

GOX 2023 Program Key

- AC** Advanced Characterization Techniques
- BG** Bulk Growth
- DI** Dielectric Interfaces
- EG** Epitaxial Growth
- EP** Electronic and Photonic Devices, Circuits and Applications
- ET** Electronic Transport and Breakdown Phenomena
- HM** Heterogeneous Material Integration
- KEY** Keynote Address
- MD** Material and Device Processing and Fabrication Techniques
- TM** Theory, Modeling and Simulation

Key to Session/Paper Numbers

Sessions sponsored by multiple topics are labeled with all acronyms (e.g. **AC+ET+HM**), then a dash followed by the first two characters of the day of the week: **Monday, Tuesday, Wednesday**, then a single letter for **Morning, Afternoon, Poster**, and finally a number indicating the starting time slot for the paper.
Example: EG+BG-TuA-3 (Bulk/Epitaxy Session, Tuesday Afternoon, 2:15 pm).

GOX 2023 Program Overview

Room /Time	Bansal Atrium	Davis Hall 101
MoM		KEY-MoM: Keynote Address I AC+TM-MoM: Characterization/Modeling I EG-MoM: Bulk/Epitaxial I
MoA		EP+HM+MD-MoA: Processes/Devices I AC+DI+HM+TM-MoA: Characterization/Modeling II
MoP	Poster Sessions	
TuM		KEY-TuM: Keynote Address II TM-TuM: Characterization/Modeling III AC+MD-TuM: Characterization/Modeling IV
TuA		EG+BG-TuA: Bulk/Epitaxy II MD+AC+EP-TuA: Process/Devices II
TuP	Poster Sessions	
WeM		KEY-WeM: Keynote Address III EG+BG+MD-WeM: Epitaxial III EP+ET+MD-WeM: Process/Devices III

Monday Morning, August 14, 2023

Room Davis Hall 101		
8:30am	Welcome and Opening Remarks	Keynote Address Session KEY-MoM Keynote Address I Moderators: Michael Scarpulla , University of Utah, Uttam Singisetti , University of Buffalo, SUNY
8:45am	INVITED: KEY-MoM-2 Gallium Oxide as a Material for Power Device Applications, Akito Kuramata , Novel Crystal Technology, Inc., Japan	
9:00am		
9:15am	AC+TM-MoM-4 Electric Field Induced Defect Redistribution at Ni-Ga ₂ O ₃ Interfaces, Daram Ramdin , H. Huang, S. Dhara, S. Rajan, J. Hwang, L. Brillson, The Ohio State University	Advanced Characterization Techniques Session AC+TM-MoM Characterization/Modeling I Moderators: Michael Scarpulla , University of Utah, Uttam Singisetti , University of Buffalo, SUNY
9:30am	AC+TM-MoM-5 Charge State Transition Levels of Ni in β -Ga ₂ O ₃ Crystals from Experiment and Theory: Eminently Suitable Candidate for Compensation, Palvan Seyidov , Leibniz-Institut für Kristallzüchtung, Germany; J. Basile Varley , Lawrence Livermore National Laboratory; Z. Galazka , T. Chou, A. Popp, K. Irmischer, A. Fiedler, Leibniz-Institut für Kristallzüchtung, Germany	
9:45am	AC+TM-MoM-6 Comparative Study of Temperature-Dependent Bandgap Transitions in Ga ₂ O ₃ Polymorphs, Benjamin M. Janzen , N. Hajizadeh, M. Meißner, M. Marggraf, C. Hartung, Technical University of Berlin, Germany; Z. Galazka , Leibniz-Institut für Kristallzüchtung, Berlin, Germany; P. Mazzolini , A. Sacchi, R. Fornari, Department of Mathematical, Physical and Computer Sciences, University of Parma, Italy; C. Petersen , H. von Wenckstern, M. Grundmann, Universität Leipzig, Felix-Bloch-Institut für Festkörperphysik, Germany; E. Kluth , M. Feneberg, R. Goldhahn, Otto-von-Guericke-University Magdeburg, Germany; T. Oshima , Department of Electrical and Electronic Engineering, Saga University, Japan; T. Kato , H. Nishinaka, Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology, Japan; J. Varley , Lawrence Livermore National Laboratory; M. Wagner , Paul-Drude-Institut für Festkörperelektronik, Germany	
10:00am	AC+TM-MoM-7 Strain and Composition Dependencies in (Al _x Ga _{1-x}) ₂ O ₃ Alloys, Rafal Korlacki , J. Knudtson, M. Stokey, M. Hilfiker, University of Nebraska-Lincoln; V. Darakchieva , Lund University, Sweden; M. Schubert , University of Nebraska-Lincoln	
10:15am	AC+TM-MoM-8 10 kV Ga ₂ O ₃ Schottky Rectifier Operational at 200 °C, Yuan Qin , M. Xiao, M. Potter, Y. Ma, Center of Power Electronics Systems, Virginia Polytechnic Institute and State University; J. Spencer , Naval Research Laboratory; Z. Du , Ming Hsieh Department of Electrical Engineering, University of Southern California; A. Jacobs , Naval Research Laboratory; K. Sasaki , Novel Crystal Technology Inc., Japan; H. Wang , Ming Hsieh Department of Electrical Engineering, University of Southern California; M. Tadjer , Naval Research Laboratory; Y. Zhang , Center of Power Electronics Systems, Virginia Polytechnic Institute and State University	
10:30am	BREAK	
10:45am	INVITED: EG-MoM-10 Advances in the MOCVD Growth of β -Ga ₂ O ₃ and Related Heterostructures, Andrei Osinsky , Agnitron Technology, Inc.; F. Alema , Agnitron Technology, Inc.	Epitaxial Growth Session EG-MoM Bulk/Epitaxial I Moderator: Hongping Zhao , Ohio State University
11:00am		
11:15am	EG-MoM-12 MOVPE of (100) β -Ga ₂ O ₃ for Vertical Power Devices - Challenges to Epitaxial Growth Process, Andreas Popp , T. Chou, S. Bin Anooz, R. Grüneberg, V. Thuy, J. Rehm, A. Akhtar, Z. Galazka, P. Seyidov, K. Irmischer, LEIBNIZ-INSTITUT FÜR KRISTALLZÜCHTUNG im Forschungsverbund Berlin e.V, Germany; M. Albrecht , LEIBNIZ-INSTITUT FÜR KRISTALLZÜCHTUNG im Forschungsverbund Berlin e., Germany; A. Fiedler , LEIBNIZ-INSTITUT FÜR KRISTALLZÜCHTUNG im Forschungsverbund Berlin e.V, Germany	
11:30am	EG-MoM-13 MOCVD Epitaxy of (010) β -Ga ₂ O ₃ with Fast Growth Rate and the Role of Carbon in Charge Compensation, Lingyu Meng , A. Bhuiyan, D. Yu, H. Zhao, The Ohio State University	
11:45am	EG-MoM-14 Controllable Deep Acceptor Doping in MOCVD β -Ga ₂ O ₃ to Compensate Parasitic Interface Charges, Fikadu Alema , Agnitron Technology; T. Itoh , Materials Department, University of California, Santa Barbara; W. Brand , A. Osinsky, Agnitron Technology; J. Speck , Materials Department, University of California, Santa Barbara	
12:00pm	EG-MoM-15 Si Accumulation on Ga ₂ O ₃ Surfaces, Jon McCandless , C. Gorsak, V. Protasenko, D. Schlom, M. Thompson, H. Xing, H. Nair, D. Jena, Cornell University	

