlin, Germany; [3]Computational Electronics and Photonics Group and CINSaT, University of Kassel, Kassel, Germany

8:30 AM D1.6.03

Electromodulation Spectroscopy of N-Polar GaN HEMT Structures Lukasz Janicki[1], Marta Gladysiewicz[1], Karol Kulinowski[1], Haoran Li[2], Stacia Keller[2], Umesh K. Mishra[2] and Robert Kudrawiec[1]; [1]Faculty of Fundamental Problems of Technology, Wroclaw University of Technology, Wroclaw, Poland; [2]Department of Electrical and Computer Engineering, University of California, Santa Barbara, California, United States

8:45 AM D1.6.04

Characterization of Electrical Properties of n-Type GaN Layer Using Terahertz Time-Domain Spectroscopic Ellipsometry Kohei Tachi[1], Shiho Asagami[1], Takashi Fujii[1, 2], Takeshi Nagashima[3], Toshiyuki Iwamoto[2], Yoshinori Sato[2], Naotake Morita[4], Ryuichi Sugie[4], Satoshi Kamiyama[5], Tsutomu Araki[1] and Yasushi Nanishi[1]; [1]Ritsumeikan University, Nishikyo-ku, Japan; [2]Nippo Precision Co., Ltd, Nirasaki-shi, Japan; [3]Setsunan University, Neyagawa-shi, Japan; [4]Toray Research Center, Inc, Otsu-shi, Japan; [5]Meijo University, Nagoya-shi, Japan

9:00 AM D1.6.05

Band Offset Characterization of Atomic Layer Deposited Al_2O_3 on m-Plane GaN by X-Ray Photoelectron Spectroscopy Ye Jia[1], Joshua S. Wallace[2], Elena Echeverria[3], Joseph A. Gardella[2] and Uttam Singisetti[1]; [1]Department of Electrical Engineering, The State University of New York at Buffalo, Buffalo, New York, United States; [2]Department of Chemistry, The State University of New York, University at Buffalo, Buffalo, New York, United States; [3]Department of Physics and Astronomy, University of Nebraska, Lincoln, Nebraska, United States

9:15 AM D1.6.06
Band Offsets at Diamond/III-Nitride Heterojunctions Olaf Weidemann[1], Martin Hetzl[1], Martin Eickhoff[2] and Martin Stutzmann[1]; [1]Walter Schottky Institute, Technical University Munich, Garching, Germany; [2]Justus Liebig University, I. Physical Institute, Giessen, Germany

9:30 AM LATE NEWS

9:45 AM LATE NEWS

10:00 AM BREAK

E0.3: Nanostructures III: Characterization of Nanostructures Including Tomography
Wednesday Morning, October 5, 2016
Room: Camelia/Dogwood

8:00 AM E0.3.01
Electron Microscopy and Tomography of Nitride Micro- and Nano-Devices Rachel A. Oliver[1], Christopher Ren[1], Fengzai Tang[1], Tim J. Puchtler[1], Tongtong Zhu[1], Igor Aharonovich[2], Alexander Woolf[2], Kasey J. Russell[2], Danqing Wang[2], Qimin Quan[2], Nan Niu[2] and Evelyn L. Hu[2]; [1]Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; [2]School of Engineering and Applied Science, Harvard University, Cambridge, Massachusetts, United States

8:15 AM E0.3.02
Laser-Assisted Atom Probe Tomography Study of InGaN and Mg:GaN Test Structures Norman A. Sanford[1], Paul T. Blanchard[1], Matt Brubaker[1], Sergei Krylyuk[2], Alexana Roshko[1], Kris A. Bertness[1] and Albert Davydov[2]; [1]Applied Physics Division, National Institute of Standards and Technology, Boulder, Colorado, United States; [2]Materials Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, Maryland, United States

8:30 AM E0.3.03
Transition Energies and Charge Carriers Localization Study of GaN/AlN Stranski-Krastanov Quantum Dots by Atom Probe-Based Correlative Multi-Microscopy Lorenzo Mancini; GPM, University of Rouen, Saint Etienne du Rouvray, France

8:45 AM E0.3.04
High Quantum Efficiency UVC AlxGa1-xN/AlyGa1-yN Multiple Quantum Wells Grown on AlN Nanostructures with Polarization Free Non-Polar Facet Jinwan Kim, Uiho Choi, Jaedo Pyeon and Ohnam Nam; Nano-optics, Korea Polytechnic University, Siheung, Korea (the Republic of)

9:00 AM E0.3.05

UV Photosensing Characteristics of Nanowire-Based GaN/AlN Superlattices Jonas Laehnemann[2, 1], Martien den Hertog[2, 3], Pascal Hille[4], Maria de la Mata[5], Thierry Fournier[2, 3], Jorg Schormann[4], Jordi Arbiol[5], Martin Eickhoff[4] and Eva Monroy[2, 1]; [1]INAC / PHELIQS / SP2M, CEA Grenoble, Grenoble, France; [2]Université Grenoble-Alpes, Grenoble, France; [3]CNRS - Institut Néel, Grenoble, France; [4]I. Physikalisches Institut, Justus-Liebig-Universität Gießen, Gießen, Germany; [5]CSIC, BIST & ICREA, Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain

9:15 AM E0.3.06

Molecular Beam Epitaxial Growth and Characterization of B(Ga,Al)N Nanowire Heterostructures D. Laleyan, Songrui Zhao and Zetian Mi; Electrical and Computer Engineering, McGill University, Montreal, Canada

9:30 AM E0.3.07

Quantum Dot-Like Behavior of Compositional Fluctuations in AlGaN Nanowires Matthias Belloeil, Bruno Gayral and Bruno Daudin; PHELIQS\"Nanophysics and semiconductors" group, CEA Grenoble\INAC, Grenoble, France

9:45 AM E0.3.08

Visualization and Quantitative Analysis of Axial p-n Junction on Single GaN Nanowire by Three Electron Beam Based Techniques Zhihua Fang[1, 2, 3], Fabrice Donatini[1, 3], Eric Robin[3, 4], Julien Pernot[3, 1, 5] and Bruno Daudin[2, 3]; [1]Institut Neel, Grenoble, France; [2]CEA, INAC-SP2M, "Nanophysique et semiconducteurs" group, Grenoble, France; [3]University of Grenoble Alpes, Grenoble, France; [4]CEA, INAC, MINATEC Campus, Grenoble, France; [5]Institut Universitaire de France, Paris, France

10:00 AM BREAK

F0.4: Novel Materials and Devices IV: Boron Containing and Computational Nitrides
Wednesday Morning, October 5, 2016
Room: Poinsettia/Quince

8:00 AM *F0.4.01

Indirect Excitons, Electron-Phonon Interaction and Intervalley Scatteringin Hexagonal Boron Nitride Guillaume Cassabois; Laboratoire Charles Coulomb , Université de Montpellier, Montpellier, France

8:30 AM F0.4.02

Layered Hexagonal BN Thin Films Grown by MOVPE for UV Optical Applications Xin Li[1, 2], Suresh Sundaram[2], Youssef El Gmili[2], Taha Ayari[1, 2], Gilles Patriarche[3], Paul L. Voss[1, 2], Jean Paul Salvestrini[2, 4] and Abdallah Ougazzaden[1, 2]; [1]Georgia Institute of Technology, School of Electrical and Computer Engineering, GT-Lorraine, 57070, Metz, France; [2]UMI 2958, Georgia Tech - CNRS, 57070, Metz, France; [3]Laboratoire de Photonique et de Nanostructures (LPN), CNRS, Université Paris-Saclay, 91460, Marcoussis, France; [4]Université de Lorraine, LMOPS, EA 4423, 57070, Metz, France

8:45 AM F0.4.03

Phase Degradation in $B_xGa_{1-x}N$ Films Grown at Low Temperature by Metalorganic Vapor Phase Epitaxy Brendan Gunning, Michael Moseley, Daniel Koleske, Andrew Allerman and Stephen Lee; Sandia National Laboratories, Albuquerque, New Mexico, United States

9:00 AM F0.4.04

100-nm Thick Single-Phase Wurtzite BAlN with B Contents up to 11.6% Grown by MOCVD Xiaohang Li[1, 2], Shuo Wang[3], Hanxiao Liu[3], Fernando A. Ponce[3], Theeradetch Detchprohm[2] and Russell D. Dupuis[2]; [1]King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; [2]Georgia Institute of Technology, Atlanta, Georgia, United States; [3]Arizona State University, Tempe, Arizona, United States

9:15 AM F0.4.05

High-Temperature Molecular Beam Epitaxy of Boron-Nitride Layers Y. Cho[1], T. Cheng[1], A. Summerfield[1], A. Davies[1, 2], J. Diez Albar[1], C. Mellor[1], A. Khlobystov[2], T. Taniguchi[3], K. Watanabe[3], Tom Foxon[1], L. Eaves[1], P. Beton[1] and Sergei V. Novikov[1]; [1]School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; [2]School of Chemistry, University of Nottingham, Nottingham, United Kingdom; [3]The National Institute for Materials Science, Tsukuba, Japan

9:30 AM F0.4.06

Computational Discovery of Novel Stable and Metastable Nitride Semiconductors Wenhao Sun[2, 1], Aaron Holder[3], Bernardo Ourmananos[2], Andriy Zakutayev[3], Stephan Lany[3] and Gerbrand Ceder[1, 2]; [1]Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, United States; [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, United States; [3]National Renewable Energy Laboratory, Denver, Colorado, United States

9:45 AM LATE NEWS

10:00 AM BREAK

A2.7: Epitaxial Growth VII: Epitaxial Growth of (Al,Ga)N
Thursday Morning, October 6, 2016
Room: International South

8:00 AM *A2.7.01

Low Defect Density AlN and AlGaN for deep UV Emitters Markus Weyers; Ferdinand-Braun-Institut, Berlin, Germany

8:30 AM A2.7.02

Strain Controls of High-Quality AlN Layers by Misfit Dislocations Introduced at Step Edges of SiC(0001) Substrates Mitsuaki Kaneko, Tsunenobu Kimoto and Jun Suda; Electronic Science and Engineering, Kyoto University, Kyoto, Japan

8:45 AM A2.7.03
High-Quality AlN Epitaxy on Nano-Patterned Sapphire Substrates Prepared by Nano-Imprint Lithography Lisheng Zhang; State Key Laboratory of Artificial Microstructure and Mesoscopic Physics, School of Physics, Peking University, Beijing, China

9:00 AM A2.7.04
Improved Nucleation of AlN Template Layer on Sapphire Substrate by Using TMGa Pulse Flow Hualong Wu, Hailong Wang, Yingda Chen, Lingxia Zhang, Zimin Chen, Zhisheng Wu and Hao Jiang; State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, Guangzhou, China

9:15 AM A2.7.05
Low Etch Pit Density AlN on Sapphire Daniel D. Koleske[1], Darrell L. Alliman[1], J. R. Creighton[3], Brendan P. Gunning[1], Jeffrey J. Figiel[1], Andrew A. Allerman[1], Akira Mishima[2] and Kazutada Ikenaga[2]; [1]Sandia National Laboratories, Albuquerque, New Mexico, United States; [2]TAIYO NIPPON SANSO Corporation, Tokyo, Japan; [3]JR Creighton Consulting LLC, Albuquerque, New Mexico, United States

