

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 Singiseti , 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 Singiseti , 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. Irmscher, 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		
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. Irmscher, 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: Andrew Green , Air Force Research Laboratory, USA
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. Hilfiker</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	
5:00pm		

Advanced Characterization Techniques

Room Bansal Atrium - Session AC-MoP

Advanced Characterization Techniques Poster Session I

5:15pm

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, M. 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; *Berardi 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. McCoy*, Washington State University; *N. Alem*, The Pennsylvania State University

Bulk Growth

Room Bansal Atrium - Session BG-MoP

Bulk Growth Poster Session I

5:15pm

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-3 Evaluation Structural Properties of β -Ga₂O₃ Thin Film Fabricated by Sol-Gel Method, *Jiha Seong, S. Park, H. Kim, S. Shin, J. Choi, J. Hong, K. Kim, T. Park*, Gachon 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

5:15pm

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

5:15pm

EP-MoP-1 High Performance DUV pin Photodetector p-NiO/i- β -Ga₂O₃/n- β -Ga₂O₃ with Controlled a Fermi Level of p-NiO Layer, *Hyungmin Kim, S. Park, S. Shin, J. Hong, K. Kim, J. Seong, J. Choi*, Gachon University, Republic of Korea

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

Electronic Transport and Breakdown Phenomena

Room Bansal Atrium - Session ET-MoP

Electronic Transport and Breakdown Phenomena Poster

Session

5:15pm

ET-MoP-2 Temperature Dependence of Bandgap and Anisotropy in Urbach Tail in β -Ga₂O₃, *Ariful Islam, N. Rock, M. Scarpulla*, University of Utah

Epitaxial Growth

Room Bansal Atrium - Session EG-MoP

Epitaxial Growth Poster Session I

5:15pm

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

EG-MoP-5 Ion Beam Sputter Deposition of Epitaxial Ga₂O₃ Thin Films, *Dmitry Kalanov, Y. Unutulmazsoy, J. Gerlach, A. Lotnyk, J. Bauer, A. Anders, C. Bundesmann*, Leibniz Institute of Surface Engineering (IOM), Germany

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 Azzie, 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

Heterogeneous Material Integration

Room Bansal Atrium - Session HM-MoP

Heterogeneous Material Integration Poster Session I

5:15pm

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

5:15pm

MD-MoP-1 Characteristics of Ni/p-NiO/ β -Ga₂O₃ Vertical Heterojunction pn Diode with Field Limiting Rings, **Sinsu Kyoung**, *Y. Jung, H. Kim, S. Kim*, Powercubesemi Inc., Republic of Korea; *Y. Jung, D. Chun*, Hyundai Motor Company, Republic of Korea; *T. Kang*, Powercubesemi Inc., Republic of Korea

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-5 Interface Engineering of p-CuAlO₂/b-Ga₂O₃ Heterojunction with a p-type Quaternary Metal Oxide Semiconductor Interlayer, **Venkata Prasad Chowdam**, *Y. Rim*, Sejong University, Republic of Korea

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

MD-MoP-8 Monolithic β -Ga₂O₃ NMOS IC Based on Heteroepitaxial E-Mode MOSFETs, **Vishal Khandelwal**, King Abdullah University of Science and Technology, Saudi Arabia

Tuesday Morning, August 15, 2023

Room Davis Hall 101		
8:30am	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, Ankit Sharma , U. 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 Formation of Atomic Scale Defects and Their Evolution at Ir Metal Contact on β -Ga ₂ O ₃ , Hsien-Lien Huang , D. Ramdin, C. Chae, A. Dheenan, S. Dhara, S. Rajan, L. Brillson, J. Hwang, The Ohio State University	
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		

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, A. Kuramata</i> , 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, <i>A F M Anhar Uddin Bhuiyan, L. Meng, H. Huang, J. Hwang, H. Zhao</i> , 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, P. Guanxi</i> , TAIYO NIPPON SANSO CORPORATION, Japan; <i>H. Tozato, T. Okuyama, K. Goto, Y. Kumagai</i> , 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, N. Alem</i> , 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, A. Bhattacharyya</i> , 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, Y. Jung, J. Park, J. Hong, N. Joo, T. Kim</i> , 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, Z. Bian, S. Chowdhury</i> , 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, D. Chun</i> , 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, K. Eguchi</i> , Department of Physics and Electronics, Osaka Metropolitan University, Japan; <i>Z. Wang</i> , National Institute of Information and Communications Technology, Japan; <i>T. Kitada, M. Higashiwaki</i> , Department of Physics and Electronics, Osaka Metropolitan University, Japan	
5:00pm		