Monday Afternoon, August 14, 2023

Room Davis Hall 101		
1:45pm	INVITED: EP+HM+MD-MoA-1 Gallium Oxide – Heterogenous Integration with Diamond for Advanced Device Structures, <i>H. Kim, A. Bhat, A. Nandi, V. Charan, I. Sanyal, A. Mishra, Z. Abdallah, M. Smith, J. Pomeroy, D. Cherns, Martin Kuball</i> , University of Bristol, UK	Electronic and Photonic Devices, Circuits and Applications Session EP+HM+MD-MoA Processes/Devices I Moderator: Yuhao Zhang, Virginia Tech
2:00pm		
2:15pm	EP+HM+MD-MoA-3 Highly Scaled β -Ga ₂ O ₃ MOSFET with 5.4 MV/cm Average Breakdown Field and Near 50 GHz f _{MAX} , <i>Chinmoy Nath Saha, A. vaidya</i> , SUNY at Buffalo; <i>A. Bhuiyan, L. Meng</i> , Ohio State University; <i>S. Sharma</i> , SUNY at Buffalo; <i>H. Zhao</i> , Ohio State University; <i>U. Singiseti</i> , SUNY at Buffalo	
2:30pm	EP+HM+MD-MoA-4 Demonstration of a β -Ga ₂ O ₃ Lateral Diode Full-Wave Rectifier Monolithic Integrated Circuit, <i>Jeremiah Williams, J. Piel, A. Islam, N. Hendricks, D. Dryden, N. Moser</i> , Air Force Research Laboratory, Sensors Directorate; <i>W. Wang</i> , Wright State University; <i>K. Liddy, M. Ngo</i> , Air Force Research Laboratory, Sensors Directorate; <i>N. Sepelak</i> , KBR Inc.; <i>A. Green</i> , Air Force Research Laboratory, Sensors Directorate	
2:45pm	EP+HM+MD-MoA-5 Improved Breakdown Strength of Lateral β -Ga ₂ O ₃ MOSFETs Using Aerosol-Spray-Printed hBN-BCB Composite Encapsulation, <i>Daniel Dryden</i> , Air Force Research Laboratory, Sensors Directorate; <i>L. Davidson</i> , KBR, Inc.; <i>K. Liddy, J. Williams, T. Pandhi, A. Islam, N. Hendricks, J. Piel</i> , Air Force Research Laboratory, Sensors Directorate; <i>N. Sepelak</i> , KBR, Inc.; <i>D. Walker, Jr., K. Leedy</i> , Air Force Research Laboratory, Sensors Directorate; <i>T. Asel, S. Mou</i> , Air Force Research Laboratory, Materials and Manufacturing Directorate, USA; <i>F. Ouchen</i> , KBR, Inc.; <i>E. Heckman, A. Green</i> , Air Force Research Laboratory, Sensors Directorate	
3:00pm	EP+HM+MD-MoA-6 Wafer-Scale β -Ga ₂ O ₃ Field Effect Transistors with MOCVD-Grown Channel Layers, <i>Carl Peterson</i> , University of California Santa Barbara; <i>F. Alema</i> , Agnitron Technology Incorporated; <i>Z. Ling, A. Bhattacharyya</i> , University of California Santa Barbara; <i>S. Roy</i> , University of California at Santa Barbara; <i>A. Osinsky</i> , Agnitron Technology Incorporated; <i>S. Krishnamoorthy</i> , University of California Santa Barbara	
3:15pm	EP+HM+MD-MoA-7 Modelling of Impedance Dispersion in Lateral β -Ga ₂ O ₃ MOSFETs Due to Parallel Conductive Si-Accumulation Layer, <i>Zequan Chen, A. Mishra, A. Bhat, M. Smith, M. Uren</i> , University of Bristol, UK; <i>S. Kumar, M. Higashiwaki</i> , National Institute of Information and Communications Technology, Japan; <i>M. Kuball</i> , University of Bristol, UK	
3:30pm	BREAK	
3:45pm	INVITED: AC+DI+HM+TM-MoA-9 The Physics of Low Symmetry Semiconductors: Gallium Oxide for the Future of Green Energy as Example, <i>Mathias Schubert, R. Korlacki, M. Stokey, M. Hifiker</i> , University of Nebraska-Lincoln, USA; <i>S. Knight</i> , Linkoping University, Sweden; <i>S. Richter</i> , Lund University, Sweden; <i>A. Ruder</i> , University of Nebraska-Lincoln, USA; <i>A. Papamichael, V. Stanishev</i> , Linkoping University, Sweden; <i>J. Speck</i> , University of California Santa Barbara; <i>V. Darakchieva</i> , Lund University, Sweden	Advanced Characterization Techniques Session AC+DI+HM+TM-MoA Characterization/Modeling II Moderator: Mike Thompson, Cornell University
4:00pm		
4:15pm	AC+DI+HM+TM-MoA-11 Investigation of Split Vacancy and Interstitial Defects and Ionic Diffusion Mechanisms in β -Ga ₂ O ₃ : A Direct Approach via Master Diffusion Equations, <i>Channyung Lee, E. Ertekin</i> , University of Illinois Urbana-Champaign	
4:30pm	AC+DI+HM+TM-MoA-12 Hybrid Metal/low-k/BaTiO ₃ / β -Ga ₂ O ₃ Metal-Insulator-Semiconductor Junctions Enable Electric Field of 6.8 MV/cm, <i>Ashok Dheenan, S. Dhara</i> , Ohio State University; <i>A. Islam, A. Green</i> , Air Force Research Laboratory; <i>S. Rajan</i> , Ohio State University	
4:45pm	AC+DI+HM+TM-MoA-13 Towards Controlled Transfer of (001) β -Ga ₂ O ₃ to (0001) 4H-SiC Substrates, <i>Michael Liao</i> , National Research Council Postdoctoral Fellow at the U.S. Naval Research Laboratory; <i>K. Huynh</i> , University of California Los Angeles; <i>J. Lundh</i> , National Research Council Postdoctoral Fellow at the U.S. Naval Research Laboratory; <i>M. Tadjer, K. Hobart</i> , U.S. Naval Research Laboratory; <i>M. Goorsky</i> , University of California Los Angeles	