9:30 AM A2.7.06
Improvement of AlN Crystal Quality on Si Substrate for Deep UV-LED Applications Tinh B. Tran[1], Hideki Hirayama[1], Noritoshi Maeda[1], Masafumi Jo[1], Daishi Inoue[2] and Tomoka Kikitsu[2]; [1]Quantum Optodevice Laboratory, RIKEN, Wako, Japan; [2]Materials Characterization Support Unit, Center for Emergent Matter Science, RIKEN, Wako, Japan

9:45 AM BREAK

B1.5: Visible Devices V:
Visible Light Emitters: Contacts, Tunnel Junctions, and Monolithic Integration
Thursday Morning, October 6, 2016
Room: International Center

8:00 AM *B1.5.01
Transparent Conductive Nitride p-Contacts Nicolas Grandjean; École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

8:30 AM B1.5.02
Buried Tunnel Junctions Using Low Resistive GaInN Tunnel Junctions with High Si Concentrations Yasuto Akatsuka[1], Daiki Takasuka[1], Takanobu Akagi[1], Tetsuya Takeuchi[1], Motoaki Iwaya[1], Satoshi Kamiyama[1] and Isamu Akasaki[1, 2]; [1]Meijo University, Nagoya, Japan; [2]Akasaki Research Center, Nagoya University, Nagoya, Japan

8:45 AM B1.5.03
Ultra-Low Resistance GaN/InGaN/GaN Tunnel Junctions with Indium Content < 15% Fatih Akyol; Electrical and Computer Engineering Department, Ohio State University, Columbus, Ohio, United States

9:00 AM B1.5.04

MOVPE Growth of GaN-Based Tunnel Junctions for Lateral Current Spreading in InGaN LEDs Silvio Neugebauer, Aqdas Fariza, Marc P. Hoffmann, Christopher Kahrmann, Gordon Schmidt, Sebastian Metzner, Hartmut Witte, Juergen Blasing, Frank Bertram, Juergen Christen, Armin Dadgar and Andre Strittmatter; Otto-von-Guericke-University Magdeburg, Magdeburg, Germany

9:15 AM B1.5.05

Light Emitting Diodes with Tunnel Junctions for Hole Injection Grown by Plasma-Assisted MBE Czeslaw Skierbiszewski[1, 2], Grzegorz Muziol[1], Krzesimir Szkudlarek[1], Jakub Goss[1], Krzysztof Gibasiewicz[1], Anna Feduniewicz-Zmuda[1], Anna Nowakowska-Siwinska[1, 2], Szymon Grzanka[1, 2] and Marcin Siekacz[1, 2]; [1]Institute of High Pressure Physics PAS, Warsaw, Poland; [2]TopGaN Ltd, Warsaw, Poland

9:30 AM B1.5.06

Voltage-Controlled Light Modulation Enabled by Monolithically Integrated HEMT-LED Device Yuefei Cai[1], Xinbo Zou[1, 2], Chao Liu[1] and Kei May Lau[1, 2]; [1]Electronic and Computer Engineering, Hong Kong University of Science and Technology, Kowloon, Hong Kong; [2]HKUST Jockey Club Institute of Advanced Study, Kowloon, Hong Kong

9:45 AM BREAK

B3.3: Photodetectors, Photovoltaics, Intersubband Devices III/F0.5: Novel Materials and Devices V: Photodetectors and Novel Devices
Thursday Morning, October 6, 2016
Room: Poinsettia/Quince

8:00 AM *B3.3.01/F.5.01

Progress in Research on III-Nitride Based Quantum Cascade Detectors Gad Bahir[1], Matias Katz[1], Ofir Sorias[1], Lior Gal[1], Meir Ornstein[1], Piotr M. Mensz[1], Etienne Giraud[2], Nicolas Grandjean[2] and Eva Monroy[3]; [1]Department of Electrical Engineering, Technion-Israel Institute of Technology, Haifa, Israel; [2]Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [3]CEA, Grenoble, France

8:30 AM B3.3.02/F.5.02

High Photocurrent of (In,Ga)N Nanowire Photoanodes Mediated by a Radial Stark Effect Jumpei Kamimura[1], Peter Bogdanoff[2], Pierre Corfdir[1], Oliver Brandt[1], Henning Riechert[1] and Lutz Geelhaar[1]; [1]Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany; [2]Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany

8:45 AM B3.3.03/F.5.03

Physical Property of the High Photosensitive Field Effect Transistor Type UV Photosensors with AlGaN/AlGaN Hetero Structure Akira Yoshikawa[1, 2], Saki Ushida[1], Motoaki Iwaya[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1] and Isamu Akasaki[1, 3]; [1]Faculty of Science and Technology, Meijo University, Fuji Shizuoka, Japan; [2]UVC project, Asahi Kasei, Fuji , Japan; [3]Akasaki Research Center, Nagoya, Japan

9:00 AM B3.3.04/F.5.04

Temperature Dependence in AlGaN-Based Heterostructure Field-Effect Transistor Type UV Photosensors Saki Ushida[3], Akira Yoshikawa[3, 1], Motoaki Iwaya[3], Satoshi Kamiyama[3], Tetsuya Takeuchi[3] and Isamu Akasaki[3, 2]; [1]Asahi-Kasei, Fuji, Japan; [2]Akasaki Research Center, Nagoya University, Nagoya, Japan; [3]Faculty of Science and Technology, Meijo University, Nagoya, Japan

9:15 AM B3.3.05/F.5.05

AlGaN/GaN Micro-Hall Devices for Current Sensing Gregory Salamo[1], Morgan Ware[2], Thomas White[2] and Alan Mantooth[2]; [1]Physics, University of Arkansas, Fayetteville, Arkansas, United States; [2]EE, University of Arkansas, Fayetteville, Arkansas, United States

9:30 AM B3.3.06/F.5.06

Investigation of Thermoelectric Properties in III-Nitride Based Semiconductors Bahadir Kucukgok[1], Na Lu[1] and Ian T. Ferguson[2]; [1]Lyles School of Civil Engineering, Purdue University, West Lafayette, Indiana, United States; [2]College of Engineering and Computing, Missouri University of Science and Technology, Rolla, Missouri, United States

9:45 AM BREAK

C0.4: Electronic Devices IV: Quantum Devices and Sensors
Thursday Morning, October 6, 2016
Room: Narcissus/Orange Blossom

8:00 AM *C0.4.01

Nanostructured GaN Devices—From Ballistic Transport to Superior Device Performance Elison Matioli; Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

8:30 AM C0.4.02

III-Nitride Tunneling Hot Electron Transistors with Current Gain above 10 Zhichao Yang[1], Yuewei Zhang[1], Sriram Krishnamoorthy[1], Digbijoy N. Nath[1], Jacob B. Khurgin[2] and Siddharth Rajan[1]; [1]Electrical and Computer Engineering, Ohio State University, Columbus, Ohio, United States; [2]Electrical and Computer Engineering, Johns Hopkins University, Baltimore, Maryland, United States

8:45 AM C0.4.03

Modeling and Demonstration of High Current MoS_2/GaN Interband Tunnel Junctions Sriram Krishnamoorthy[1], Yuewei Zhang[1], Edwin Lee[1], Choong Hee Lee[1], William D. McCulloch[2], Jared M. Johnson[3], Jinwoo Hwang[3], Yiying Wu[2] and Siddharth Rajan[1, 3]; [1]Electrical and Computer Engineering, Ohio State University, Columbus, Ohio, United States; [2]Department of Chemistry and Biochemistry, Ohio State University, Columbus, Ohio, United States; [3]Department of Material Science and Engineering, Ohio State University, Columbus, Ohio, United States

9:00 AM C0.4.04

A Sub-THz Broadband Detector Based on GaN HEMTs with Nano Antennas Haowen Hou[1, 2], Zhihong Liu[2], Jinghua Teng[3], Tomas Palacios[4] and Soo jin Chua[1, 2]; [1]Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; [2]Singapore-MIT Alliance for Research and Technology Center, Singapore, Singapore; [3]Institute of Materials Research and Engineering, Singapore, Singapore; [4]Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

9:15 AM C0.4.05

Single Crystal III-N Materials for Bulk Acoustic Wave Resonator Applications Shawn R. Gibb, Ramakrishna Vetury, Michael D. Hodge, Pinal Patel, Alexander Y. Feldman, Michael P. Lewis, Mark D. Boomgarden and Jeffrey B. Shealy; Akoustis, Inc., Huntersville, North Carolina, United States

9:30 AM LATE NEWS

9:45 AM BREAK

10:45 AM C0.4.07

Near-Junction Thermal Management of GaN-on-SiC HEMTs via Wafer Bonding Robert M. Radway[1], Kevin R. Bagnall[2], Evelyn N. Wang[2] and Tomas Palacios[1]; [1]Microsystems Technology Laboratories, Massachusetts Institute of Technology, Boston, Massachusetts, United States; [2]Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

11:00 AM C0.4.08

Thermal and Mechanical Characterisation of GaN-on-Diamond Interfaces—Uniformity and Robustness James W. Pomeroy[1], Huarui Sun[1], Dong Liu[1], Roland B. Simon[1], Daniel Francis[2], Firooz Faili[2], Daniel J. Twitchen[2] and Martin Kuball[1]; [1]Center for Device Thermography and Reliability, H.H. Wills Physics Laboratory, University Of Bristol, Bristol, United Kingdom; [2]Element Six Technologies U.S. Corporation, Santa Clara, California, United States

11:15 AM C0.4.09

High Temperature Operation of Diamond Coated AlGaN/GaN High Electron Mobility Transistor Gabriel Vanko[1], Tibor Izak[2], Jaroslav Dzuba[1], Oleg Babchenko[1], Vit Jirasek[2], Tibor Lalinsky[1], Marian Vojs[3] and Alexander Kromka[2]; [1]Department of Microelectronics and Sensors, Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia; [2]Institute of Physics AS CR, Prague, Czech Republic; [3]Institute of Electronics and Photonics STU, Bratislava, Slovakia

11:30 AM C0.4.10

Low Thermal Resistance GaN Grown on Polycrystalline Diamond Huarui Sun[2, 1], Richard F. Webster[2], Quanzhong Jiang[3], Ian Griffiths[2], David Cherns[2], Duncan Allsopp[3] and Martin Kuball[2]; [1]Harbin Institute of Technology (Shenzhen), Shenzhen, China; [2]H.H. Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom; [3]Department of Electronic and Electrical Engineering, University of Bath, Bath, United Kingdom

11:45 AM C0.4.11

Thermal Time Constants of GaN HEMTs Kevin R. Bagnall and Evelyn N. Wang; Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

12:00 PM C0.4.12

Thermal Management in GaN HEMTs—Power Switching versus RF Devices James W. Pomeroy, Maire Power, Michael J. Uren and Martin Kuball; Center for Device Thermography and Reliability, H.H. Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom

12:15 PM C0.4.13

Investigation of the Thermal Properties of Bulk GaN and High Growth Rate MBE GaN Luke Yates[1], Wenkan Jiang[2], Jonathan Cook[2], Derrick S. Kamber[2], Rajeev T. Pakalapati[2], Dirk Ehrentraut[2], Mark D'Evelyn[2], Evan Clinton[3], Brendan Gunning[3], Alan Doolittle[3] and Samuel Graham[1]; [1]Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Soraa Inc., Goleta, California, United States; [3]Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States

D1.7: Materials Characterization VII: Characterization of Electronic Devices
Thursday Morning, October 6, 2016
Room: International North