Advanced Characterization Techniques

Room Bansal Atrium - Session AC-TuP

Advanced Characterization Techniques Poster Session II

5:15pm

AC-TuP-1 Photoluminescence Spectroscopy of Cr^{3+} in $\beta\text{-Ga}_2\text{O}_3$ and $(\text{Al}_{0.1}\text{Ga}_{0.9})_2\text{O}_3$, *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 $\beta\text{-Ga}_2\text{O}_3$ 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 $\beta\text{-Ga}_2\text{O}_3$ 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 $\beta\text{-Ga}_2\text{O}_3$ 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 Ga_2O_3 , *Prachi 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*, *B. Mazumder*, Department of Materials Design and Innovation, University at Buffalo

AC-TuP-6 Silicon Ion Implantation in $\beta\text{-Ga}_2\text{O}_3$: 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

Bulk Growth

Room Bansal Atrium - Session BG-TuP

Bulk Growth Poster Session II

5:15pm

BG-TuP-5 $\beta\text{-Ga}_2\text{O}_3$ 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

Dielectric Interfaces

Room Bansal Atrium - Session DI-TuP

Dielectric Interfaces Poster Session II

5:15pm

DI-TuP-1 HfO_2 Interlayer Effect on $\text{Ni}/\beta\text{-Ga}_2\text{O}_3$ SBD, *Madadni Labeled*, *J. Min*, *Y. Rim*, Department of Intelligent Mechatronics Engineering, Sejong University, 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

5:15pm

EP-TuP-1 A Self-powered Deep UV Photodetector based on $\text{CuO}/\beta\text{-Ga}_2\text{O}_3$ Heterojunction, *Sangbin Park*, *H. Kim*, *S. Shin*, *J. Choi*, *J. Seong*, *K. Kim*, *J. Hong*, Gachon University, Republic of Korea

EP-TuP-2 Self-Powered $\text{Ag}_2\text{O}/\beta\text{-Ga}_2\text{O}_3$ Heterojunction Photodetector Fabricated Under Different Conditions, *Seongmin Shin*, *T. Park*, *S. Park*, *H. Kim*, *J. Choi*, *J. Seong*, *K. Kim*, *J. Hong*, Gachon University, Republic of Korea

EP-TuP-3 High Responsivity and Stability of $\text{Ag}_2\text{O}/\beta\text{-Ga}_2\text{O}_3$ Heterojunction-Based Self-Powered DUV Photodetector with Different Condition of Top Electrode, *Jiyeon Choi*, *H. Kim*, *S. Park*, *S. Shin*, *J. Hong*, *K. Kim*, *J. Seong*, Gachon University, Republic of Korea

EP-TuP-4 High-temperature Operable Ambipolar Gallium Oxide Transistors for CMOS IC, *Saravanan Yuvaraja*, King Abdullah University of Science and Technology, Saudi Arabia; *V. Khandelwal*, King Abdullah University of Science and Technology, India; *X. Li*, King Abdullah University of Science and Technology, Saudi Arabia

EP-TuP-6 Investigating the Properties of $\beta\text{-Ga}_2\text{O}_3$ 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

Heterogeneous Material Integration

Room Bansal Atrium - Session HM-TuP

Heterogeneous Material Integration Poster Session II

5:15pm

HM-TuP-1 Bond-and-Thin Process for Making Heterogeneous Substrate with a Thin Ga_2O_3 Layer on Polycrystalline SiC Substrate, *Alex Usenko*, *A. Caruso*, University of Missouri-Kansas City; *S. Bellinger*, Semiconductor Power Technologies

HM-TuP-2 Beyond Flexible Micatronics: Epitaxy and Exfoliation of Ultrathin Ga_2O_3 Membrane for Vertical Electronics, *Yi Lu*, *S. Chandroth*, *X. Tang*, *Z. Liu*, *X. Li*, King Abdullah University of Science and Technology, Saudi Arabia

HM-TuP-3 Design of 10 Kv P-Diamond/ $\text{I-Ga}_2\text{O}_3/\text{N-Ga}_2\text{O}_3$ Power Pn Diodes, *Hunter Ellis*, *K. Fu*, Department of Electrical and Computer Engineering, University of Utah

HM-TuP-4 Grafted High Voltage ($\sim 400\text{V}$) p-Si/ (100) n- Ga_2O_3 Heterojunction Diode, *Shuwen Xie*, *M. Sheikhi*, *M. Alam*, *Q. Lin*, *J. Zhou*, *S. Pasayat*, *Z. Ma*, *C. Gupta*, University of Wisconsin-Madison

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

HM-TuP-6 Si/ Ga_2O_3 and GaAsP/ Ga_2O_3 P-N Diodes via Semiconductor Grafting, *Jie Zhou*, *D. Kim*, *H. Jang*, *Q. Lin*, *J. 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