Advanced Characterization Techniques

Room Bansal Atrium - Session AC-MoP

Advanced Characterization Techniques Poster Session I

5:15 – 7:15 pm

AC-MoP-1 Photoluminescence Mapping of Gallium Oxide, *Matthew McCluskey*, Washington State University

AC-MoP-2 Linearly Polarized UV, Blue, and IR Photoluminescence from β -Ga₂O₃, *J. Cooke, M. Lou, Mike Scarpulla*, University of Utah; *A. Bhattacharyya*, University of California, Santa Barbara; *X. Cheng, Y. Wang*, University of Utah; *S. Krishnamoorthy*, University of California, Santa Barbara; *B. Sensale-Rodriguez*, University of Utah

AC-MoP-3 Non-Uniformity and Hysteresis of Capacitance-Voltage Doping Profiling in β -Ga₂O₃, *Jian Li, A. Charnas, B. Noesges, A. Neal, T. Asel, Y. Kim, S. Mou*, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA

AC-MoP-4 Scanning Transmission Electron Microscopy (S/TEM) Investigation of γ -Ga₂O₃ Defective Layers In Aluminum and Scandium Alloyed β -Ga₂O₃, *Andrew Balog*, The Pennsylvania State University; *A. Chmielewski*, CEMES-CNRS, France; *R. Lavelle, L. Miao*, The Pennsylvania State University; *J. Jesenovc, B. Dutton*, Washington State University; *C. Lee, E. Ertekin*, University of Illinois at Urbana Champaign; *J. McCloy*, Washington State University; *N. Alem*, The Pennsylvania State University

AC-MoP-5 Extended Defects in β -Ga₂O₃ (010) EFG Crystals Characterized by Multimodal Microscopy, *Drew Haven*, Luxium Solutions LLC; *H. Moutinho, J. Mangum, H. Guthrey*, National Renewable Energy Laboratory; *D. Joyce*, Luxium Solutions LLC; *A. Zakutayev, N. Haegel*, National Renewable Energy Laboratory

Bulk Growth

Room Bansal Atrium - Session BG-MoP

Bulk Growth Poster Session I

5:15 – 7:15 pm

BG-MoP-1 MOCVD Development for Growth of Ga₂O₃ Over Large Areas, *Muhammad Ali Johar, A. Feldman, G. Provost, K. Vasudevan*, Structured Materials Industries, Inc; *L. Lyle*, Pennsylvania State University; *L. Porter*, Carnegie Mellon University, USA; *A. Popp*, Leibniz-Institut für Kristallzüchtung (IKZ); *G. Tompa*, Structured Materials Industries, Inc

BG-MoP-2 Quality Improvement of Sn-doped β -Ga₂O₃ Single Crystal by Optimizing Temperature Gradient Control in Growth Zone, *Su-Min Choi, H. Jang, S. Seo, M. Chae, M. Park, Y. Jang*, Department of Advanced Materials Engineering, Dong-Eui University, Republic of Korea; *Y. Moon, Y. Sung, J. Kang*, AXEL, Republic of Korea; *Y. Shin, S. Bae*, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; *W. Lee*, Department of Advanced Materials Engineering, Dong-Eui University, Republic of Korea

BG-MoP-4 Various Crystal Planes and their Characteristics obtained from β -Ga₂O₃ Single Crystal Blocks Grown by the Multi-slit Structure of the EFG Method, *Y. MOON*, AXEL, Republic of Korea; *HUIYEON JANG*, Dongeui University, Republic of Korea; *Y. SUNG*, AXEL, Republic of Korea; *S. CHOI, M. CHAE, S. SEO, M. PARK, Y. JANG, W. LEE*, Dongeui University, Republic of Korea; *Y. SHIN, S. BAE*, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; *T. LEE, H. KIM*, Korea Institute of Industrial Technology, Republic of Korea; *J. KANG*, AXEL, Republic of Korea

BG-MoP-5 Investigation of Defects in(100) and (001) β -Ga₂O₃Single Crystal GrownbyEFG Method, *M. Choi*, Korea Institute of Ceramic Engineering and Technology/Pusan National University, Republic of Korea; *Yun-Ji Shin*, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; *W. Jeong, T. Gu, A. Shin, S. Cho*, Korea Institute of Ceramic Engineering and Technology/Pusan National University, Republic of Korea; *Y. Moon, J. Kang*, AXEL, Republic of Korea; *W. Lee*, Dong-Eui University, Republic of Korea; *S. Jeong*, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; *S. Harada*, Nagoya University, Japan; *K. Ishiji*, Kyushu Synchrotron Light Research Center, Japan; *H. Lee*, Pusan National University, Republic of Korea; *S. Bae*, Korea Institute of Ceramic Engineering and Technology, Réunion

Dielectric Interfaces

Room Bansal Atrium - Session DI-MoP

Dielectric Interfaces Poster Session I

5:15 – 7:15 pm

DI-MoP-1 Dielectric Lifetime Enhancement of in-situ MOCVD Al₂O₃ on β -Ga₂O₃ Using Temperature Modulated Deposition, *Saurav Roy, A. Bhattacharyya, C. Peterson, S. Krishnamoorthy*, University of California Santa Barbara

Electronic and Photonic Devices, Circuits and Applications

Room Bansal Atrium - Session EP-MoP

Electronic and Photonic Devices, Circuits and Applications

Poster Session I

5:15 – 7:15 pm

EP-MoP-2 Anisotropy Nature of NiO_x/ β -Ga₂O₃p-n Heterojunctions on (-201), (001), and (010) β -Ga₂O₃ Substrates, *Dinusha Herath Mudiyansele, D. Wang, H. Fu*, Arizona State University

EP-MoP-3 Ultrathin Films of Amorphous Gallium Oxide for Ultra-Fast Solar-Blind Photodetectors, *Damanpreet Kaur, M. Kumar*, Indian Institute of Technology Ropar, India

Epitaxial Growth

Room Bansal Atrium - Session EG-MoP

Epitaxial Growth Poster Session I

5:15 – 7:15 pm

EG-MoP-1 A Study of the Critical Thickness for Phase Transition of α -Gallium Oxide Grown on Sapphire Substrates by MOCVD, *Cheng-Han Lee, C. Gorsak, H. Nair*, Department of Materials Science and Engineering, Cornell University