8:00 AM *D1.7.01

Traps and Their Effects in High Voltage GaN/Si HEMTs and Ultra-Wide Bandgap Semiconductors Steven A. Ringel and Aaron Arehart; Electrical and Computer Engineering, Ohio State University, Columbus, Ohio, United States

8:30 AM D1.7.02

Analysis of Carrier Trapping and Emission in AlGaN/GaN HEMT with Bias-Controllable Field Plate Suguru Mase, Akio Wakejima and Takashi Egawa; Nagoya Institute of Technology, Nagoya, Japan

8:45 AM D1.7.03

Wafer-Level Mapping of Net Donor and Deep-Level Trap Concentrations in MOVPE-Grown Homoepitaxial n-Type GaN Masahiro Horita[1], Tetsuo Narita[2], Tetsu Kachi[2], Tsutomu Uesugi[2] and Jun Suda[1]; [1]Electronic Science and Engineering, Kyoto University, Kyoto, Japan; [2]Toyota Central R&D Labs., Inc., Nagakute, Japan

9:00 AM D1.7.04

Spatially Correlating the E_C-0.57 eV Trap in GaN with Edge Dislocations Kevin Galiano[1], Julia Deitz[2], Santino Carnevale[3], Darryl A. Gleason[1], Zeng Zhang[3], Brian McSkimming[4], James S. Speck[4], Steven A. Ringel[3], Tyler J. Grassman[2], Aaron A. Arehart[3] and Jonathan P. Pelz[1]; [1]Physics, Ohio State University, Columbus, Ohio, United States; [2]Materials Science and Engineering, Ohio State University, Columbus, Ohio, United States; [3]Electrical & Computer Engineering, Ohio State University, Columbus, Ohio, United States; [4]Materials, University of California, Santa Barbara, Santa Barbara, California, United States

9:15 AM D1.7.05
Photocurrent Induced by Sub-Bandgap-Wavelength Light Absorption due to Franz-Keldysh Effect in n-Type GaN Schottky Barrier Diode under Large Reverse Bias Takuya Maeda[1], Masaya Okada[2], Masaki Ueno[2], Yoshiyuki Yamamoto[2], Masahiro Horita[1] and Jun Suda[1]; [1]Kyoto University, Kyoto, Japan; [2]Sumitomo Electric Industries, Ltd., Itami, Hyogo 664-0016, Japan

9:30 AM D1.7.06
Hot Electron Electroluminescence in GaN-Based Transistors—Origin of the Emission Tommaso Brazzini[1], Huarui Sun[1], Francesco Sarti[2], James W. Pomeroy[1], Chris Hodges[1], Massimo Gurioli[2], Anna Vinattieri[2], Michael J. Uren[1] and Martin Kuball[1]; [1]H. H. Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom; [2]Dipartimento di Fisica e Astronomia and LENS, University of Florence, Firenze, Italy

9:45 AM BREAK

D2.3: Theory and Simulation III:
Theory of Point Defects and Modeling of Optoelectronic Devices
Thursday Morning, October 6, 2016
Room: Azalea/Begonia

8:00 AM *D2.3.01
Point-Defect-Assisted Nonradiative Recombination in Nitride Light Emitters Audrius Alkauskas; Center for Physical Sciences and Technology, Vilnius, Lithuania

8:30 AM D2.3.02
Predicting the Influence of Point Defects on the Optoelectronic Properties of Gallium Nitride using a First-Principles Approach Kirk Lewis, Masahiko Matsubara, Enrico Bellotti and Sahar Sharifzadeh; Boston University, Lexington, Massachusetts, United States

8:45 AM D2.3.03
Implications of Point Defects on III-Nitride Tunnel Devices Darshana Wickramaratne[1], John L. Lyons[1, 2], Cyrus E. Dreyer[1, 3], Leigh Weston[1] and Chris G. Van de Walle[1]; [1]Materials Department, University of California, Santa Barbara, Santa Barbara, California, United States; [2]Brookhaven National Laboratory, Upton, New York, United States; [3]Department of Physics and Astronomy, Rutgers University, Piscataway, New Jersey, United States

9:00 AM D2.3.04
First Principles Study of the Formation Energies and Diffusion Barriers of Carbon and Native Defects in GaN Alexandros Kyrtsos, Masahiko Matsubara and Enrico Bellotti; Electrical and Computer Engineering, Boston University, Boston, Massachusetts, United States

9:15 AM D2.3.05
Carbon in Gallium Nitride—Resolving of a Longstanding Mystery Dimiter Alexandrov; Electrical Engineering, Lakehead University, Thunder Bay, Canada

9:30 AM D2.3.06
Enhancement of Optical Gain by Controlling Waveguide Modes in Semipolar InGaN Quantum Well Laser Diodes Shigeta Sakai, Keigo Matsuura and Atsushi A. Yamaguchi; Kanazawa Institute of Technology, Nonoichi, Japan

9:45 AM BREAK

10:15 AM D2.3.07
Model to Explain the Behavior of 2DEG Mobility with Respect to Charge Density in N-Polar and Ga-Polar AlGaN-GaN Heterostructures Elaheh Ahmadi, Matthew Guidry, Stacia Keller and Umesh K. Mishra; University of California, Santa Barbara, Santa Barbara, California, United States

10:30 AM D2.3.08
The Effects of Non-Equilibrium Phonons on Transport in GaN Angela Dyson[1], Daniel R. Naylor[1] and Brian K. Ridley[2]; [1]Physics and Math, University of Hull, Hull, United Kingdom; [2]Department of Computer Science and Electronic Engineering, University of Essex, Colchester, United Kingdom

10:45 AM D2.3.09
Multiscale Modeling of Thermal and Electrical Transport in Gallium Nitride High Electron Mobility Transistor Ajit K. Vallabhaneni, Man P. Gupta and Satish Kumar; ME, Georgia Institute of Technology, Atlanta, Georgia, United States

11:00 AM D2.3.10
Challenges and Opportunities in Modeling Gallium Nitride High Electron Mobility Transistors— From Numerical Simulations to Compact Transistor Model Shaloo Rakheja[1, 2] and Parijat Sengupta[3]; [1]Electrical and Computer Engineering, New York University, Brooklyn, New York, United States; [2]NYU Wireless, New York University, Brooklyn, New York, United States; [3]Photonics Center, Boston University, Boston, Massachusetts, United States

11:15 AM D2.3.11
GaN-Based Digital Electronics beyond '3.5 nm' Technology Node Nadim Chowdhury[1], Giuseppe Iannaccone[2], Gianluca Fiori[2] and Tomas Palacios[1]; [1]EECS, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States; [2]Dipartimento di Ingegneria dell'Informazione, Università di Pisa, Pisa, Italy

11:30 AM D2.3.12
Multifunctional Flexible III-Nitride-Based Electronic and Photonic Devices—Numerical Study on Device Performance Characteristics and New Functionality by External Bending Strain Shahab Shervin[1], Seung-Hwan Kim[1, 2], Mojtaba Asadirad[1], Keon-Hwa Lee[1] and Jae-Hyun Ryou[1]; [1]University of Houston, Houston, Texas, United States; [2]Hongik University, Seoul, Korea (the Republic of)

11:45 AM LATE NEWS

E0.4: Nanostructures IV: (In,Ga)N Nanostructures: Optoelectronic Devices and Properties
Thursday Morning, October 6, 2016
Room: Camelia/Dogwood

8:00 AM *E0.4.01
Nanowire-Based Blue-, Green- and Red-Emitting LEDs for Displays and Lighting Lars Samuelson; NanoLund/Solid State Physics, Lund University, Lund, Sweden

8:30 AM E0.4.02
Interplay of Internal and Build-In Fields in GaN/InGaN Core-Shell Nanocolumn Devices Wolf Quitsch[1], Sebastian Beuel[1], Moritz Loewenich[1], Tilman Schimpke[2], Adrian Avramescu[2], Martin Strassburg[2] and Gerd Bacher[1]; [1]Electronic Materials and Nanostructures and CeNIDE, University Duisburg-Essen, Duisburg, Germany; [2]OSRAM Opto Semiconductors GmBH, Regensburg, Germany

8:45 AM E0.4.03
Correlated Electroluminescence, Cathodoluminescence and Electron Beam Induced Current Mapping of Core-Shell Nanowire InGaN/GaN LEDs Valerio Piazza[1], Hezhi Zhang[1], Vladimir Neplokh[1], Gwenole Jacopin[2], Olga Kryliouk[3], Ludovic Largeau[4], Pierre Rale[4], Stephane Collin[4] and Maria Tchernycheva[1]; [1]IEF, Université Paris Sud, Orsay, France; [2]EPFL, Lausanne, Switzerland; [3]GLO-USA, Sunnyvale, California, United States; [4]LPN, Université Paris Sud, Marcoussis, France

9:00 AM E0.4.04
Anomalous Behavior of Temperature-Dependent Photoluminescence in GaN/InGaN Core-Shell Nanostructures Mohsen Nami[2], Serdal Okur[3], Rhett. Eller[2], Ashwin Rishinaramangalam[3], Sheng Liu[1], Igal Brener[1] and Daniel Feezell[3]; [1]Center for Integrated Nanotechnologies, Albuquerque, New Mexico, United States; [2]Physics and Astronomy, University of New Mexico, Albuquerque, New Mexico, United States; [3]Center for High Technology Materials, University of New Mexico, Albuquerque, New Mexico, United States

9:15 AM E0.4.05
Systematic Investigation of Influence of Nanostructural Effect on Optical Properties in InGaN Nanocolumns Takao Oto[1], Yutaro Mizuno[1], Ai Yanagihara[1], Rin Miyagawa[1], Tatsuya Kano[1], Jun Yoshida[1], Naoki Sakakibara[1] and Katsumi Kishino[1, 2]; [1]Sophia University, Tokyo, Japan; [2]Sophia Nanotechnology Research Center, Tokyo, Japan

9:30 AM E0.4.06
Recombination Dynamics in Planar and 3D InGaN/GaN LED Structures Angelina Vogt[1], Jana Hartmann[1], Hao Zhou[1], Matin S. Mohajerani[1], Sonke Fuendling[1], Manuela Gerken[1], Hergo H. Wehmann[1], Martin Strassburg[2], Tilman Schimpke[2], Andreas Waag[1] and Tobias Voss[1]; [1]Institute of Semiconductor Technology and Laboratory for Emerging Nanometrology, Braunschweig University of Technology, Braunschweig, Germany; [2]OSRAM Opto Semiconductors GmbH, Regensburg, Germany

9:45 AM BREAK

10:45 AM *E0.4.07

Group III-Nitride Nanostructures for Solid State Lighting and Quantum Photonics Yong-Hoon Cho; Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea (the Republic of)

11:15 AM E0.4.08

Spectrally-Resolved Internal Quantum Efficiency and Carrier Dynamics in Semipolar (10-11) Triangular Nanostripe InGaN/GaN LEDs Serdal Okur[1], Ashwin K. Rishinaramangalam[1], Saadat M. Ul Masabih[1], Sheng Liu[2], Igal Brener[2] and Daniel F. Feezell[1]; [1]Electrical and Computer Engineering, University of New Mexico, Albuquerque, New Mexico, United States; [2]Center of Integrated Nanotechnologies, Sandia National Laboratories, Albuquerque, New Mexico, United States