5:15pm

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 Ga_2O_3 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-3 Demonstration of $\beta\text{-Ga}_2\text{O}_3$ Flash Memory for Oxide Electronics, *Vishal Khandelwal*, King Abdullah University of Science and Technology, Saudi Arabia

MD-TuP-4 Evolution of Lattice Distortions Throughout Various Stages of (010) $\beta\text{-Ga}_2\text{O}_3$ 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) $\beta\text{-Ga}_2\text{O}_3$, *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) $\beta\text{-Ga}_2\text{O}_3$ 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 ZnGa_2O_4 by Post-Deposition Annealing of ZnO on Ga_2O_3 Substrate, *Stefan Kosanovic*, *K. Sun*, University of Michigan, Ann Arbor; *U. Mishra*, University of California Santa Barbara; *E. Ahmadi*, University of Michigan, Ann Arbor

Theory, Modeling and Simulation

Room Bansal Atrium - Session TM-TuP

Theory, Modeling and Simulation Poster Session

5:15pm

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

TM-TuP-2 Optoelectronic Properties of (In,Ga)₂O₃ using First Principles Calculations, E. Welch, Prairie View A&M University; P. Borges, Federal University of Vicosa - Rio Paranaiba, Brazil; **Luisa Scalfaro**, M. Talukder, R. Droopad, Texas State University

TM-TuP-3 Modeling of β -(Al_xGa_{1-x})₂O₃/Ga₂O₃ 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 LiGaO₂ and LiGa₅O₈, N. Dadkhah, Case Western Reserve University; K. Dabsamut, Kasetsart University, Thailand; **Walter R. L. Lambrecht**, Case Western Reserve University

Wednesday Morning, August 16, 2023

Room Davis Hall 101		
8:30am	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 _x /Interlayer Pt Schottky Contact and High Permittivity Dielectric Field Plate for Low Loss and High Breakdown Voltage, <i>Esmat Farzana</i> , S. Roy, 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	

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Gerlach, J.: EG-MoP-5, 5
Goldhahn, R.: AC+TM-MoM-6, 3
Gong, J.: HM-TuP-6, 9
Goorsky, M.: AC+DI+HM+TM-MoA-13, 4
Gorsak, C.: EG+BG+MD-WeM-8, 11; EG-MoM-15, 3; EG-MoP-1, 5; EG-MoP-9, 5; MD-MoP-6, 6; MD-TuP-6, 10
Goto, K.: EG+BG-TuA-4, 8
Green, A.: AC+DI+HM+TM-MoA-12, 4; AC-TuP-2, 9; EG-MoP-9, 5; EP+ET+MD-WeM-12, 11; EP+ET+MD-WeM-14, 11; EP+HM+MD-MoA-4, 4; EP+HM+MD-MoA-5, 4
Grundmann, M.: AC+TM-MoM-6, 3
Grüneberg, R.: EG-MoM-12, 3
Gu, T.: BG-MoP-5, 5
Guanxi, P.: EG+BG-TuA-4, 8
Gupta, C.: HM-TuP-4, 9; HM-TuP-6, 9

— H —

Hajizadeh, N.: AC+TM-MoM-6, 3
Hajzus, J.: HM-MoP-1, 6
Halverson, C.: AC-TuP-4, 9; EG+BG+MD-WeM-5, 11
Harada, S.: BG-MoP-5, 5
Hartung, C.: AC+TM-MoM-6, 3
Harvey, S.: EG+BG+MD-WeM-7, 11
Heckman, E.: EP+HM+MD-MoA-5, 4
Heinzelman, K.: AC-TuP-6, 9; EG+BG+MD-WeM-8, 11
Hendricks, N.: EP+ET+MD-WeM-12, 11; EP+ET+MD-WeM-14, 11; EP+HM+MD-MoA-4, 4; EP+HM+MD-MoA-5, 4; MD-TuP-2, 9
Hensling, F.: EG-MoP-9, 5
Herath Mudiyansele, D.: EP-MoP-2, 5; TM-TuP-3, 10
Higashiwaki, M.: EP+HM+MD-MoA-7, 4; MD+AC+EP-TuA-13, 8; MD-MoP-4, 6
Hilfiker, M.: AC+DI+HM+TM-MoA-9, 4; AC+TM-MoM-7, 3
Hirato, T.: EG-MoP-2, 5
Hobart, K.: AC+DI+HM+TM-MoA-13, 4; EG+BG+MD-WeM-5, 11; EP+ET+MD-WeM-15, 11; HM-MoP-1, 6
Hong, J.: BG-MoP-3, 5; EG-MoP-3, 5; EP-MoP-1, 5; EP-TuP-1, 9; EP-TuP-2, 9; EP-TuP-3, 9; MD+AC+EP-TuA-10, 8
Huang, H.: AC+MD-TuM-12, 7; AC+TM-MoM-4, 3; EG+BG-TuA-3, 8; EG-MoP-7, 5
Huynh, K.: AC+DI+HM+TM-MoA-13, 4
Hwang, J.: AC+MD-TuM-12, 7; AC+TM-MoM-4, 3; EG+BG-TuA-3, 8; EG-MoP-7, 5; MD-MoP-6, 6

