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^{*}Equal Contribution
¹Cornell University Dept of Electrical & Computer Engineering, Ithaca, NY, USA
²Cornell University Dept of Applied & Engineering Physics, Ithaca, NY, USA
³Cornell University Dept of Materials Science & Engineering Physics, Ithaca, NY, USA
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¹The University of Utah, Salt Lake City, UT 84112, USA
²Cornell University, Ithaca, NY 14853, USA

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UC Davis, 1 Shields Ave. Davis, CA 95616
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Center for Thin Film Devices and Materials Research Institute, Department of Electrical Engineering, Penn State University, University Park, PA 16802
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Assistant Professor of Department of Engineering Science and Mechanics and Material Research Institute, Pennsylvania State University, State College, PA 16802, USA
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¹University of Notre Dame, IN, USA; ²Penn State University, University Park, PA, USA

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¹Department of Electrical and Computer Engineering, Duke University, Durham, North Carolina 27708, USA; ²Kurt J. Lesker Company, Pittsburgh, Pennsylvania 15025, USA; ³Department of Chemistry, Duke University, Durham, NC 27708, USA

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 IBM TJ Watson Research Center, 1101 Kitchawan Rd, Yorktown Heights, NY, USA
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¹Department of Electrical and Computer Engineering, New Jersey Institute of Technology, Newark, NJ 07102, USA; ²IBM Research - Zurich, 8803 Rüschlikon, Switzerland
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¹Department of Chemistry, Duke University, Durham, NC 27708; ²Department of Electrical and Computer Engineering, Duke University, Durham, NC 27708

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¹School of Electrical and Computer Engineering; ²Department of Physics and Astronomy, and ³Birk Nanotechnology Center, Purdue University, West Lafayette, IN 47907, United States
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¹University of Siegen, Hölderlinstr.3, 57076 Siegen, Germany; ²RWTH Aachen University, Otto-Blumenthal-Str. 25, 52074 Aachen, Germany
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¹Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; ²Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; ³Center for Innovative Integrated Electronics, Tohoku University, Japan; ⁴WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; ⁵Center for Spintronics Research Network, Tohoku University, Sendai, Japan

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¹School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA; ²Components Research Group, Intel Corporation, Hillsboro, OR, USA; ³Department of Materials Science and Engineering, University of Michigan, Ann Arbor, MI, USA

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¹GLOBALFOUNDRIES, 257 Fuller Rd., Albany, NY 12203, USA; ²IBM, 257 Fuller Rd., Albany, NY 12203, USA
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¹University of Notre Dame, IN, USA; ²The Pennsylvania State University, PA, USA; ³Logic Technology Development, Samsung Electronics Co., LTD, Korea

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¹Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY 14853 USA; ²Institute of High Pressure Physics, Polish Academy of Sciences, Sokolowska 29/37, 01-142 Warsaw, Poland; ³Department of Material Science and Engineering, Cornell University, Ithaca, NY 14853, USA
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¹University of Toronto, 10 King's College Road, Toronto, Ontario, M5S 3G4, Canada; ²California Institute of Technology, 1200 E. California Blvd., MC149-33, Pasadena, CA 91125, USA

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Department of Physics, Indian Institute of Science, Bangalore-560 012, India
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Electrical Eng. & Computer Science Dept., University of Michigan, 1301 Beal Ave, Ann Arbor, MI 48109, USA
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Princeton University, Department of Electrical Engineering, Princeton, New Jersey, 08544, USA
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Debdeep Jena¹ and Huili Grace Xing¹
¹Cornell University, Ithaca, NY 14850 USA; ²IQE RF LLC, Somerset, NJ 08873 USA;
³Qorvo Inc., Richardson, TX 75080 USA
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Tohru Nakamura², Debdeep Jena¹ and Huili (Grace) Xing¹
¹Cornell University, Ithaca, NY 14853, USA; ²Hosei University, Tokyo 184-0003, Japan
*Contributed equally to this work