11:30 AM E0.4.09

Fabrication and Control of III-Nitride Nanowire Lasers George T. Wang[1], Changyi Li[2], Sheng Liu[1], Qiming Li[1], Jeremy B. Wright[1], Benjamin Leung[1], Huiwen Xu[2], Daniel D. Koleske[1], Jeffrey J. Figiel[1], Ganapthi Subramania[1], Ting S. Luk[1], Igal Brener[1], Ganesh Balakrishnan[2], Daniel Feezell[2] and Steven R. Brueck[2]; [1]Sandia National Laboratories, Albuquerque, New Mexico, United States; [2]Center for High Technology Materials, University of New Mexico, Albuquerque, New Mexico, United States

11:45 AM E0.4.10

Optimisation of the Fabrication of InGaN/GaN Nanoring/Nanotube for Whispering Gallery Modes (WGMs) Based Laser Pierre-Marie Coulon, Emmanuel Le Boulbar, Philip Shields and Duncan Allsopp; Electronic and Electrical Engineering, University of Bath, Bath, United Kingdom

12:00 PM E0.4.11

Far-Field Enhancement in High-Q Blue III-Nitride Photonic Crystal Nanobeam Cavities on Silicon Ian Rousseau, Irene Sanchez-Arribas, Jean-Francois Carlin, Raphael Butte and Nicolas Grandjean; Institute of Physics, EPFL, Lausanne, Switzerland

12:15 PM E0.4.12

Facet Evolution in GaN Chemical Etching for 3D Structures and Optical Microcavities Miao-Chan Tsai[1], Benjamin Leung[2], Changyi Li[1], Ganesh Balakrishnan[1] and George T. Wang[2]; [1]Center for High Technology Materials, University of New Mexico, Albuquerque, New Mexico, United States; [2]Sandia National Laboratories, Albuquerque, New Mexico, United States

A1.4: Bulk Growth IV/A2.8: Epitaxial Growth VIII:
Tri-Halide Vapor Epitaxy of (In,Ga)N and Doping of GaN
Thursday Morning, October 6, 2016
Room: International South

10:45 AM *A1.4.01/A2.8.01

Recent Progress in Tri-Halide Vapor Phase Epitaxy of Thick GaN and InGaN Hisashi Murakami; Department of Applied Chemistry, Tokyo University of Agriculture and Technology, Tokyo, Japan

11:15 AM A1.4.02/A2.8.02

Carbon Doping by Propane for the Compensation of n-Type GaN Layers Andreas Lesnik, Marc P. Hoffmann, Juergen Blasing, Hartmut Witte, Florian Horich, Peter Veit, Jonatan Meiske, Aqdas Fariza, Jonas Hennig, Armin Dadgar and Andre Strittmatter; Institut für Experimentelle Physik, Magdeburg, Germany

11:30 AM A1.4.03/A2.8.03

Control of Carbon in MOCVD-Grown GaN for Power Devices by Supersaturation and Fermi Level Control Felix Kaess[1, 2], Seiji Mita[1], Jinqiao Xie[3], Pramod Reddy[1], Andrew Klump[1], Luis H. Hernandez-Balderrama[1], Shun Washiyama[1], Alexander Franke[1], Ronny Kirste[1], Axel Hoffmann[2], Ramon Collazo[1] and Zlatko Sitar[1]; [1]Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States; [2]Solid State Physics Institute, Technical University Berlin, Berlin, Germany; [3]HexaTech Inc., Morrisville, North Carolina, United States

11:45 AM A1.4.04/A2.8.04

Mg Blocking by GaN Grown via Low Temperature Flow Modulation Epitaxy Anchal Agarwal, Maher Tahhan, Stacia Keller and Umesh K. Mishra; Electrical and Computer Engineering, University of California, Santa Barbara, Goleta, California, United States

12:00 PM A1.4.05/A2.8.05

Electrical Characteristics and Control of Compensating Point Defects for Mg-Doped GaN Andrew Klump, Felix Kaess, Seiji Mita, Ronny Kirste, Ramon Collazo and Zlatko Sitar; MSE, North Carolina State University, Raleigh, North Carolina, United States

12:15 PM A1.4.06/A2.8.06

High Hole Mobility p-Type GaN with Extremely Low Residual Hydrogen Concentration Prepared by Pulsed Sputtering Kohei Ueno[1], Y. Arakawa[1], Atsushi Kobayashi[1], Jitsuo Otha[1, 2] and Hiroshi Fujioka[1, 3]; [1]Institute of Industrial Science, University of Tokyo, Tokyo, Japan; [2]JST-PRESTO, Tokyo, Japan; [3]JST-ACCEL, Tokyo, Japan

B1.6: Visible Devices VI: Light Emitters: Lasers
Thursday Morning, October 6, 2016
Room: International Center

10:45 AM B1.6.01
GaN-on-Si UV LED and Blue/Violet Laser Diode Qian Sun; Nano-Device Division, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou, China

11:00 AM B1.6.02
Design and Fabrication of Modulation-Doped GaN-Based Vertical Cavities for Blue Surface-Emitting Lasers Junichiro Ogimoto, Yugo Kozuka, Takanobu Akagi, Natsumi Hayashi, Tetsuya Takeuchi, Satoshi Kamiyama, Motoaki Iwaya and Isamu Akasaki; Factory of Science and Engineering, Meijo University, Nagoya, Japan

11:15 AM B1.6.03
Aluminum-Free Blue Laser Diodes Grown by Plasma Assisted Molecular Beam Epitaxy Grzegorz Muziol[1], Marcin Siekacz[1, 2], Henryk Turski[1], Szymon Grzanka[1, 2], Marcin Krysko[1], Jolanta Borysiuk[3, 4], Piotr Perlin[1, 2] and Czeslaw Skierbiszewski[1, 2]; [1]Institute of High Pressure Physics Polish Academy of Sciences, Warsaw, Poland; [2]TopGaN Ltd, Warsaw, Poland; [3]Institute of Physics Polish Academy of Sciences, Warsaw, Poland; [4]Faculty of Physics, University of Warsaw, Warsaw, Poland

11:30 AM B1.6.04
All-Nitride, Optically Pumped VCSELs in Blue and Near UV Cheng Zhang, Kanglin Xiong, Ge Yuan and Jung Han; Electrical Engineering, Yale University , New Haven, Connecticut, United States

11:45 AM B1.6.05
Optically Pumped Distributed Feedback Lasers Based on GaN with 10th-Order Laterally Coupled Surface Gratings Ji Hye Kang[2], Martin Martens[1], Hans Wenzel[2], Veit Hoffmann[2], Wilfred John[2], Sven Einfeldt[2], Tim Wernicke[1] and Michael Kneissl[2, 1]; [1]Technische Universität Berlin, Berlin, Germany; [2]Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany

12:00 PM B1.6.06
Opto-Electrical Properties of (Al,In)GaN Laser Diodes with Tapered Waveguide Szymon Stanczyk[1], Anna Kafar[1], Anna Nowakowska-Siwinska[2], Irina Makarowa[2], Marcin Sarzynski[1, 2], Jaroslaw Walczak[3], Robert P. Sarzala[3], Tadeusz Suski[1] and Piotr Perlin[1, 2]; [1]Institute of High Pressure Physics Polish Academy of Science, Warsaw, Poland; [2]TopGaN Ltd., Warsaw, Poland; [3]Institute of Physics, Lodz University of Technology, Lodz, Poland

12:15 PM B1.6.07
Impact of Mode-Hopping Noise on InGaN Edge Emitting Laser RIN Properties Antoine Congar[1], Kamal Hussain[1], Christelle Pareige[1], Jean-Michel Lamy[2], Eric Feltin[3], Raphael Butte[2], Nicolas Grandjean[2], Pascal Besnard[1] and Stephane Trebaol[1]; [1]Laboratory Foton CNRS UMR 6082, Lannion, France; [2]LASPE EPFL, Lausanne, Switzerland; [3]Novagan, Lausanne, Switzerland

D1.8: Materials Characterization VIII: Characterization of (Al,Ga)N
Thursday Morning, October 6, 2016
Room: International North

10:45 AM *D1.8.01

Radiative and Nonradiative Recombination Processes in AlGaN-Based Quantum Wells Yoichi Kawakami and Mitsuru Funato; Electronic Science and Engineering, Kyoto University, Kyoto, Japan

11:15 AM D1.8.02

Well Width Dependence of Radiative Lifetime in Ultrathin Al-Rich AlGaN/AlN Multiple Quantum Wells Chelsea R. Haughn[1], Thomas Wunderer[2], Zhihong Yang[2], Noble M. Johnson[2], Michael Wraback[1] and Gregory A. Garrett[1]; [1]Sensors and Electron Devices Directorate, U.S. Army Research Laboratory, Adelphi, Maryland, United States; [2]Palo Alto Research Center, Palo Alto, California, United States

11:30 AM D1.8.03

Confinement-Enhanced Biexciton Binding Energy in AlGaN-Based Quantum Wells Taira Izumi[1], Shumpei Fukuchi[1], Nobuto Imura[1], Hideaki Murotani[1], Hideto Miyake[2], Kazumasa Hiramatsu[2] and Yoichi Yamada[1]; [1]Yamaguchi University, Ube, Japan; [2]Mie University, Tsu, Japan

11:45 AM D1.8.04

Surface-Related Effects on the Temporal Change in (Al)GaN Photoluminescence Intensity Carsten Netzel, Joerg Jeschke, Frank Brunner and Markus Weyers; Materials Technology, Ferdinand-Braun-Institute, Berlin, Germany

12:00 PM D1.8.05

Investigation of Deep Levels in High-Al Mole Fraction $Al_{0.75}Ga_{0.25}N$ Towhidur Razzak, Christine M. Jackson, Sanyam Bajaj, Fatih Akyol, Siddharth Rajan, Aaron R. Arehart and Steven A. Ringel; Department of Electrical and Computer Engineering, The Ohio State University, Columbus, Ohio, United States

12:15 PM D1.8.06

Detailed Photoluminescence Excitation Study of the 3.9 eV and 2.7 eV Defect Luminescence Bands and the Commonly Observed Deep UV Absorption at 4.7 eV Dorian E. Alden[1], Joshua Harris[1], Zachary Bryan[1], Isaac Bryan[1], Benjamin Gaddy[1], Gordon Callsen[2], Axel Hoffmann[2], Douglas Irving[1], Ramon Collazo[1] and Zlatko Sitar[1]; [1]Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States; [2]Fakultät für Festkörperphysik, Technische Universität Berlin, Berlin, Germany

F0.6: Novel Materials and Devices VI: Watersplitting and Sensors
Thursday Morning, October 6, 2016
Room: Poinsettia/Quince

10:45 AM *F0.6.01

High Efficiency Solar Fuels Generation on III-Nitride Nanostructures Zetian Mi, Shizhao Fan and Faqrul Chowdhury; McGill University, Montreal, Canada

11:15 AM F0.6.02

Photocatalytic Properties of InGaN/GaN Nanowires Functionalized with Ultrathin Oxide Films Paula Neuderth[1], Pascal Hille[1], Joerg Teubert[1], Jorg Schormann[1], Christian Reitz[2], Sara Marti-Sanchez[3], Maria de la Mata[3], Mariona Coll[4], Jordi Arbiol[3, 5], Roland Marschall[6] and Martin Eickhoff[1]; [1]I. Physical Institute, Justus Liebig University, Giessen, Germany; [2]Institute of Nanotechnology, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; [3]Institute of Science and Technology, Autonomous University of Barcelona, Barcelona, Spain; [4]Institute of Materials Science, Autonomous University of Barcelona, Barcelona, Spain; [5]Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain; [6]Institute of Physical Chemistry, Justus Liebig University, Giessen, Germany