— I —

Ikenaga, K.: EG+BG-TuA-4, **8**
Ikenoue, T.: EG-MoP-2, **5**
Irmscher, K.: AC+TM-MoM-5, **3**; EG-MoM-12, **3**
Ishiji, K.: BG-MoP-5, **5**
Islam, A.: AC+DI+HM+TM-MoA-12, **4**;
EP+ET+MD-WeM-12, **11**; EP+ET+MD-WeM-14, **11**; EP+HM+MD-MoA-4, **4**;
EP+HM+MD-MoA-5, **4**; ET-MoP-2, **5**; TM-TuM-4, **7**
Isukapati, S.: TM-TuM-8, **7**
Itoh, T.: EG-MoM-14, **3**

— J —

Jacobs, A.: EG+BG+MD-WeM-5, **11**;
EP+ET+MD-WeM-15, **11**; HM-MoP-1, **6**
Jang, H.: BG-MoP-2, **5**; BG-TuP-5, **9**; HM-TuP-6, **9**
JANG, H.: BG-MoP-4, **5**
Jang, S.: TM-TuM-8, **7**
Jang, Y.: BG-MoP-2, **5**; BG-TuP-5, **9**
JANG, Y.: BG-MoP-4, **5**
Janzen, B.: AC+TM-MoM-6, **3**
Jena, D.: EG+BG+MD-WeM-4, **11**;
EG+BG+MD-WeM-8, **11**; EG+BG-TuA-5, **8**;
EG-MoM-15, **3**; EG-MoP-2, **5**; EG-MoP-9, **5**;
MD-MoP-6, **6**; MD-TuP-6, **10**
Jeong, S.: BG-MoP-5, **5**
Jeong, W.: BG-MoP-5, **5**
Jesenovec, J.: AC-MoP-4, **5**; AC-TuP-1, **9**;
EG+BG+MD-WeM-6, **11**
Jessen, G.: HM-TuP-6, **9**
Jiang, K.: EG-MoP-10, **5**
Johar, M.: BG-MoP-1, **5**
Joo, N.: EG-MoP-3, **5**; MD+AC+EP-TuA-10, **8**
Jung, Y.: EG-MoP-3, **5**; MD+AC+EP-TuA-10, **8**;
MD+AC+EP-TuA-12, **8**; MD-MoP-1, **6**;
MD-MoP-2, **6**; TM-TuM-8, **7**

— K —

Kalanov, D.: EG-MoP-5, **5**
Kalarickal, N.: MD-TuP-5, **9**
Kang, J.: BG-MoP-2, **5**; BG-MoP-5, **5**; BG-TuP-5, **9**
KANG, J.: BG-MoP-4, **5**
Kang, T.: MD-MoP-1, **6**; MD-MoP-2, **6**
Kato, T.: AC+TM-MoM-6, **3**
Katta, A.: MD-TuP-5, **9**
Kaur, D.: EP-MoP-3, **5**; MD-TuP-1, **9**
Khandelwal, V.: EP-TuP-4, **9**; MD-TuP-3, **9**;
MD-MoP-8, **6**
Kim, D.: HM-TuP-6, **9**
Kim, H.: BG-MoP-3, **5**; EP+HM+MD-MoA-1, **4**;
EP-MoP-1, **5**; EP-TuP-1, **9**; EP-TuP-2, **9**;
EP-TuP-3, **9**; MD-MoP-1, **6**; MD-MoP-2, **6**
KIM, H.: BG-MoP-4, **5**
Kim, K.: BG-MoP-3, **5**; EP-MoP-1, **5**; EP-TuP-1, **9**;
EP-TuP-2, **9**; EP-TuP-3, **9**
Kim, M.: AC+MD-TuM-13, **7**; MD-TuP-2, **9**
Kim, S.: MD-MoP-1, **6**; MD-MoP-2, **6**
Kim, T.: EG-MoP-3, **5**; MD+AC+EP-TuA-10, **8**