EG-MoP-2 Epitaxial Growth of β -Ga₂O₃ Films on Mgo Substrate via Mist Chemical Vapor Deposition Method, *Takumi Ikenoue*, Kyoto University, Cronell University, Japan; *Y. Cho, V. Protasenko, C. Savant, B. Cromer*, Cornell University; *M. Miyake, T. Hirato*, Kyoto University, Japan; *M. Thompson, D. Jena, H. Xing*, Cornell University

EG-MoP-3 Fluid Analysis of MIST-CVD Chamber for Uniformity Improvement in Gallium Oxide Epitaxial Growth, *Jungyeop Hong, Y. Jung, D. Chun, J. Park, N. Joo, T. Kim*, Hyundai Motor Company, Republic of Korea

EG-MoP-6 The Effect of Excess Ga on Electron Transport in β -Ga₂O₃ Grown via Plasma Assisted Molecular Beam Epitaxy, *Thaddeus Asel, B. Noesges, Y. Kim, A. Neal, S. Mou*, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA

EG-MoP-7 Low-Pressure Chemical Vapor Deposition of Ultrawide Bandgap LiGa₅O₈ Thin Films, *Kaitian Zhang, L. Meng, H. Huang*, The Ohio State University; *J. Sarker*, University of Buffalo, SUNY; *A. Bhuiyan*, The Ohio State University; *B. Mazumder*, University of Buffalo, SUNY; *J. Hwang, H. Zhao*, The Ohio State University

EG-MoP-8 Controlling Si Dopant Profiles in n-type β -Gallium Oxide, *Brenton Noesges, Y. Kim, A. Neal, S. Mou, T. Asel*, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA

EG-MoP-9 Silicon-doped β -Ga₂O₃ Films Grown at 1 μ m/h by Suboxide Molecular-Beam Epitaxy, *Kathy Azizie, F. Hensling, C. Gorsak*, Cornell University; *Y. Kim*, Air Force Research Laboratory; *N. Pieczulewski*, Cornell University; *D. Dryden*, Air Force Research Laboratory; *M. Senevirathna, S. Coye*, Clark Atlanta University; *S. Shang*, Penn State University; *J. Steele, P. Vogt, N. Parker, Y. Birkhölzer, J. McCandless, D. Jena, H. Xing*, Cornell University; *Z. Liu*, Penn State University; *M. Williams*, Clark Atlanta University; *A. Green*, Air Force Research Laboratory; *D. Schlom*, Cornell University

EG-MoP-10 Epitaxial Growth of Metastable Ga₂O₃ Polymorphs Using MOCVD and HVPE, *Jingyu Tang, M. Moneck, M. Weiler, K. Jiang, R. Davis, L. Porter*, Carnegie Mellon University

EG-MoP-11 Pulsed Laser Deposition of α -Ga₂O₃ on M-Plane Al₂O₃: Growth Regime, Growth Process and Structural Properties, *Clemens Petersen*, University Leipzig, Felix Bloch Institute for Solid State Physics, Semiconductor Physics Group, Leipzig, Germany; *S. Vogt, H. von Wenckstern, M. Grundmann*, University Leipzig, Felix Bloch Institute for Solid State Physics, Semiconductor Physics Group, Germany

EG-MoP-4 High-Quality Power Device Grade β -Ga₂O₃ on 4H-SiC via Metal Organic Chemical Vapor Deposition, *I. Sanyal, A. Nandi, Martin Kuball*, University of Bristol, UK

Electronic Transport and Breakdown Phenomena

Room Bansal Atrium - Session ET-MoP

Electronic Transport and Breakdown Phenomena Poster Session

Session

5:15 – 7:15 pm

ET-MoP-1 Temperature Dependence of Bandgap and Anisotropy in Urbach Tail in β -Ga₂O₃, *A. Islam, N. Rock, Michael A. Scarpulla*, University of Utah

Heterogeneous Material Integration

Room Bansal Atrium - Session HM-MoP

Heterogeneous Material Integration Poster Session I

5:15 – 7:15 pm

HM-MoP-1 Characterization of Sputtered P-Type Nickel Oxide for Ga₂O₃ Devices, **Joseph Spencer**, Naval Research Laboratory; *Y. Ma, B. Wang, M. Xiao*, Virginia Tech; *A. Jacobs, J. Hajzus*, Naval Research Laboratory; *A. Mock*, Weber State University; *T. Anderson, K. Hobart*, Naval Research Laboratory; *Y. Zhang*, Virginia Tech; *M. Tadjer*, Naval Research Laboratory

Material and Device Processing and Fabrication Techniques

Room Bansal Atrium - Session MD-MoP

Material and Device Processing and Fabrication Techniques

Poster Session I

5:15 – 7:15 pm

MD-MoP-2 Characteristics of n-ITO/Ti/Au Multilayer for Ohmic Contact on β -Ga₂O₃ Epitaxial Layer, **Yusup Jung**, *H. Kim, S. Kim*, Powercubesemi Inc., Republic of Korea; *Y. Jung, D. Chun*, Hyundai Motor Company, Republic of Korea; *T. Kang, S. Kyoung*, Powercubesemi Inc., Republic of Korea

MD-MoP-3 β -Ga₂O₃ Schottky and Heterojunction Diodes Operating at Temperatures Up to 600°C, **Kingsley Egbo**, *S. Schaefer, W. Callahan, B. Tellekamp, A. Zakutayev*, National Renewable Energy Laboratory

MD-MoP-4 Structural Properties of Ga₂O₃ Surfaces Treated by Nitrogen Radical Irradiation, **Kura Nakaoka**, *S. Taniguchi, T. Kitada, M. Higashiwaki*, Department of Physics and Electronics, Osaka Metropolitan University, Japan

MD-MoP-6 Process Optimization of Sputtered High-K (Sr,Ba,Ca)TiO₃ for Ga₂O₃ Dielectric Layers, **Bennett Cromer**, *C. Gorsak, W. Zhao, L. Li, H. Nair, J. Hwang, B. Van Dover, D. Jena, G. Xing*, Cornell University

MD-MoP-7 Electrical Characteristics of MOCVD Grown β -Ga₂O₃ Schottky Diodes on (010) β -Ga₂O₃ Substrates, **Sudipto Saha**, University at Buffalo-SUNY; *L. Meng, D. Yu, A. Bhuiyan*, Ohio State University; *H. Zhao*, Ohio State University; *U. Singiseti*, University at Buffalo-SUNY