11:30 AM F0.6.03

Visible Light Responding InGaN/AlN/GaN Polarization Engineered Water Splitting Photocathode Akihiro Nakamura[1], Katsushi Fujii[2], Yoshiaki Nakano[1] and Masakazu Sugiyama[1]; [1]School of Engineering, University of Tokyo, Bunkyo, Japan; [2]Institute of Environmental Science and Technology, University of Kitakyushu, Kitakyushu, Japan

11:45 AM F0.6.04

Realization of Robust Photoelectrochemical Water Splitting System with Enhanced Conversion Efficiency using 1.65 eV InGaN Nanowires on Bulk-Metal Substrates Mohamed Ebaid[1], Davide Priante[1], Guangyu Liu[1], Chao Zhao[1], Tayirjan T. Isimjan[2], Tien K. Ng[1] and Boon S. Ooi[1]; [1]Computer, Electrical, and Mathematical Sciences and Engineering, King Abdullah University of Science and Technology, Jeddah, Saudi Arabia; [2]SABIC, Thuwal, Saudi Arabia

12:00 PM F0.6.05

GaN Sub-MicronRod Ultrahigh Sensitivity Mechanical Sensor Hua Zong and Xiaodong Hu; Department of Physics, Peking University, Beijing, China

12:15 PM F0.6.06

Flexible Capacitive Piezoelectric Sensors Based on GaN Wires—Physics and Realization Amine El Kacimi[2, 3], Emmanuelle Pauliac-Vaujour[2, 3] and Joel Eymery[1, 3]; [1]INAC, CEA Grenoble, Grenoble, France; [2]CEA, LETI, MINATEC Campus, Grenoble, France; [3]University Grenoble Alpes, Grenoble, France

A2.9: Epitaxial Growth IX: Epitaxial Growth of N-Polar Nitrides and GaN-on-Si
Thursday Afternoon, October 6, 2016
Room: International South

2:00 PM A2.9.01

Role of Low Temperature Buffers for Polarity Control of III-Nitrides on Sapphire Stefan Mohn[1], Natalia Stolyarchuk[1, 3], Toni Markurt[1], Ronny Kirste[2], Marc P. Hoffmann[2], Ramon Collazo[2], Aimeric Courville[3], Zlatko Sitar[2], Philippe Vennegues[3] and Martin Albrecht[1]; [1]Electronmicroscopy, Leibniz Institute for Crystal Growth, Berlin, Germany; [2]Material Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States; [3]Centre de Recherche sur l'HétéroEpitaxie et ses Applications, Valbonne, France

2:15 PM A2.9.02

Growth of High Quality N-Polar $In_xGa_{1-x}N$ Films with x > 0.4 for Tunnel Junction Devices Cory Lund[1], Brian Romanczyk[1], Massimo Catalano[2], Qingxiao Wang[3], Wenjun Li[4], Steven P. DenBaars[5], Shuji Nakamura[5], Moon Kim[3], Patrick Fay[4], Umesh K. Mishra[1] and Stacia Keller[1]; [1]Electrical and Computer Engineering, University of California, Santa Barbara, Santa Barbara, California, United States; [2]Institute for Microelectronics and Microsystems CNR, Lecce, Italy; [3]Material Science Engineering, University of Texas, Dallas, Dallas, Texas, United States; [4]Electrical Engineering, University of Notre Dame, Notre Dame, Indiana, United States; [5]Materials, University of California, Santa Barbara, Santa Barbara, California, United States

2:30 PM A2.9.03

Control of Impurity Concentration of Undoped N-Polar (000-1) GaN Grown by Metalorganic Vapor Phase Epitaxy Tomoyuki Tanikawa, Shigeyuki Kuboya and Takashi Matsuoka; Institute for Materials Research, Tohoku University, Sendai, Japan

2:45 PM A2.9.04

Improvement of Homogeneity in N-Polar (000–1) InGaN Grown by Metalorganic Vapor Phase Epitaxy Ryohei Nonoda, Tanikawa Tomoyuki, Kanako Shojiki, Takeshi Kimura, Shinji Tanaka, Shigeyuki Kuboya, Ryuji Katayama and Takashi Matsuoka; Institute for Materials Research, Tohoku University, Sendai, Japan

3:00 PM A2.9.05

Selective Area Growth of High Crystalline Quality N-Polar GaN Pseudo-Substrates on Si (100) Gautier Laval[1], Nicolas Mante[1], Guy Feuillet[1], Pierre Ferret[1], Nevine Rochat[1], Sylvain David[2], Thierry Baron[2] and Amelie Dussaigne[1]; [1]University of Grenoble Alpes, CEA LETI, Grenoble, France; [2]University of Grenoble Alpes, CNRS-LTM, Grenoble, France

3:15 PM A2.9.06

Control of Stress, Bow, and Dislocation Density in (0001) AlN/GaN Superlattices Grown on Silicon Mikhail Rudinsky, Anna Lobanova, Eugene Yakovlev and Roman Talalaev; STR Group – Soft-Impact, Ltd., St.-Petersburg, Russian Federation

3:30 PM A2.9.07

Study of AlN Nucleation by Directional Sputtering for Growth of Orientation-Controlled GaN on Si(001) Substrates Hojun Lee[1], Si-Young Bae[2], Kaddour Lekhal[2], Akira Tamura[1], Yoshio Honda[2] and Hiroshi Amano[2, 3]; [1]Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; [2]Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; [3]Akasaki Research Center, Nagoya University, Nagoya, Japan

3:45 PM BREAK

B1.7: Visible Devices VII: Light Emitters and their Degradation
Thursday Afternoon, October 6, 2016
Room: International Center

2:00 PM B1.7.01

Nitride Superluminescent Diodes with Broadband Emission Spectra Realized by Step-Like Indium Content Profile Anna Kafar[1], Szymon Stanczyk[1], Marcin Sarzynski[1, 2], Szymon Grzanka[1, 2], Jakub Goss[1], Tadeusz Suski[1] and Piotr Perlin[1, 2]; [1]Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; [2]TopGaN Ltd., Warsaw, Poland

2:15 PM B1.7.02

Fabrication and Characterization of GaN Based White Light-Emitting Diode without Phosphor Seung-Hyuk Lim, Young-Ho Ko, Christophe Rodriguez, Su-Hyun Gong and Yong-Hoon Cho; Physics, KAIST, Daejeon, Korea (the Republic of)

2:30 PM B1.7.03

Practical Method of Fabrication of High Quality Micrometer Size InGaN Light Emitting Diode Krzysztof J. Gibasiewicz[1], Jacek Kacperski[2], Irina Makarowa[1, 2], Szymon Grzanka[1, 2], Tadeusz Suski[1] and Piotr Perlin[1, 2]; [1]Semiconductor, Institute of High Pressure Physics, ''Unipress", Warsaw, Poland; [2]TopGaN, Warsaw, Poland

2:45 PM B1.7.04

Defect Repair of GaN-Based LEDs by Ultraviolet Laser Processing Thorsten Passow[1], Michael Kunzer[1], Alexander Pfeuffer[2], Michael Binder[2] and Joachim Wagner[1]; [1]Fraunhofer-Institut für Angewandte Festkörperphysik, Freiburg, Germany; [2]Osram Opto Semiconductors GmbH, Regensburg, Germany

3:00 PM B1.7.05

Changes of Indium Distribution within the InGaN MQWs in LED and LD Structures just before Their Decomposition Ewa Grzanka[1, 2], Szymon Grzanka[1, 2], Julita Smalc-Koziorowska[1, 2], Robert Czernecki[1, 2], Slawomir Kret[3], Tadeusz Suski[1], Piotr Perlin[1, 2] and Michal Leszczynski[1, 2]; [1]Polish Academy of Sciences, Institute of High Pressure Physics, Warsaw, Poland; [2]TopGaN LTD, Warsaw, Poland; [3]Polish Academy of Sciences, Institute of Physics, Warsaw, Poland

3:15 PM B1.7.06
Time-Dependent Breakdown in GaN-Based LEDs—Description and Physical Origin Carlo De Santi, Matteo Meneghini, Matteo Buffolo, Gaudenzio Meneghesso and Enrico Zanoni; Department of Information Engineering, University of Padova, Padova, Italy

3:30 PM LATE NEWS

3:45 PM BREAK

B2.4: UV Devices IV: UV Emitters
Thursday Afternoon, October 6, 2016
Room: Azalea/Begonia

2:00 PM B2.4.01
AlGaN DBR and Microcavities for Deep UV Vertical Emitting Laser Alexander Franke[1], Felix Kaess[1], Marc P. Hoffmann[1], James Tweedie[1, 2], Ronny Kirste[1, 2], Milena Bobea-Graziano[1], Edward Sachet[1], Jon-Paul Maria[1], Michael Gerhold[3], Ramon Collazo[1] and Zlatko Sitar[1]; [1]Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States; [2]Adroit Materials, Raleigh, North Carolina, United States; [3]Engineering Sciences Directorate, Army Research Office, Research Triangle Park, North Carolina, United States

2:15 PM B2.4.02
Sub 250nm Deep-UV AlGaN/AlN Distributed Bragg Reflectors Grown by Metalorganic Chemical Vapor Deposition Theeradetch Detchprohm[1], Yuh-Shiuan Liu[1], Karan Mehta[1], Young Jae Park[1], Shuo Wang[2], Tsung-Ting Kao[1], Shyh-Chiang Shen[1], Paul D. Yoder[1], Fernando Ponce[2] and Russell D. Dupuis[1, 3]; [1]Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States; [2]Physics, Arizona State University, Tempe, Arizona, United States; [3]Materials Science Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States

2:30 PM B2.4.03
Design of p-AlGaN Layers for Efficient Carrier Injection in Deep Ultraviolet Light-Emitting Diodes Masafumi Jo and Hideki Hirayama; RIKEN, Wako, Japan

2:45 PM B2.4.04
Graphene-Based *p*-Electrodes for Deep UV Light Emitting Diodes Luca Sulmoni[1], Marc A. Gluba[2], Norbert H. Nickel[2], Frank Mehnke[1], Christian Kuhn[1], Johannes Enslin[1], Tim Wernicke[1] and Michael Kneissl[1]; [1]Institute of Solid State Physics, Technische Universität Berlin, Berlin, Germany; [2]Institut für Silizium-Photovoltaik, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany

3:00 PM B2.4.05
Hole Accumulations to Polarization Charges in Relaxed AlGaN Heterostructures with High AlN Mole Fractions Toshiki Yasuda[1], Tetsuya Takeuchi[1], Motoaki Iwaya[1], Satoshi Kamiyama[1], Isamu Akasaki[1, 2] and Hiroshi Amano[2]; [1]Meijo University, Nagoya, Japan; [2]Nagoya University, Nagoya, Japan

3:15 PM B2.4.06

Cluster Contact Behavior in p-GaN Grown on Sapphire and AlN Substrate Biplab Sarkar, Andrew Klump, Seiji Mita, Pramod Reddy, Erhard Kohn, Ronny Kirste, Ramon Collazo and Zlatko Sitar; North Carolina State University, Raleigh, North Carolina, United States

3:30 PM B2.4.07

Low Resistivity Ohmic Contact V-Based Electrode Contributed by Using Thin SiN_x Intermediate Layer for High AlN Molar Fraction n-Type AlGaN Noriaki Nagata[1], Takashi Senga[1], Motoaki Iwaya[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1] and Isamu Akasaki[1, 2]; [1]Faculty of Science and Technology, Meijo University, Nagoya, Japan; [2]Akasaki Research and Technology, Nagoya University, Nagoya, Japan