Kim, Y.: AC-MoP-3, **5**; EG-MoP-6, **5**; EG-MoP-8, **5**; EG-MoP-9, **5**
Kitada, T.: MD+AC+EP-TuA-13, **8**; MD-MoP-4, **6**
Kluth, E.: AC+TM-MoM-6, **3**
Knight, S.: AC+DI+HM+TM-MoA-9, **4**
Knudtson, J.: AC+TM-MoM-7, **3**
Koester, S.: EP-TuP-6, **9**
Koo, S.: AC+MD-TuM-13, **7**; MD-TuP-2, **9**
Korlacki, R.: AC+DI+HM+TM-MoA-9, **4**;
AC+TM-MoM-7, **3**
Kosanovic, S.: MD-TuP-7, **10**
Krishnamoorthy, S.: AC-MoP-2, **5**; DI-MoP-1, **5**;
EP+ET+MD-WeM-13, **11**;
EP+HM+MD-MoA-6, **4**; MD+AC+EP-TuA-9, **8**
Kuball, M.: EG-MoP-4, **5**; EP+HM+MD-MoA-1, **4**;
EP+HM+MD-MoA-7, **4**
Kumagai, Y.: EG+BG-TuA-4, **8**
Kumar, M.: EP-TuP-5, **9**; MD-TuP-1, **9**
Kumar, S.: EP+HM+MD-MoA-7, **4**
Kuramata, A.: EG+BG-TuA-1, **8**; KEY-MoM-2, **3**
Kyoung, S.: MD-MoP-1, **6**; MD-MoP-2, **6**

— L —

Labeled, M.: DI-TuP-1, **9**
Lambrecht, W.: TM-TuP-4, **10**
Lavelle, R.: AC+MD-TuM-14, **7**; AC-MoP-4, **5**;
AC-TuP-3, **9**; EG+BG-TuA-7, **8**; MD-TuP-4, **9**
Lee, C.: AC+DI+HM+TM-MoA-11, **4**; AC-MoP-4, **5**;
EG-MoP-1, **5**; TM-TuM-4, **7**; TM-TuM-7, **7**;
TM-TuP-1, **10**
Lee, H.: BG-MoP-5, **5**
LEE, T.: BG-MoP-4, **5**
Lee, W.: BG-MoP-2, **5**; BG-MoP-5, **5**; BG-TuP-5, **9**
LEE, W.: BG-MoP-4, **5**
Leedy, K.: EP+HM+MD-MoA-5, **4**
Li, J.: AC-MoP-3, **5**
Li, L.: MD-MoP-6, **6**
Li, Q.: AC+MD-TuM-13, **7**; AC-TuP-2, **9**;
MD-TuP-2, **9**
Li, X.: EP-TuP-4, **9**; HM-TuP-2, **9**
Liao, M.: AC+DI+HM+TM-MoA-13, **4**;
AC+MD-TuM-14, **7**; EG+BG+MD-WeM-5, **11**;
MD-TuP-4, **9**
Liddy, K.: AC-TuP-2, **9**; EP+ET+MD-WeM-14, **11**;
EP+HM+MD-MoA-4, **4**;
EP+HM+MD-MoA-5, **4**
Lin, Q.: HM-TuP-4, **9**; HM-TuP-6, **9**
Ling, Z.: EP+HM+MD-MoA-6, **4**
Liu, Z.: EG-MoP-9, **5**; HM-TuP-2, **9**
Lotnyk, A.: EG-MoP-5, **5**
Lou, M.: AC-MoP-2, **5**
Lu, Y.: HM-TuP-2, **9**
Lundh, J.: AC+DI+HM+TM-MoA-13, **4**;
EG+BG+MD-WeM-5, **11**
Lyle, L.: AC+MD-TuM-14, **7**; AC-TuP-3, **9**;
BG-MoP-1, **5**; EG+BG-TuA-7, **8**; MD-TuP-4, **9**