Tuesday Morning, August 15, 2023

Room Davis Hall 101		
8:30am	KEY-TuM-1 Welcome and Opening Remarks	Keynote Address Session KEY-TuM Keynote Address II Moderators: Uttam Singisetti , University of Buffalo, SUNY, Joel Varley , Lawrence Livermore National Laboratory
8:45am	INVITED: KEY-TuM-2 Bulk Single Crystals and Physical Properties of β -(Al _x Ga _{1-x}) ₂ O ₃ Grown by the Czochralski Method, Zbigniew Galazka , LEIBNIZ-INSTITUT FÜR KRISTALLZÜCHTUNG, Germany	
9:00am		
9:15am	INVITED: TM-TuM-4 Electron–Phonon Effects and Temperature-Dependence of the Electronic Structure of Monoclinic β -Ga ₂ O ₃ from First Principles, Elif Ertekin , C. Lee, University of Illinois at Urbana-Champaign, USA; M. Scarpulla , N. Rock, A. Islam, University of Utah	Theory, Modeling and Simulation Session TM-TuM Characterization/Modeling III Moderators: Uttam Singisetti , University of Buffalo, SUNY, Joel Varley , Lawrence Livermore National Laboratory
9:30am		
9:45am	TM-TuM-6 Ab-Initio Calculation of Low Field Electron Transport in Disordered Bulk β -(Al _x Ga _{1-x}) ₂ O ₃ Semiconductor Alloy, A. Sharma , Uttam Singisetti , University at Buffalo-SUNY	
10:00am	TM-TuM-7 Quantitative Modelling of Defect Concentrations in β -Ga ₂ O ₃ for Equilibrium, Full Quenching, and Generalized Quenching Scenarios, Khandakar Aaditta Arnab , I. Maxfield, University of Utah; C. Lee , E. Ertekin, University of Illinois at Urbana Champaign; J. Varley , Lawrence Livermore National Laboratory; Y. Frodason , University of Oslo, Norway; M. Scarpulla , University of Utah	
10:15am	TM-TuM-8 Exploring Gallium Oxide (β -Ga ₂ O ₃) Drift Layer Design: Theoretical Analysis and Trade-offs, Sundar Isukapati , S. DeBoer, S. Jang, SUNY Polytechnic Institute, Albany; Y. Jung , Hyundai Motor Company, Republic of Korea; W. Sung , SUNY Polytechnic Institute, Albany	
10:30am	BREAK	
10:45am	INVITED: AC+MD-TuM-10 Defects in Ga ₂ O ₃ : An Ultra-high Resolution Electron Microscopy Study, Nasim Alem , The Pennsylvania State University; A. Chmielewski , CEMES-CNRS, France	Advanced Characterization Techniques Session AC+MD-TuM Characterization/Modeling IV Moderator: Baishakhi Mazumder , University of Buffalo, SUNY
11:00am		
11:15am	AC+MD-TuM-12 Sub-oxide Ga to Enhance Growth Rate of β -Ga ₂ O ₃ by Plasma-assisted Molecular Beam Epitaxy, Zhuoqun Wen , K. Khan, E. Ahmadi, University of Michigan, Ann Arbor	
11:30am	AC+MD-TuM-13 Microscopic-Scale Defect Analysis on Ga ₂ O ₃ through Microscopy, M. Kim , NIST-Gaithersburg, Republic of Korea; A. Winchester , O. Maimon, NIST-Gaithersburg; S. Koo , KwangWoon University, Korea; Q. Li , George Mason University; Sujitra Pookpanratana , NIST-Gaithersburg	
11:45am	AC+MD-TuM-14 Characterization and Processing Improvements for Fabricating and Polishing β -Ga ₂ O ₃ Substrates, Robert Lavelle , D. Snyder, W. Everson, D. Erdely, L. Lyle, N. Alem, A. Balog, Penn State University; N. Mahadik , M. Liao, Naval Research Laboratory	
12:00pm	AC+MD-TuM-15 Formation of Atomic Scale Defects and Their Evolution at Ir Metal Contact on β -Ga ₂ O ₃ , H.-L. Huang , D. Ramdin, C. Chae, A. Dheenan, S. Dhara, S. Rajan, L. Brillson, Jinwoo Hwang , The Ohio State University	

Tuesday Afternoon, August 15, 2023

Room Davis Hall 101		
1:45pm	INVITED: EG+BG-TuA-1 Suitable Orientation for Homoepitaxial Growth of Gallium Oxide, <i>Kohei Sasaki</i> , A. Kuramata, Novel Crystal Technology, Inc., Japan	Epitaxial Growth Session EG+BG-TuA Bulk/Epitaxy II Moderator: Sriram Krishnamoorthy , University of California Santa Barbara
2:00pm		
2:15pm	EG+BG-TuA-3 Pushing the Al composition limit up to 99% in MOCVD β -(Al _x Ga _{1-x}) ₂ O ₃ films using TMGa as Ga precursor, A F M Anhar Uddin Bhuiyan , L. Meng, H. Huang, J. Hwang, H. Zhao, The Ohio State University	
2:30pm	EG+BG-TuA-4 Fast Growth and Characterization of Undoped β -Ga ₂ O ₃ on 2-Inch Substrates Using a Horizontal Hot-Wall MOVPE System, <i>Kazutada Ikenaga</i> , Tokyo University of Agriculture and Technology / TAIYO NIPPON SANSO CORPORATION, Japan; <i>J. Yoshinaga</i> , P. Guanxi, TAIYO NIPPON SANSO CORPORATION, Japan; <i>H. Tozato</i> , T. Okuyama, K. Goto, Y. Kumagai, Tokyo University of Agriculture and Technology, Japan	
2:45pm	INVITED: EG+BG-TuA-5 MBE Growth and Properties of Ultra-wide Bandgap Oxide Layers Spanning 5.0 - 9.0 eV Energy Gaps, <i>DebdEEP Jena</i> , Cornell University	
3:00pm		
3:15pm	EG+BG-TuA-7 Structural Defect Formation and Propagation in Fe-doped Czochralski-grown β -Ga ₂ O ₃ Boules, <i>Luke Lyle</i> , Pennsylvania State University - Applied Research Lab; <i>R. Lavelle</i> , Penn State University - Applied Research Lab; <i>D. Erdely</i> , Pennsylvania State University - Applied Research Lab; <i>W. Everson</i> , Penn State University - Applied Research Lab; <i>A. Balog</i> , N. Alem, Pennsylvania State University; <i>D. Snyder</i> , Pennsylvania State University - Applied Research Lab	
3:30pm	BREAK	
3:45pm	MD+AC+EP-TuA-9 Large Area Trench β -Ga ₂ O ₃ Schottky Barrier Diode with Extreme-K Dielectric Resurf, <i>Saurav Roy</i> , A. Bhattacharyya, University of California Santa Barbara; <i>J. Cooke</i> , University of Utah; <i>C. Peterson</i> , University of California Santa Barbara; <i>B. Rodriguez</i> , University of Utah; <i>S. Krishnamoorthy</i> , University of California Santa Barbara	Material and Device Processing and Fabrication Techniques Session MD+AC+EP-TuA Process/Devices II Moderator: Yuhao Zhang , Virginia Tech
4:00pm	MD+AC+EP-TuA-10 Fabrication and Characteristics of Ga ₂ O ₃ MOSFET using p-NiO for Normally-off Operation, <i>Daehwan Chun</i> , Y. Jung, J. Park, J. Hong, N. Joo, T. Kim, Hyundai Motor Company, Republic of Korea	
4:15pm	MD+AC+EP-TuA-11 On the Mg-Diffused Current Blocking Layer for Ga ₂ O ₃ Vertical Diffused Barrier Field-Effect-Transistor (VDBFET), <i>Ke Zeng</i> , Z. Bian, S. Chowdhury, Stanford University	
4:30pm	MD+AC+EP-TuA-12 Electrical Properties of p-NiO/ β -Ga ₂ O ₃ Vertical PN Heterojunction Diode for Power Device Applications, <i>Youngkyun Jung</i> , D. Chun, Hyundai Motor Company, Republic of Korea	
4:45pm	MD+AC+EP-TuA-13 Effects of Oxygen Reactive Ion Etching and Nitrogen Radical Irradiation on Electrical Properties of Ga ₂ O ₃ Schottky Barrier Diodes, <i>Shota Sato</i> , K. Eguchi, Department of Physics and Electronics, Osaka Metropolitan University, Japan; <i>Z. Wang</i> , National Institute of Information and Communications Technology, Japan; <i>T. Kitada</i> , M. Higashiwaki, Department of Physics and Electronics, Osaka Metropolitan University, Japan	