3:45 PM BREAK

C2.3: Power Devices III: Devices for Power Electronics III
Thursday Afternoon, October 6, 2016
Room: Narcissus/Orange Blossom

2:00 PM *C2.3.01

Enhancement-Mode GaN-Based MIS-HEMTs for Dynamic Voltage Power Supply Applications Sen Huang, Xinhua Wang, Xuanwu Kang, Ke Wei and Xinyu Liu; Institute of Microelectronics of Chinese Academy of Sciences, Beijing, China

2:30 PM C2.3.02

Normally-off HEMTs with p-GaN Gate—Stability and Lifetime Extrapolation Gaudenzio Meneghesso[1], Matteo Meneghini[1], Isabella Rossetto[1], Vanessa Rizzato[1], Steve Stoffels[2], Marleen Van Hove[2], Tian-Li Wu[2], Shuzhen You[2], Niels Posthuma[2], Stefaan Decoutere[2] and Enrico Zanoni[2]; [1]University of Padova, Padova, Italy; [2]IMEC, Heverlee, Belgium

2:45 PM C2.3.03

Normally-off AlGaN/GaN-on-Si Metal-Oxide-Semiconductor-Heterojunction Field-Effect Transistor with an Integrated Single Stage GaN Inverter as a Gate Driver Sang-Woo Han, Sung-Hoon Park, Hyun-Seop Kim, Min-Gi Jo and Ho-Young Cha; Hongik University, Seoul, Korea (the Republic of)

3:00 PM C2.3.04

An AlGaN/GaN Field Effect Diode with a High Turn-On Voltage Controllability Naoki Kato[1], Takaya Nagai[1], Akio Wakejima[1], Yamato Osada[2], Ryuichiro Kamimura[2], Kenji Itou[3] and Takashi Egawa[1]; [1]Nagoya Institute of Technology, Nagoya, Japan; [2]ULVAC Corporation, Shizuoka, Japan; [3]Kanazawa Institute of Technology, Kanazawa, Japan

3:15 PM C2.3.05

High-Performance Quasi- and Fully-Vertical GaN-on-Si pn Diodes Yuhao Zhang[1], Min Sun[1], Daniel Piedra[1], Lili Yu[1], Jonas Hennig[2], Armin Dadgar[2] and Tomas Palacios[1]; [1]Massachusetts Institute of Technology, Cambridge, Massachusetts, United States; [2]Otto-von-Guericke-University Magdeburg, Magdeburg, Germany

3:30 PM C2.3.06

Switching Performance of Quasi-Vertical GaN-Based p-i-n Diodes on Si Xu Zhang[1], Xinbo Zou[1, 2], Chak Wah Tang[1] and Kei May Lau[1, 2]; [1]Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Kowloon, Hong Kong; [2]HKUST Jockey Club Institute for Advanced Study (IAS), Kowloon, Hong Kong

3:45 PM BREAK

D1.9: Materials Characterization IX: Characterization of Optical Processes in (In,Ga)N
Thursday Afternoon, October 6, 2016
Room: International North

2:00 PM *D1.9.01

Efficient Formation of Free Excitons in Nitride Quantum Wells at Room Temperature—Impact on Recombination Processes and LED Droop Andreas Hangleiter[1, 2]; [1]Institute of Applied Physics, Technische Universität Braunschweig, Braunschweig, Germany; [2]Laboratory for Emerging Nanometrology, Technische Universität Braunschweig, Braunschweig, Germany

2:30 PM D1.9.02

Power Law Decay of the Photoluminescence Intensity of (In,Ga)N/GaN{0001} Quantum Wells—Impact of Nonradiative Recombination and Diffusion Felix Feix[1], Timur Flissikowski[1], Karl K. Sabelfeld[2], Vladimir M. Kaganer[1], Holger T. Grahn[1] and Oliver Brandt[1]; [1]Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany; [2]Institute of Computational Mathematics and Mathematical Geophysics, Russian Academy of Sciences, Novosibirsk, Russian Federation

2:45 PM D1.9.03

Enhancement of Auger Recombination Induced by Localization in InGaN/GaN Quantum Wells Raphael Butte[1], Mehran Shahmohammadi[1], Wei Liu[1], Georg Rossbach[1], Lise Lahourcade[1], Amelie Dussaigne[2], Benoit Deveaud[1], Nicolas Grandjean[1] and Gwenole Jacopin[1]; [1]Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [2]CEA, LETI, University of Grenoble Alpes, Grenoble, France

3:00 PM D1.9.04

Recombination Processes and Influence of Carrier Localization on their Optical Properties in (In,Ga)N/GaN Short Period Superlattices Mariia Anikeeva[1], Tobias Schulz[1], Pawel Strak [2], Izabela Gorczyca [2], Tadeusz Suski[2], Caroline Cheze[3], Felix Feix[3], Raffaella Calarco[3] and Martin Albrecht[1]; [1]Leibniz-Institut für Kristallzüchtung, Berlin, Germany; [2]Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; [3]Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany

3:15 PM D1.9.05

Searching for Indirect Excitons in Coupled Double InGaN/GaN Quantum Wells Tadeusz Suski[1], Grzegorz Staszczak[1], Grzegorz Muziol[1], Czeslaw Skierbiszewski[1, 2], Michal Kulczykowski[3], Michal Matuszewski[3], Krzysztof Korona[4], Piotr Drozdz[4], Ewa Grzanka[1], Szymon Grzanka[1], Katarzyna Pieniak[1], Aleksandr Khachapuridze[1], Julita Smalc-Koziorowska[1] and Piotr Perlin[1, 2]; [1]Institute of High Pressure Physics, UNIPRESS, Warszawa, Poland; [2]TopGaN Ltd., Warsaw, Poland; [3]Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; [4]Insitute of Experimental Physics, Warsaw University, Warsaw, Poland

3:30 PM D1.9.06

Exciton Dynamics and Stability of GaN in Non-Thermal Equilibrium State by the Analysis Taking into Account the Higher-Order Exciton States Yoshihiro Ishitani[1], Kazuma Takeuchi[1], Tomohiro Iwahori[1], Naoyuki Oizumi[1], Kensuke Oki[1], Kentaro Nomachi[1], Bei Ma[1], Ken Morita[1], Hideto Miyake[2] and Kazumasa Hiramatsu[2]; [1]Electrical and Electronic Engineering, Chiba University, Chiba, Japan; [2]Electrical and Electronic Engineering, Mie University, Tsu, Japan

3:45 PM BREAK

E0.5: Nanostructures V: Nanostructures for Electronic Applications
Thursday Afternoon, October 6, 2016
Room: Camelia/Dogwood

2:00 PM E0.5.01

First Demonstration of Top-Down GaN Nanowire Gate-All-Around FET Ki-Sik Im[1], Chul-Ho Won[1], Sindhuri Vodapally[1], Yong Soo Lee[1], Raphael Caulmilone[2], Sorin Cristoloveanu[3], Yong-Tae Kim[4] and Jung-Hee Lee[1]; [1]School of Electronics Engineering, Kyungpook National University, Daegu, Korea (the Republic of); [2]SOITEC, Bernin, France; [3]IMEP-LAHC, Grenoble Institute of Technology, Grenoble, France; [4]Korea Institute of Science and Technology, Seoul, Korea (the Republic of)

2:15 PM E0.5.02

Transport Properties of Nano-Ribbon AlGaN/GaN Devices—Impact of Sidewall Roughness Sameer Joglekar[1], Mohamed Azize[2] and Tomas Palacios[2]; [1]Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States; [2]Microsystems Technology Laboratories, Cambridge, Massachusetts, United States

2:30 PM E0.5.03

Suspended Nanowire GaN Junctionless FET Fabricated by Top-Down Approach Dong-Hyeok Son[1], Young-Woo Jo[1], Chan Heo[1], Jae Hwa Seo[1], Chul-Ho Won[1], Hwan Soo Jang[2], Yong Soo Lee[1], In Man Kang[1] and Jung-Hee Lee[1]; [1]Electronics Engineering, Kyungpook National University, Daegu, Korea (the Republic of); [2]Daegu Gyeongbuk Institute of Science and Technology, Daegu, Korea (the Republic of)

2:45 PM E0.5.04

Room Temperature Ballistic Devices for High Frequency Harmonic Generation Giovanni Santoruvo and Elison Matioli; STI, EPFL, Lausanne, Switzerland

3:00 PM E0.5.05

High Aspect Ratio 3D GaN Fins with Nonpolar A-Plane Sidewalls Grown by Metalorganic Vapor Phase Epitaxy Jana Hartmann[1, 3], Frederik Steib[1, 3], Hao Zhou[1], Johannes Ledig[1, 3], Sonke Fuendling[1, 3], Tilman Schimpke[2], Adrian Avramescu[2], Tansen Varghese[2], Hergo H. Wehmann[1, 3], Martin Strassburg[2], Hans-Juergen Lugauer[2] and Andreas Waag[1, 3]; [1]Laboratory for Emerging Nanometrology, Braunschweig University of Technology, Braunschweig, Germany; [2]Osram Opto Semiconductors GmbH, Regensburg, Germany; [3]Epitaxy Competence Center, Braunschweig University of Technology, Braunschweig, Germany

3:15 PM E0.5.06

Energy Transfer Processes in GaN Quantum Wires Ludwig A. Greif[3], Stefan Kalinowski[3], Jan Mussener[2], Jordi Arbiol[1], Gerald Honig[3], Markus Wagner[3], Gordon Callsen[3], Martin Eickhoff[2] and Axel Hoffmann[3]; [1]Institut Català de Nanociència i Nanotecnologia, ICN2, CSIC and The Barcelona Institute of Science and Technology, Barcelona, Spain; [2]Justus Liebig-Universität Gießen I. Physikalisches Institut, Berlin, Germany; [3]Institut für Festkörperphysik, Technische Universität Berlin, Berlin, Germany

3:30 PM E0.5.07

Transport of Indirect Excitons in GaN Quantum Wells Thierry Guillet[1], Benoit Jouault[1], Fedor Fedichkin[1], Pierre Lefebvre[1], Christelle Brimont[1], Pierre Valvin[1], Thierry Bretagnon[1], Lise Lahourcade[2], Nicolas Grandjean[2] and Masha Vladimirova[1]; [1]Laboratoire Charles Coulomb (L2C), Université de Montpellier, Montpellier, France; [2]Institute of Physics, EPFL, Lausanne, Switzerland

3:45 PM BREAK

F0.7: Novel Materials and Devices VII: Novel Sensing Devices and Magnetism
Thursday Afternoon, October 6, 2016
Room: Poinsettia/Quince

2:00 PM *F0.7.01

Opto-Electrochemical Sensing Devices Based on Group III-Nitride Nanowires Martin Eickhoff; University of Giessen, Giessen, Germany

2:30 PM F0.7.02

Sensing the Iron-Load of Ferritin Biomolecules Using GaInN Quantum Wells as Optochemical Transducers Dominik Heinz[1], Vignesh Devaki Murugesan[1], Shaohua Bian[1], Linyuan Wu[1], Florian Huber[2], Sabyasachi Chakrabortty[3], Yuzhou Wu[3], Tanja Weil[3], Klaus Thonke[2] and Ferdinand Scholz[1]; [1]Institute of Optoelectronics, Ulm University, Ulm, Germany; [2]Institute of Quantum Matter / Semiconductor Physics Group, Ulm University, Ulm, Germany; [3]Institute of Organic Chemistry III, Ulm University, Ulm, Germany