— M —

Ma, Y.: HM-MoP-1, **6**
Ma, Z.: HM-TuP-4, **9**; HM-TuP-6, **9**

Mahadik, N.: AC+MD-TuM-14, **7**; MD-TuP-4, **9**
Maimon, O.: AC+MD-TuM-13, **7**; AC-TuP-2, **9**; MD-TuP-2, **9**
Marggraf, M.: AC+TM-MoM-6, **3**
Masten, H.: EG+BG+MD-WeM-5, **11**
Maxfield, I.: TM-TuM-7, **7**
Mazumder, B.: AC-TuP-5, **9**; EG-MoP-7, **5**
Mazzolini, P.: AC+TM-MoM-6, **3**
McCandless, J.: EG+BG+MD-WeM-4, **11**;
EG+BG+MD-WeM-8, **11**; EG-MoM-15, **3**;
EG-MoP-9, **5**
McCloy, J.: AC-MoP-4, **5**; AC-TuP-1, **9**; AC-TuP-4, **9**;
EG+BG+MD-WeM-6, **11**
McCluskey, M.: AC-MoP-1, **5**; AC-TuP-1, **9**;
AC-TuP-4, **9**; EG+BG+MD-WeM-6, **11**
McKnight, G.: TM-TuP-1, **10**
Meißner, M.: AC+TM-MoM-6, **3**
Meng, L.: 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**
Miao, L.: AC-MoP-4, **5**
Miesle, A.: EP+ET+MD-WeM-14, **11**
Min, J.: DI-TuP-1, **9**
Min-Ji, C.: BG-TuP-5, **9**
Mirchandani, Y.: HM-TuP-5, **9**
Mishra, A.: EP+HM+MD-MoA-1, **4**;
EP+HM+MD-MoA-7, **4**
Mishra, U.: MD-TuP-7, **10**
Miyake, M.: EG-MoP-2, **5**
Mock, A.: HM-MoP-1, **6**
Moneck, M.: EG-MoP-10, **5**
Moon, Y.: BG-MoP-2, **5**; BG-MoP-5, **5**;
BG-TuP-5, **9**
MOON, Y.: BG-MoP-4, **5**
Morell, B.: EP+ET+MD-WeM-14, **11**
Moser, N.: AC-TuP-2, **9**; EP+HM+MD-MoA-4, **4**;
MD-TuP-2, **9**
Mou, S.: AC-MoP-3, **5**; EG-MoP-6, **5**; EG-MoP-8, **5**;
EP+HM+MD-MoA-5, **4**
Muller, D.: AC-TuP-6, **9**; EG+BG+MD-WeM-4, **11**;
EG+BG+MD-WeM-8, **11**

— N —

Nair, H.: EG+BG+MD-WeM-8, **11**; EG-MoM-15, **3**;
EG-MoP-1, **5**; MD-MoP-6, **6**;
MD-TuP-6, **10**
Nakaoka, K.: MD-MoP-4, **6**
Nandi, A.: EG-MoP-4, **5**; EP+HM+MD-MoA-1, **4**
Neal, A.: AC-MoP-3, **5**; EG-MoP-6, **5**; EG-MoP-8, **5**
Ngo, M.: EP+HM+MD-MoA-4, **4**
Nishinaka, H.: AC+TM-MoM-6, **3**
Noesges, B.: AC-MoP-3, **5**; AC-TuP-6, **9**;
EG+BG+MD-WeM-8, **11**; EG-MoP-6, **5**;
EG-MoP-8, **5**

— O —

Okuyama, T.: EG+BG-TuA-4, **8**
Onuma, T.: EG+BG+MD-WeM-4, **11**
Oshima, T.: AC+TM-MoM-6, **3**
Osinsky, A.: EG+BG+MD-WeM-5, **11**; EG-MoM-10, **3**;
EG-MoM-14, **3**;
EP+HM+MD-MoA-6, **4**;
EP-TuP-6, **9**; HM-TuP-6, **9**;
MD-TuP-5, **9**
Ouchen, F.: EP+HM+MD-MoA-5, **4**

— P —

P. Sundaram, P.: EP-TuP-6, **9**
Pandhi, T.: EP+HM+MD-MoA-5, **4**
Papamichael, A.: AC+DI+HM+TM-MoA-9, **4**
Park, J.: EG-MoP-3, **5**; MD+AC+EP-TuA-10, **8**
Park, M.: BG-MoP-2, **5**; BG-TuP-5, **9**
PARK, M.: BG-MoP-4, **5**
Park, S.: BG-MoP-3, **5**; EP-MoP-1, **5**; EP-TuP-1, **9**; EP-TuP-2, **9**; EP-TuP-3, **9**
Park, T.: BG-MoP-3, **5**; EP-TuP-2, **9**
Parker, N.: EG-MoP-9, **5**
Pasayat, S.: HM-TuP-4, **9**; HM-TuP-6, **9**
Perez, A.: ET-MoP-1, **5**
Petersen, C.: AC+TM-MoM-6, **3**
Peterson, C.: DI-MoP-1, **5**; EP+HM+MD-MoA-6, **4**; MD+AC+EP-TuA-9, **8**
Pieczulewski, N.: AC-TuP-6, **9**; EG+BG+MD-WeM-4, **11**; EG+BG+MD-WeM-8, **11**; EG-MoP-9, **5**; MD-TuP-6, **10**
Piel, J.: EP+ET+MD-WeM-14, **11**; EP+HM+MD-MoA-4, **4**; EP+HM+MD-MoA-5, **4**
Pomeroy, J.: EP+HM+MD-MoA-1, **4**
Pookpanratana, S.: AC+MD-TuM-13, **7**; AC-TuP-2, **9**; MD-TuP-2, **9**
Popp, A.: AC+TM-MoM-5, **3**; BG-MoP-1, **5**; EG-MoM-12, **3**
Porter, L.: BG-MoP-1, **5**; EG-MoP-10, **5**
Protasenko, V.: EG-MoM-15, **3**; EG-MoP-2, **5**
Provost, G.: BG-MoP-1, **5**