Advanced Characterization Techniques

Room Bansal Atrium - Session AC-TuP

Advanced Characterization Techniques Poster Session II

5:15 – 7:15 pm

AC-TuP-1 Photoluminescence Spectroscopy of Cr³⁺ in β -Ga₂O₃ and (Al_{0.1}Ga_{0.9})₂O₃, **Cassandra Remple**, Materials Science & Engineering Program, Washington State University; **L. Barmore**, Dept. of Physics and Astronomy, Washington State University; **J. Jesenovc**, **J. McCloy**, Institute of Materials Research, Materials Science & Engineering Program, Washington State University; **M. McCluskey**, Dept. of Physics and Astronomy, Washington State University

AC-TuP-2 Determining the Effects of Traps on the Effective Mobility of β -Ga₂O₃ MOSFETs using the Split C-V Method in Dark and Illumination Conditions and Pulsed I-V, **Ory Maimon**, George Mason University; **N. Moser**, Air Force Research Lab; **D. Chamria**, Colgate University; **K. Liddy**, **A. Green**, **K. Chabak**, Air Force Research Lab; **S. Pookpanratana**, **P. Shrestha**, National Institute of Standards and Technology (NIST); **Q. Li**, George Mason University

AC-TuP-3 Advanced Characterization Methods for Scale-up and Improvement of β -Ga₂O₃ Substrates, **Robert Lavelle**, **D. Snyder**, **W. Everson**, **D. Erdely**, **L. Lyle**, **A. Balog**, **N. Alem**, Penn State University

AC-TuP-4 Vacancies in Electron Irradiated β -Ga₂O₃ Probed with Positrons, **Marc Weber**, **C. Halverson**, Washington State University; **B. Dutton**, **C. Remple**, Washington State University, United States Minor Outlying Islands (the); **M. McCluskey**, Washington State University, US, United States Minor Outlying Islands (the); **M. Scarpulla**, University of Utah; **J. McCloy**, Washington State University, United States Minor Outlying Islands (the)

AC-TuP-5 Artificial Intelligence Assisted Vacancy Detection via 3D Microscopy in Doped and Undoped Ga₂O₃, **P. Garg**, **J. Sarker**, Department of Materials Design and Innovation, University at Buffalo; **A. Uddin Bhuiyan**, **L. Meng**, Department of Electrical and Computer Engineering, The Ohio State University; **H. Zhao**, Department of Electrical and Computer Engineering & Department of Materials Science and Engineering, The Ohio State University; **K. Reyes**, **Baishakhi Mazumder**, Department of Materials Design and Innovation, University at Buffalo

AC-TuP-6 Silicon Ion Implantation in β -Ga₂O₃: Effect of Temperature on Atomic Damage and Recovery, **Naomi Pieczulewski**, **K. Gann**, Cornell University; **T. Asel**, **B. Noesges**, Air Force Research Laboratory; **K. Heinselman**, National Renewable Energy Laboratory; **M. Thompson**, **D. Muller**, Cornell University

AC-TuP-8 Kinetics of Compensation in Sn-doped Ga₂O₃ During O₂ Annealing Revealed by FTIR and Modelling, **J. High**, **H. Yang**, **N. Rock**, **Mike Scarpulla**, University of Utah

AC-TuP-9 Cation Vacancy and Dopant Diffusion in β -Ga₂O₃, **Nathan David Rock**, **A. Levin**, University of Utah; **A. Bhattacharyya**, University of California Santa Barbara; **H. Yang**, **B. Eisner**, University of Utah; **S. Krishnamoorthy**, University of California Santa Barbara; **M. Scarpulla**, University of Utah

Bulk Growth

Room Bansal Atrium - Session BG-TuP

Bulk Growth Poster Session II

5:15 – 7:15 pm

BG-TuP-5 β -Ga₂O₃ Single Crystal Growth by EFG Method using Die with Multi-Slit Structure, **Yeon-Geun Seong**, **Y. Moon**, Axel, Republic of Korea; **H. Jang**, **S. Choi**, **C. Min-Ji**, **S. Seo**, **M. Park**, **Y. Jang**, **W. Lee**, Dongeui University, Republic of Korea; **J. Kang**, Axel, Republic of Korea

Electronic and Photonic Devices, Circuits and Applications

Room Bansal Atrium - Session EP-TuP

Electronic and Photonic Devices, Circuits and Applications

Poster Session II

5:15 – 7:15 pm

EP-TuP-6 Investigating the Properties of β -Ga₂O₃ Schottky Diodes on MOCVD-Grown (001) Drift Layer, **Prakash P. Sundaram**, University of Minnesota, USA; **F. Alema**, **A. Osinsky**, Agnitron Technology; **S. Koester**, University of Minnesota, USA

EP-TuP-8 Operation of β -Ga₂O₃ Field-effect Transistors at 650 °C, **James Spencer Lundh**, **H. Masten**, National Research Council Postdoctoral Fellow residing at US Naval Research Laboratory (DC); **F. Alema**, **A. Osinsky**, Agnitron Technology, Inc.; **A. Jacobs**, **K. Hobart**, **T. Anderson**, **M. Tadjer**, US Naval Research Laboratory