2:45 PM F0.7.03

InGaN/GaN Nanowire Heterostructures as Multifunctional Optical Biosensors—Selective Detection of Biochemical Species and Local Sensing of pH Changes in Cells Sara Lippert[1], Marc Riedel[2], Ervice Pouokam[3], Pascal Hille[1], Joerg Teubert[1], Fred Lisdat[2], Martin Diener[3] and Martin Eickhoff[1]; [1]I. Physical Institute, Justus Liebig University, Giessen, Germany; [2]Biosystems Technology, Technical University of Applied Sciences, Wildau, Germany; [3]Institute for Veterinary Physiology and Biochemistry, Justus Liebig University, Giessen, Germany

3:00 PM F0.7.04

Stretching Magnetism with an Electric Field in a Nitride Semiconductor Maciej Sawicki[1], Darek Sztenkiel[1], Marek Foltyn[1], Grzegorz P. Mazur[1], Rajdeep Adhikari[2], Kamil Kosiel[3], Katarzyna Gas[1, 4], Maciej Zgirski[1], Renata Kruszka[3], Rafal Jakiela[1], Tian Li[1], Anna Piotrowska[3], Alberta Bonanni[2] and Tomasz Dietl[1, 5, 6]; [1]Institute of Physics, Polish Academy of Sciences, Warszawa, Poland; [2]Institut fuer Halbleiter- und Festkoerperphysik, Johannes Kepler University, Linz, Austria; [3]Institute of Electron Technology, Warszawa, Poland; [4]Institute of Experimental Physics, University of Wroclaw, Wroclaw, Poland; [5]Institute of Theoretical Physics, University of Warsaw, Warszawa, Poland; [6]WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan

3:15 PM F0.7.05

Enhanced Ferromagnetism in Nanoscale GaN:Mn Wires Grown on GaN Ridges Shengxiang Jiang[1], Cheng Ji[1], Yan Zhang[2], Zhijian Yang[1], Cunda Wang[1], Zhizhong Chen[1], Tongjun Yu[1] and Guoyi Zhang[1, 3]; [1]State Key Laboratory for Artificial Microstructure and Mesoscopic Physics, School of Physics, Peking University, Beijing, China; [2]Institute of Condensed Matter Physics, School of Physics, Peking University, Beijing, China; [3]Dongguan Institute of Optoelectronics, Peking University, Dongguan, China

3:30 PM F0.7.06

Impact of Mg Doped Cladding Layers on Ferromagnetism of (Ga,Mn)N Thin Films Katarzyna Gas[1, 2], Gerd Kunert[3, 4], Stephan Figge[4], Sylwia Stefanowicz[2], Tomasz Baraniecki[3], Piotr Dluzewski[2], Boguslawa Kurowska[2], Rafal Jakiela[2], Grzegorz Mazur[2], Detlef Hommel[3, 1, 4] and Maciej Sawicki[2]; [1]Institute of Experimental Physics, University of Wroclaw, Wroclaw, Poland; [2]Institute of Physics Polish Academy of Sciences, Warsaw, Poland; [3]Wroclaw Research Center EIT+ Sp. z o.o., Wroclaw, Poland; [4]Institute of Solid State Physics, University of Bremen, Bremen, Germany

3:45 PM BREAK

A2.10: Epitaxial Growth IX: Growth of UV Devices and Thick AlN and GaN Films
Thursday Afternoon, October 6, 2016
Room: Azalea/Begonia

4:15 PM A2.10.01
Progress in AlGaN-Based Ultraviolet Light-Emitting Diodes Made from Films Synthesized by the Liquid-Metal-Enabled Growth Mode of Molecular Beam Epitaxy Yu-Han Liang[1] and Elias Towe[2]; [1]Material Science and Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States; [2]Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

4:30 PM A2.10.02
Significant Internal Quantum Efficiency Enhancement of GaN/AlGaN Multiple Quantum Wells Emitting at ~350 nm Feng Wu[1, 2], Jiangnan Dai[1], Zhe Chuan Feng[3], Changqing Chen[1] and Xiaohang Li[2]; [1]Huazhong University of Science and Technology, Wuhan, China; [2]King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; [3]Guangxi University, Nanning, China

4:45 PM A2.10.03
2 inch AlN/Sapphire Template Grown by HVPE Jicai Zhang[1, 2], Jun Huang[1], Maosong Sun[1], Xuewei Li[1], Guoqiang Ren[1, 2], Jianfeng Wang[1, 2] and Ke Xu[1, 2]; [1]Suzhou Institute of Nanotech and Nanobionics, Chinese Academy of Sciences, Suzhou, China; [2]Suzhou Nanowin Science and Technology Co., Ltd, Suzhou, China

5:00 PM A2.10.04
Effect of AlN Buffer Layer Thickness on Crystallinity and Surface Morphology of 10-µm-Thick *A*-Plane AlN Films Grown on *R*-Plane Sapphire Substrates Chia-Hung Lin, Shinya Tamaki, Yasuhiro Yamashita, Hideto Miyake and Kazumasa Hiramatsu; Mie University, Tsu, Japan

5:15 PM A2.10.05
Fabrication of a-Plane AlN on r-Plane Sapphire Substrate by Sapphire Nitridation and Ga-Al Liquid Phase Epitaxy Masayoshi Adachi and Hiroyuki Fukuyama; Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

5:30 PM A2.10.06
Visualization of Dislocation Behavior in HVPE-Grown GaN Using Facet Controlling Technique Tohoru Matsubara[1, 2], Shin Goubara[1], Kota Yukizane[1], Ryo Inomoto[1], Narihito Okada[1] and Kazuyuki Tadatomo[1]; [1]Graduate School of Science and Engineering, Yamaguchi University, Ube, Japan; [2]UBE Scientific Analysis Laboratory, Inc., Ube, Japan

5:45 PM LATE NEWS

6:00 PM LATE NEWS

B3.4: Photodetectors, Photovoltaics, Intersubband Devices IV:
Characterization of Intersubband Structures
Thursday Afternoon, October 6, 2016
Room: Poinsettia/Quince

4:15 PM B3.4.01

Crystal Orientation Dependent Intersubband Transition in Semipolar AlGaN/GaN Quantum Well for Optoelectronic Applications Houqiang Fu, Hong Chen, Xuanqi Huang, Zhijian Lu and Yuji Zhao; Arizona State University, Tempe, Arizona, United States

4:30 PM B3.4.02

Doping of Nonpolar M-Plane GaN/AlGaN Multi-Quantum-Wells with Intersubband Transitions in the THz Range—Effect of Si and Ge Doping Caroline B. Lim[1], Akhil Ajay[1], Catherine Bougerol[2], Jorg Schormann[3], David A. Browne[1] and Eva Monroy[1]; [1]CEA Grenoble, Grenoble, France; [2]CNRS Institut Néel, Grenoble, France; [3]I. Physikalisches Institut - Justus-Liebig-Universität Gießen, Giessen, Germany

4:45 PM B3.4.03

Dramatic Enhancement of Near-Infrared Intersubband Absorption in c-Plane AlInN/GaN Superlattices K. Turkmeneli[1], S. Dai[1], Mohammad A. Shirazi[2, 3], S. Liu[2], C. Edmunds[1], J. Shao[1, 3], G. Gardner[4, 3], D. Zakharov[5], M. J. Manfra[1, 2, 3] and Oana Malis[1]; [1]Physics Dept., Purdue University, West Lafayette, Indiana, United States; [2]School of Electrical and Computer Engineering, Purdue University, West Lafayette, Indiana, United States; [3]Birck Nanotechnology Center, Purdue University, West Lafayette, Indiana, United States; [4]School of Materials Engineering, Purdue University, West Lafayette, Indiana, United States; [5]Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, New York, United States

5:00 PM B3.4.04

Evidence of Inter-Subband Transitions at the InN Surface Probed by Electrolyte-Gated Raman Spectroscopy Tommaso Brazzini[1, 2], Esther Alarcon-Llado[2, 3] and Joel Ager[2]; [1]Electronic Engineering Department, ISOM - Universidad Politecnica de Madrid, Madrid, Spain; [2]Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, United States; [3]Swiss Federal Institute of Technology, Lausanne, Switzerland

5:15 PM LATE NEWS

5:30 PM LATE NEWS

5:45 PM LATE NEWS

6:00 PM LATE NEWS

C0.5: Electronic Devices V: Doping, Implantation and Isolation
Thursday Afternoon, October 6, 2016
Room: Narcissus/Orange Blossom

4:15 PM *C0.5.01

Advances and Challenges in p-Type Doping of GaN by Implantation and Novel Annealing Technique
Boris N. Feigelson[1], Travis J. Anderson[1], Jordan D. Greenlee[2, 1], Jennifer K. Hite[1], Karl D. Hobart[1] and Fritz J. Kub[1]; [1]US Naval Research Laboratory, Washington, District of Columbia, United States; [2]National Research Council, Washington, District of Columbia, United States

4:45PM C0.5.02

P-Type Conduction by Mg-Ion Implantation for N-Face GaN Tetsuo Narita[1], Tetsu Kachi[1, 2], Keita Kataoka[1] and Tsutomu Uesugi[1]; [1]Toyota Central R&D Labs, Inc., Nagakute, Japan; [2]Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan

5:00 PM C0.5.03

Mg Doping Dependence of GaN MOSFETs Fabricated on Homoepitaxial p-GaN Layers Shinya Takashima[1], Katsunori Ueno[1], Hideaki Matsuyama[1], Masaharu Edo[1], Kiyokazu Nakagawa[2], Masahiro Horita[3] and Jun Suda[3]; [1]Fuji Electric Co., Ltd., Hino, Japan; [2]University of Yamanashi, Kofu, Japan; [3]Kyoto University, Kyoto, Japan

5:15 PM C0.5.04

InGaN/GaN Heterostructure P-Channel Metal-Oxide-Semiconductor Field Effect Transistor by Using Polarization-Induced Two-Dimensional Hole Gas Kexiong Zhang; National Institute for Materials Science, Tsukuba, Japan

5:30 PM C0.5.05

Characterization of GaN-Based Trench-Gate MOSFET with Implanted Source Region Aki Sasakura[1], Norihumi Takashima[1], Hirokuni Tokuda[1], Masaharu Edo[2], Katsunori Ueno[2] and Masaaki Kuzuhara[1]; [1]Electrical and Electronics, University of Fukui, Fukui, Japan; [2]Fuji Electric Co., Ltd., Tokyo, Japan

5:45 PM C0.5.06

Growth and Characterization of Buffer Structures for AlGaN/GaN-Based Heterostructure Field Effect Transistors Martin Eickelkamp[1], Dirk Fahle[1], Christof Mauder[1], Yoga Saripalli[2], Ming Zhao[2], Hu Liang[2], Prem K. Kandaswamy[2] and Michael Heuken[1]; [1]AIXTRON SE, Herzogenrath, Germany; [2]Interuniversity Microelectronics Center, Leuven, Belgium

6:00 PM LATE NEWS

D1.10: Materials Characterization X: Characterization of Low Dimensional Nitrides and Defects
Thursday Afternoon, October 6, 2016
Room: International Center