— R —

Rajan, S.: AC+DI+HM+TM-MoA-12, **4**; AC+MD-TuM-12, **7**; AC+TM-MoM-4, **3**; EP+ET+MD-WeM-16, **11**
Ramdin, D.: AC+MD-TuM-12, **7**; AC+TM-MoM-4, **3**
Rehm, J.: EG-MoM-12, **3**
Remple, C.: AC-TuP-1, **9**; AC-TuP-4, **9**; EG+BG+MD-WeM-6, **11**
Reyes, K.: AC-TuP-5, **9**
Richter, S.: AC+DI+HM+TM-MoA-9, **4**
Rim, Y.: DI-TuP-1, **9**; MD-MoP-5, **6**
Rock, N.: ET-MoP-2, **5**; TM-TuM-4, **7**
Rodriguez, B.: MD+AC+EP-TuA-9, **8**
Roy, S.: DI-MoP-1, **5**; EP+ET+MD-WeM-13, **11**; EP+HM+MD-MoA-6, **4**; MD+AC+EP-TuA-9, **8**
Ruder, A.: AC+DI+HM+TM-MoA-9, **4**

— S —

Sacchi, A.: AC+TM-MoM-6, **3**
Saha, C.: EP+HM+MD-MoA-3, **4**
Saha, S.: MD-MoP-7, **6**
Sanyal, I.: EG-MoP-4, **5**; EP+HM+MD-MoA-1, **4**
Sarker, J.: AC-TuP-5, **9**; EG-MoP-7, **5**
Sartel, C.: ET-MoP-1, **5**
Sasaki, K.: EG+BG-TuA-1, **8**
Sato, S.: MD+AC+EP-TuA-13, **8**
Savant, C.: EG-MoP-2, **5**
Scarpulla, M.: AC-MoP-2, **5**; AC-TuP-4, **9**; ET-MoP-2, **5**; TM-TuM-4, **7**; TM-TuM-7, **7**

Schaefer, S.: EG+BG+MD-WeM-7, **11**; MD-MoP-3, **6**
Schlom, D.: EG+BG+MD-WeM-4, **11**; EG-MoM-15, **3**; EG-MoP-9, **5**
Schubert, M.: AC+DI+HM+TM-MoA-9, **4**; AC+TM-MoM-7, **3**
Scolfaro, L.: TM-TuP-2, **10**
Senevirathna, M.: EG-MoP-9, **5**
Sensale-Rodriguez, B.: AC-MoP-2, **5**
Seo, S.: BG-MoP-2, **5**; BG-TuP-5, **9**
SEO, S.: BG-MoP-4, **5**
Seong, J.: BG-MoP-3, **5**; EP-MoP-1, **5**; EP-TuP-1, **9**; EP-TuP-2, **9**; EP-TuP-3, **9**
Seong, Y.: BG-TuP-5, **9**
Sepelak, N.: EP+ET+MD-WeM-14, **11**; EP+HM+MD-MoA-4, **4**; EP+HM+MD-MoA-5, **4**
Seyidov, P.: AC+TM-MoM-5, **3**; EG-MoM-12, **3**
Shang, S.: EG-MoP-9, **5**
Sharma, A.: TM-TuM-6, **7**
Sharma, S.: EP+HM+MD-MoA-3, **4**
Sheikhi, M.: HM-TuP-4, **9**
Shin, A.: BG-MoP-5, **5**
Shin, S.: BG-MoP-3, **5**; EP-MoP-1, **5**; EP-TuP-1, **9**; EP-TuP-2, **9**; EP-TuP-3, **9**
Shin, Y.: BG-MoP-2, **5**; BG-MoP-5, **5**
SHIN, Y.: BG-MoP-4, **5**
Shrestha, P.: AC-TuP-2, **9**
Singiseti, U.: EP+HM+MD-MoA-3, **4**; MD-MoP-7, **6**; TM-TuM-6, **7**
Smith, K.: EG+BG+MD-WeM-8, **11**; MD-TuP-6, **10**
Smith, M.: EP+HM+MD-MoA-1, **4**; EP+HM+MD-MoA-7, **4**
Snyder, D.: AC+MD-TuM-14, **7**; AC-TuP-3, **9**; EG+BG-TuA-7, **8**; MD-TuP-4, **9**
Speck, J.: AC+DI+HM+TM-MoA-9, **4**; EG-MoM-14, **3**; EP+ET+MD-WeM-12, **11**; EP+ET+MD-WeM-13, **11**
Spencer, J.: EP+ET+MD-WeM-15, **11**; HM-MoP-1, **6**
Stanishev, V.: AC+DI+HM+TM-MoA-9, **4**
Steele, J.: EG+BG+MD-WeM-4, **11**; EG-MoP-9, **5**
Stokey, M.: AC+DI+HM+TM-MoA-9, **4**; AC+TM-MoM-7, **3**
Sun, K.: MD-TuP-7, **10**
Sung, W.: TM-TuM-8, **7**
Sung, Y.: BG-MoP-2, **5**
SUNG, Y.: BG-MoP-4, **5**