Heterogeneous Material Integration

Room Bansal Atrium - Session HM-TuP

Heterogeneous Material Integration Poster Session II

5:15 – 7:15 pm

HM-TuP-1 Bond-and-Thin Process for Making Heterogeneous Substrate with a Thin Ga₂O₃ Layer on Polycrystalline SiC Substrate, **Alex Usenko**, **A. Caruso**, University of Missouri-Kansas City; **S. Bellinger**, Semiconductor Power Technologies

HM-TuP-3 Design of 10 kV P-Diamond/I-Ga₂O₃/N-Ga₂O₃ Power PN Diodes, **Hunter Ellis**, **K. Fu**, Department of Electrical and Computer Engineering, University of Utah

HM-TuP-5 Heterogeneous Material Integration, **Yash Mirchandani**, Synrtech

HM-TuP-6 Si/Ga₂O₃ and GaAsP/Ga₂O₃ P-N Diodes via Semiconductor Grafting, **J. Zhou**, **D. Kim**, **H. Jang**, **Q. Lin**, **Jiarui Gong**, University of Wisconsin - Madison; **F. Alema**, **A. Osinsky**, Agnitron Technology Inc.; **K. Chabak**, **G. Jessen**, Air Force Research Laboratory; **S. Pasayat**, University of Wisconsin - Madison; **C. Cheung**, **V. Gambin**, Northrop Grumman; **C. Gupta**, **Z. Ma**, University of Wisconsin - Madison

Material and Device Processing and Fabrication Techniques

Room Bansal Atrium - Session MD-TuP

Material and Device Processing and Fabrication Techniques

Poster Session II

5:15 – 7:15 pm

MD-TuP-1 Growth of Room Temperature Polycrystalline β -Gallium Oxide Thin Film, **Damanpreet Kaur**, **M. Kumar**, Indian Institute of Technology Ropar, India

MD-TuP-2 Performance and Traps of Ga₂O₃ Schottky Barrier Diodes with Mesa Structure, **Min-Yeong Kim**, NIST-Gaithersburg, Republic of Korea; **O. Maimon**, NIST-Gaithersburg; **N. Hendricks**, **N. Moser**, Air Force Research Laboratory, USA; **S. Pookpanratana**, NIST-Gaithersburg; **S. Koo**, KwangWoon University, Korea; **Q. Li**, George Mason University

MD-TuP-4 Evolution of Lattice Distortions Throughout Various Stages of (010) β -Ga₂O₃ Substrate Preparation, **Michael Liao**, National Research Council Postdoctoral at the U.S. Naval Research Laboratory; **N. Mahadik**, Naval Research Laboratory; **R. Lavelle**, **D. Snyder**, **W. Everson**, **D. Erdely**, **L. Lyle**, **N. Alem**, **A. Balog**, Penn State University; **T. Anderson**, Naval Research Laboratory

MD-TuP-5 Investigation of In-Plane Anisotropy of In-situ Ga etching on (010) β -Ga₂O₃, **Abishek Katta**, Arizona State University; **F. Alema**, **W. Brand**, **A. Osinsky**, Agnitron Technologies; **N. Kalarickal**, School of Electrical, Computer and Energy Engineering, Arizona State University

MD-TuP-6 Understanding Ohmic Contacts to N+ Doped (010) β -Ga₂O₃ by Both In-Situ MOCVD Doping and Silicon Ion Implantation, **Kathleen Smith**, **K. Gann**, **C. Gorsak**, **N. Pieczulewski**, **H. Nair**, **M. Thompson**, **D. Jena**, **H. Xing**, Cornell University

MD-TuP-7 Heteroepitaxial Growth of ZnGa₂O₄ by Post-Deposition Annealing of ZnO on Ga₂O₃ Substrate, **Stefan Kosanovic**, **K. Sun**, University of Michigan, Ann Arbor; **U. Mishra**, University of California Santa Barbara; **E. Ahmadi**, University of Michigan, Ann Arbor

MD-TuP-8 Revitalizing Fractured β -Ga₂O₃ Nanomembranes: Nanogap Recovery for Enhanced Charge Transport Performance, **M. Hasan**, **J. Lai**, **Jung-Hun Seo**, University at Buffalo

MD-TuP-9 Impact of Magnetron Sputtered Ultra-Thin Layer of Fe-Doped β -Ga₂O₃ on Gallium Oxide Schottky Contacts, **Adetayo Adedeji**, Elizabeth City State University; **J. Merrett**, Air Force Research Laboratory, Aerospace Systems Directorate; **J. Lawson**, **C. Ebbing**, University of Dayton Research Institute

MD-TuP-10 An Investigation of (001) β -Ga₂O₃ Etching via Heated H₃PO₄, **Steve Rebollo**, **T. Itoh**, **S. Krishnamoorthy**, **J. Speck**, University of California, Santa Barbara

MD-TuP-11 An Organic, Direct Bonded Copper, Multi-Layered, Ultra-Low Inductance Package for High-Power UWBG MOSFETs, **J. Major**, **J. Calder**, **S. Zhao**, **Faisal Khan**, National Renewable Energy Laboratory

Theory, Modeling and Simulation

Room Bansal Atrium - Session TM-TuP

Theory, Modeling and Simulation Poster Session

5:15 – 7:15 pm

TM-TuP-1 Investigation of Oxygen Interstitial Diffusion Pathways in β -Ga₂O₃, **Grace McKnight**, **C. Lee**, **E. Ertekin**, University of Illinois at Urbana-Champaign

Tuesday Evening, August 15, 2023

TM-TuP-2 Optoelectronic Properties of $(\text{In,Ga})_2\text{O}_3$ using First Principles Calculations, *E. Welch*, Prairie View A&M University; *P. Borges*, Federal University of Vicosa - Rio Paranaiba, Brazil; **Luisa Scolfaro**, *M. Talukder*, *R. Droopad*, Texas State University

TM-TuP-3 Modeling of $\beta\text{-(Al,Ga}_{1-x}\text{)}_2\text{O}_3/\text{Ga}_2\text{O}_3$ High Electron Mobility Transistor (HEMT) and Current Aperture Vertical Electron Transistor (CAVET), **Dawei Wang**, *D. Herath Mudiyansele*, *H. Fu*, Arizona State University

TM-TuP-4 Electronic Band Structure and Excitons in LiGaO_2 and LiGa_5O_8 , *N. Dadkhah*, Case Western Reserve University; *K. Dabsamut*, Kasetsart University, Thailand; **Walter R. L. Lambrecht**, Case Western Reserve University