4:15 PM *D1.10.01

Light-Matter Coupling Phenomena in Low-Dimensional Nitride-Semiconductors Alexey Kavokin; University of Southampton, Southampton, United Kingdom

4:45 PM *D1.10.02

Three-Dimensional Reciprocal Space Mapping Analysis for Localized Structures and Defects in Nitride Semiconductor Materials Akira Sakai and Shotaro Takeuchi; Osaka University, Toyonaka, Japan

5:15 PM D1.10.03

Birefringence in GaN Epitaxial Layers and GaN Microrods Ines Trenkmann[1], Lukas Uhlig[1], Matthias Wachs[1], Christian Mounir[2] and Ulrich T. Schwarz[1]; [1]Physics, Technische Universität Chemnitz, Chemnitz, Germany; [2]IMTEK, University of Freiburg, Freiburg, Germany

5:30 PM D1.10.04

Vacancy-Type Defects in Metal Deposited GaN Probed Using a Monoenergetic Positron Beam Akira Uedono[1], Tatsuya Fujishima[2], Daniel Piedra[2], Oleg Laboutin[3], Wayne Johnson[3], Shoji Ishibashi[4], Masatomo Sumiya[5] and Tomas Palacios[2]; [1]University of Tsukuba, Tsukuba, Japan; [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, United States; [3]IQE, Taunton, Massachusetts, United States; [4]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan; [5] National Institute for Materials Science, Tsukuba, Japan

5:45 PM D1.10.05

Fine Structure of the Yellow Luminescence Band in GaN Michael A. Reshchikov[1], Joy D. McNamara[1], Fan Zhang[2], Morteza Monavarian[2], Alexander Usikov[3, 4], Heikki Helava[3], Yuri Makarov[3] and Hadis Morkoc[2]; [1]Physics, Virginia Commonwealth University, Richmond, Virginia, United States; [2]Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States; [3]Nitride Crystals, Inc., Deer Park, New York, United States; [4]St. Petersburg National Research University of Information Technologies, Mechanics and Optics, St. Petersburg, Russian Federation

6:00 PM D1.10.06

Experimental Analysis of Defect Quasi Fermi Level Control in MOCVD-Grown GaN and AlGaN Felix Kaess[1, 2], Pramod Reddy[1], Andrew Klump[1], Luis Hernandez-Balderrama[1], Dorian Alden[1, 2], Sebastian Metzner[3], Alexander Franke[1], Ronny Kirste[1], Frank Bertram[3], Juergen Christen[3], Axel Hoffmann[2], Ramon Collazo[1] and Zlatko Sitar[1]; [1]Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States; [2]Solid State Physics Institute, Technical University Berlin, Berlin, Germany; [3]Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany

D1.11: Materials Characterization XI:
Wear of Nitride Materials and Properties of GaN Based Structures
Thursday Afternoon, October 6, 2016
Room: International North

4:15 PM D1.11.01

Investigation of Ultralow Wear of III-Nitride Materials Guosong Zeng[1], Chee-Keong Tan[2], Xiaofang Yang[3], Bruce Koel[3], Brandon Krick[1] and Nelson Tansu[2]; [1]Mechanical Engineering and Mechanics, Lehigh University, Bethlehem, Pennsylvania, United States; [2]Center for Photonics and Nanoelectronics, Electrical and Computer Engineering, Lehigh University, Bethlehem, Pennsylvania, United States; [3]Chemical and Biological Engineering, Princeton University, Princeton, New Jersey, United States

4:30 PM D1.11.02

ICP-Etching Induced Defects in GaN and its Recovery Revealed by Two-Wavelength Excited Photoluminescence Md Julkarnain[1, 2], Norihiko Kamata[1], Takeshi Fukuda[1], Keita Kataoka[3], Masakazu Kanechika[3], Tetsuo Narita[3] and Yasushi Kimoto[3]; [1]Department of Functional Materials Science, Saitama University, Saitama-shi, Japan; [2]Department of Applied Physics and Electronic Engineering, University of Rajshahi, Rajshahi, Bangladesh; [3]Toyota Central Research and Development Labs. Inc., Nagakute, Japan

4:45 PM D1.11.03

Electrochemical Characterization of Surface States at the GaN/electrolyte Interface Andrea Winnerl[1], Jose A. Garrido[2] and Martin Stutzmann[1]; [1]Walter Schottky Institut and Physik Department, Technische Universität München, Garching, Germany; [2]Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain

5:00 PM D1.11.04

Enhanced Forster Energy Transfer in Hybrid Organic/III-Nitride Grating Structures Modestos Athanasiou, Richard Smith, Sunneal Ghataora and Tao Wang; Electrical and Electronic Engineering, University of Sheffield, SHEFFIELD, United Kingdom

5:15 PM D1.11.05

Quantitative Analysis on Energy Transfer Process for Eu Luminescent Centers in Eu-Doped GaN Tomohiro Inaba, Takanori Kojima, Genki Yamashita, Masaaki Ashida and Yasufumi Fujiwara; Osaka University, Suita, Japan

5:30 PM LATE NEWS

5:45 PM LATE NEWS

6:00 PM LATE NEWS

E0.6: Nanostructures VI: III-N Quantum Dots
Thursday Afternoon, October 6, 2016
Room: Camelia/Dogwood

4:15 PM E0.6.01

Linearly Polarized Single Photon Emission at 220 K from a Non-Polar (11-20) InGaN/GaN Quantum Dot Tong Wang[1], Tim J. Puchtler[1], Tongtong Zhu[2], John C. Jarman[2], Luke P. Nuttall[1], Rachel A. Oliver[2] and Robert A. Taylor[1]; [1]Department of Physics, University of Oxford, Oxford, United Kingdom; [2]Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

4:30 PM E0.6.02

Single Photon Emission from Site-Controlled In(Ga)N/GaN Monolayers Quantum Dot Ping Wang[1], Tao Wang[1], Jong-Hoi Cho[2], Chung H. Beak[2], Yong H. Cho[2], Tobias Schulz[3], Martin Albrecht[3], Xixiang Zhang[4] and Xinqiang Wang[1]; [1]School of physics, Peking University, Beijing, China, Beijing, China; [2]KAIST, Daejon, Korea (the Republic of); [3]IKZ, Berlin, Germany; [4]KAUST, Thuwal, Saudi Arabia

4:45 PM E0.6.03

InGaN Pyramidal Quantum Dots as Source of Single Photons Device Houssaine Machhadani; Department of Physics, Chemistry and Biology, Linkoping University, Linkoping, Sweden

5:00 PM E0.6.04

Polarized Single-Photon Emission from m-Plane InGaN Quantum Dots Tim J. Puchtler[1], Tong Wang[1], Christopher Ren[2], Rachel A. Oliver[2], Robert Taylor[1] and Tongtong Zhu[2]; [1]Department of Physics, University of Oxford, Oxford, United Kingdom; [2]Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

5:15 PM E0.6.05

Stacked Self-Assembled Cubic GaN Quantum Dots Grown by Molecular Beam Epitaxy Sarah Blumenthal, Dirk Reuter and Donat J. As; Dept of Physics, University of Paderborn, Paderborn, Germany

5:30 PM E0.6.06

Molecular Beam Epitaxial Growth and Characterization of AlGaN Single Monolayer Dot-in-Nanowire Heterostructures Songrui Zhao[1], A. Aiello[2], S. Y. Woo[3], X. Liu[1], D. Laleyan[1], G. A. Botton[3], Pallab Bhattacharya[2] and Zetian Mi[1]; [1]McGill University, Montreal, Canada; [2]University of Michigan, Ann Arbor, Michigan, United States; [3]McMaster University, Hamilton, Canada

5:45 PM E0.6.07

InGaN Quantum Dots by Quantum Size Controlled Photoelectrochemical Etching Benjamin Leung[1], Xiaoyin Xiao[1], Ping Lu[1], Arthur J. Fischer[1], Miao-Chan Tsai[2], Daniel D. Koleske[1], Michael E. Coltrin[1], Jeffrey Y. Tsao[1] and George T. Wang[1]; [1]Sandia National Laboratories, Albuquerque, New Mexico, United States; [2]Center for High Tech Materials, University of New Mexico, Albuquerque, New Mexico, United States

6:00 PM LATE NEWS

F0.8: Novel Materials and Devices VIII/
A2.10: Epitaxial Growth X: Growth of Novel Materials and Devices
Thursday Afternoon, October 6, 2016
Room: International South

4:15 PM *F0.8.01/A2.10.01

Epitaxial Conductors—Transition Metal Nitride Integration with III-N Materials David J. Meyer[1], Douglas S. Katzer[1], Neeraj Nepal[1], Brian P. Downey[1], Virginia D. Wheeler[1], David F. Storm[1] and Matthew T. Hardy[2]; [1]Electronics Science and Technology Division, U.S. Naval Research Laboratory, Washington, District of Columbia, United States; [2]U.S. Naval Research Laboratory, Washington, District of Columbia, United States

4:45 PM F0.8.02/A2.10.02

Electron-Photon and Electron-LO Phonon Intersubband Scattering Rates in Lattice-Matched GaN-$ZnGeN_2$ Coupled Quantum Wells Lu Han, Colin Lieberman and Hongping Zhao; Electrical Engineering and Computer Science, Case Western Reserve University, Cleveland, Ohio, United States

5:00 PM F0.8.03/A2.10.03

Group-IV Nitride Compounds and Alloys for Solar Energy Conversion Applications Andre Bikowski, Stephan Lany and Andriy Zakutayev; National Renewable Energy Laboratory, Golden, Colorado, United States

5:15 PM F0.8.04/A2.10.04

Epitaxial ScAlN Grown by Plasma-Assisted Molecular Beam Epitaxy on GaN and SiC Substrates Matthew T. Hardy, Neeraj Nepal, Brian Downey, David Storm, Douglas S. Katzer and David Meyer; Electronic Science and Technology Division, Naval Research Laboratory, Washington, District of Columbia, United States

5:30 PM F0.8.05/A2.10.05

Morphology Study of Diamond Grown on GaN Using Near-Ultraviolet Micro-Raman Technique Mohammad Nazari, Bobby L. Hancock, Jonathan Anderson, Alissa Savage, Edwin Piner and Mark Holtz; Texas State University, San marcos, Texas, United States

5:45 PM F0.8.06/A2.10.06

Structural and Raman Properties of Molecular Beam Epitaxy Grown β-Nb_2N Films and AlN/β-Nb_2N Heterojunctions on 6H-SiC Substrates Neeraj Nepal[1], Douglas S. Katzer[1], David J. Meyer[1], Brian P. Downey[1], Virginia D. Wheeler[1], David F. Storm[1] and Matthew T. Hardy[2, 1]; [1]U.S. Naval Research Laboratory, Washington, District of Columbia, United States; [2]ASEE, Washington, District of Columbia, United States

6:00 PM LATE NEWS

PL.2: Plenary II
Friday Morning, October 7, 2016
Room: Grand Ballroom

9:00 AM *PL.2.01
Progress in LED Technology for Solid-State Lighting Jy Bhardwaj; Research and Development, Lumileds, San Jose, California, United States

9:45 AM *PL.2.02
Heteroepitaxial Growth of GaN-on-Si and Power Device Applications Takashi Egawa; Research Center for Nano Devices and advanced Materials, Nagoya Institute of Technology, Nagoya, Japan

10:30 AM BREAK

11:00 AM LATE NEWS

11:15 AM LATE NEWS

11:30 AM LATE NEWS

11:45 AM CLOSING REMARKS