— T —

Tadger, M.: AC+DI+HM+TM-MoA-13, **4**; EG+BG+MD-WeM-5, **11**; EP+ET+MD-WeM-15, **11**; HM-MoP-1, **6**
Talukder, M.: TM-TuP-2, **10**
Tang, J.: EG-MoP-10, **5**
Tang, X.: HM-TuP-2, **9**
Taniguchi, S.: MD-MoP-4, **6**
Tellekamp, B.: EG+BG+MD-WeM-7, **11**; MD-MoP-3, **6**
Thompson, M.: AC-TuP-6, **9**; EG+BG+MD-WeM-8, **11**; EG-MoM-15, **3**; EG-MoP-2, **5**; MD-TuP-6, **10**
Thuy, V.: EG-MoM-12, **3**
Tian, Z.: EG+BG+MD-WeM-5, **11**

Tompa, G.: BG-MoP-1, **5**
Tozato, H.: EG+BG-TuA-4, **8**

— U —

Uddin Bhuiyan, A.: AC-TuP-5, **9**
Unutulmazsoy, Y.: EG-MoP-5, **5**
Uren, M.: EP+HM+MD-MoA-7, **4**
Usenko, A.: HM-TuP-1, **9**

— V —

vaidya, A.: EP+HM+MD-MoA-3, **4**
Van Dover, B.: MD-MoP-6, **6**
Varley, J.: AC+TM-MoM-6, **3**; EG+BG+MD-WeM-6, **11**; TM-TuM-7, **7**
Vasudevan, K.: BG-MoP-1, **5**
Vogt, P.: EG-MoP-9, **5**
von Wenckstern, H.: AC+TM-MoM-6, **3**
Voss, L.: EG+BG+MD-WeM-6, **11**

— W —

Wagner, M.: AC+TM-MoM-6, **3**
Walker, Jr., D.: EP+HM+MD-MoA-5, **4**
Wang, B.: EP+ET+MD-WeM-15, **11**; HM-MoP-1, **6**
Wang, D.: EP-MoP-2, **5**; TM-TuP-3, **10**
Wang, W.: EP+ET+MD-WeM-14, **11**; EP+HM+MD-MoA-4, **4**
Wang, Y.: AC-MoP-2, **5**
Wang, Z.: MD+AC+EP-TuA-13, **8**
Weber, M.: AC-TuP-4, **9**; EG+BG+MD-WeM-5, **11**
Weiler, M.: EG-MoP-10, **5**
Welch, E.: TM-TuP-2, **10**
Williams, J.: EP+ET+MD-WeM-12, **11**; EP+ET+MD-WeM-14, **11**; EP+HM+MD-MoA-4, **4**; EP+HM+MD-MoA-5, **4**
Williams, M.: EG-MoP-9, **5**
Winchester, A.: AC+MD-TuM-13, **7**
Wriedt, N.: EP+ET+MD-WeM-16, **11**

— X —

Xiao, M.: EP+ET+MD-WeM-15, **11**; HM-MoP-1, **6**
Xie, S.: HM-TuP-4, **9**
Xing, G.: EG+BG+MD-WeM-8, **11**; MD-MoP-6, **6**
Xing, H.: EG+BG+MD-WeM-4, **11**; EG-MoM-15, **3**; EG-MoP-2, **5**; EG-MoP-9, **5**; MD-TuP-6, **10**

— Y —

Yoshinaga, J.: EG+BG-TuA-4, **8**
Yu, D.: EG-MoM-13, **3**; MD-MoP-7, **6**
Yuvaraja, S.: EP-TuP-4, **9**

— Z —

Zakutayev, A.: EG+BG+MD-WeM-7, **11**; MD-MoP-3, **6**
Zeng, K.: MD+AC+EP-TuA-11, **8**
Zhang, K.: EG-MoP-7, **5**
Zhang, Y.: 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**
Zhou, J.: HM-TuP-4, **9**; HM-TuP-6, **9**