TM-TuP-5 Two-Dimensional Analytical Modeling of the Surface Potential of a Double-Gate Vertical Fin-Shaped Ga_2O_3 Power Transistor, **Twisha Titirsha**, *M. Hossain*, *M. Shuvo*, *Q. Huang*, *J. Gahl*, *S. Islam*, University of Missouri, Columbia

Wednesday Morning, August 16, 2023

Room Davis Hall 101			
8:30am	KEY-WeM-1 Welcome and Opening Remarks	Keynote Address Session KEY-WeM Keynote Address III Moderators: Hari Nair , Cornell University, Uttam Singiseti , University of Buffalo, SUNY	
8:45am	INVITED: KEY-WeM-2 Gallium Oxide Microelectronics for Department of Air Force Applications, <i>Kelson Chabak</i> , Air Force Research Laboratory		
9:00am			
9:15am	EG+BG+MD-WeM-4 Growth of α -(Al _x Ga _{1-x}) ₂ O ₃ by Suboxide Molecular-Beam Epitaxy, <i>Jacob Steele</i> , K. Azizie, N. Pieczulewski, J. McCandless, D. Muller, H. Xing, D. Jena, Cornell University; T. Onuma, Kogakuin University, Japan; D. Schlom, Cornell University (USA) and Leibniz-Institut für Kristallzüchtung (Germany)	Epitaxial Growth Session EG+BG+MD-WeM Epitaxial III Moderators: Hari Nair , Cornell University, Uttam Singiseti , University of Buffalo, SUNY	
9:30am	EG+BG+MD-WeM-5 Structural, Electrical, and Thermal Characterization of CIS-MOCVD β -Ga ₂ O ₃ Epitaxial Buffer Layers, <i>Hannah Masten</i> , Naval Research Laboratory; G. Alvarez, Cornell University; C. Halverson, Washington State University; M. Liao, J. Lundh, Naval Research Laboratory; F. Alema, A. Osinsky, Agnitron Technology; A. Jacobs, Naval Research Laboratory; M. Weber, Washington State University; Z. Tian, Cornell University; K. Hobart, M. Tadjer, Naval Research Laboratory		
9:45am	EG+BG+MD-WeM-6 Electrical and Optical Properties of Melt-Grown Mn Doped β -Ga ₂ O ₃ , <i>Benjamin Dutton</i> , C. Remple, J. Jesenovec, Washington State University; J. Varley, L. Voss, Lawrence Livermore National Laboratory; M. McCluskey, J. McCloy, Washington State University		
10:00am	EG+BG+MD-WeM-7 Mg and Zn Counter doping of Homoepitaxial β -Ga ₂ O ₃ Grown by Molecular Beam Epitaxy, <i>Stephen Schaefer</i> , K. Egbo, S. Harvey, A. Zakutayev, B. Tellekamp, National Renewable Energy Laboratory		
10:15am	EG+BG+MD-WeM-8 Optimizing Si Implantation and Annealing in β -Ga ₂ O ₃ , <i>Katie Gann</i> , N. Pieczulewski, Cornell University; T. Asel, Air Force Research Laboratory; C. Gorsak, Cornell University; K. Heinselmann, national renewable Energy Laboratory; K. Smith, J. McCandless, Cornell University; B. Noesges, Air Force Research Lab; G. Xing, D. Jena, H. Nair, D. Muller, M. Thompson, Cornell University		
10:30am	BREAK		
10:45am	INVITED: EP+ET+MD-WeM-10 Recent Progress of Ga ₂ O ₃ Power Technology: Large-Area Devices, Packaging, and Applications, <i>Yuhao Zhang</i> , Virginia Tech		Electronic and Photonic Devices, Circuits and Applications Session EP+ET+MD-WeM Process/Devices III Moderator: Marko Tadjer , Naval Research Laboratory
11:00am			
11:15am	EP+ET+MD-WeM-12 Forward and Reverse Current Transport of (001) β -Ga ₂ O ₃ Schottky Barrier Diodes and TiO ₂ / β -Ga ₂ O ₃ Heterojunction Diodes with Various Schottky Metals, <i>Nolan Hendricks</i> , AFRL, UCSB; E. Farzana, UCSB; A. Islam, D. Dryden, J. Williams, Air Force Research Lab; J. Speck, UCSB; A. Green, Air Force Research Lab		
11:30am	EP+ET+MD-WeM-13 Vertical β -Ga ₂ O ₃ Diodes with PtO ₂ /Interlayer Pt Schottky Contact and High Permittivity Dielectric Field Plate for Low Loss and High Breakdown Voltage, E. Farzana, S. Roy, <i>Nolan Hendricks</i> , S. Krishnamoorthy, J. Speck, University of California Santa Barbara		
11:45am	EP+ET+MD-WeM-14 Ni/TiO ₂ / β -Ga ₂ O ₃ Heterojunction Diodes with NiO Guard Ring Simultaneously Increasing Breakdown Voltage and Reducing Turn-on Voltage, J. Williams, N. Hendricks, Air Force Research Lab; <i>Weisong Wang</i> , Wright State University; A. Adams, Apex Micro Devices; J. Piel, D. Dryden, K. Liddy, Air Force Research Lab; N. Sepelak, KBR Inc.; B. Morell, Cornell University; A. Miesle, University of Dayton; A. Islam, A. Green, Air Force Research Lab		
12:00pm	EP+ET+MD-WeM-15 Fabrication of Self Aligned β -Ga ₂ O ₃ Junction Barrier Schottky Diodes with NiO Field Termination, <i>Joseph Spencer</i> , Naval Research Laboratory; B. Wang, M. Xiao, Virginia Tech; A. Jacobs, T. Anderson, K. Hobart, Naval Research Laboratory; Y. Zhang, Virginia Tech; M. Tadjer, Naval Research Laboratory		
12:15pm	EP+ET+MD-WeM-16 Ni/BaTiO ₃ / β -Ga ₂ O ₃ Solar-Blind UV Photodetectors with Deep Etch Edge Termination, <i>Nathan Wriedt</i> , S. Rajan, Ohio State University		
12:30pm	Best Paper Awards, e-Surveys, and Closing Remarks		

Bold page numbers indicate presenter

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EP+ET+MD-WeM-10, **11**; EP+ET+MD-WeM-15, 11; HM-MoP-1, 6
Zhao, H.: AC-TuP-5, 9; EG+BG-TuA-3, 8; EG-MoM-13, 3; EG-MoP-7, 5; EP+HM+MD-MoA-3, 4; MD-MoP-7, 6
Zhao, W.: MD-MoP-6, 6
Zhelezova, I.: AC-TuP-7, 9
Zhou, J.: HM-TuP-4, 9; HM-TuP-6, **9**