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- R.2 **Neuromorphic computing -- Do devices matter?** 275
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Chris G. Van de Walle
Materials Department, University of California, Santa Barbara, Santa Barbara, California, United States

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University of California – Los Angeles, Los Angeles, CA, 90095, USA
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¹Cornell University, Ithaca, NY 14853, USA; ²University of Notre Dame, Notre Dame, IN 46556, USA
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**59th ELECTRONIC MATERIALS CONFERENCE
WEDNESDAY PM SESSIONS**

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1:30 PM **Highly Conductive Homoepitaxial Ga₂O₃:Si on (010) β -Ga₂O₃ by Pulsed Laser Deposition N/A**
Kevin D. Leedy¹, Kelson D. Chabak¹, Vladimir Vasilyev¹, David C. Look², John J. Boeckl¹, Jeff L. Brown³, Stephen E. Tetlak¹, Andrew J. Green³, Neil A. Moser⁴, Antonio Crespo¹, Robert C. Fitch¹, Jonathan P. McCandless³ and Gregg H. Jessen¹
¹Air Force Research Laboratory, WPAFB, Ohio, United States; ²Wright State University, Dayton, Ohio, United States; ³KBRwyle, Beavercreek, Ohio, United States; ⁴George Mason University, Fairfax, Virginia, United States
- F2
1:50 PM **(Student) N-Type β -Ga₂O₃ Thin Films Grown via Low Pressure Chemical Vapor Deposition N/A**
Subrina Rafique, Lu Han, Jonathon R. Grgat and Hongping Zhao;
EECS, Case Western Reserve University, Cleveland, Ohio, United States
- F3
2:10 PM **(Student) Epitaxial Growth and Characterization of α -, β - and ε -Phases of Ga₂O₃ Grown Using MOCVD and HVPE Techniques N/A**
Yao Yao¹, Luke A. Lyle¹, Serdal Okur², Gary S. Tompa², Tom Salagaj², Nick Sbrockey², Robert F. Davis¹ and Lisa M. Porter¹
¹Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States; ²Structured Materials Industries, Inc., Piscataway, New Jersey, United States
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2:30 PM **Conductivity Control for Devices Based on Corundum-Structured α -Ga₂O₃ on Sapphire N/A**
Kentaro Kaneko¹, Takayuki Uchida¹, Shin-ichi Kan¹, Toshimi Hitora² and Shizuo Fujita¹
¹Kyoto University, Kyoto, Japan; ²FLOSFIA, Inc., Kyoto, Japan
- F5
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Y. Tian, S. Rouvimov, J. Li, D. Hall
Department of Electrical Engineering, University of Notre Dame, Notre Dame, Indiana, United States
- F6
3:30 PM **Unintentional Shallow Donors in β -Ga₂O₃ N/A**
Adam T. Neal^{1,2}, Jian V. Li³ and Shin Mou¹
¹Materials and Manufacturing Directorate, Air Force Research Lab, Wright-Patterson AFB, Ohio, United States; ²Universal Technology Corporation, Dayton, Ohio, United States; ³Department of Physics, Texas State University, San Marcos, Texas, United States
- F7
3:50 PM **Structural Characteristics of HVPE-Grown Ga₂O₃ Films on Native Substrates with Different Crystallographic Orientations N/A**
Nadeemullah Mahadik, Marko J. Tadjer, Jennifer Hite and Karl D. Hobart
U.S. Naval Research Laboratory, Washington, District of Columbia, United States
- F8
4:10 PM **Thermal Expansion Coefficients of Beta-Ga₂O₃ Wafers Determined Using High Resolution X-Ray Diffraction N/A**
Mark Goorsky¹, Chao Li¹, Eva Rosker¹, Marko Tadjer² and Karl Hobart²
¹MSE, University of California, Los Angeles, Los Angeles, California, United States; ²U.S. Naval Research Laboratory, Washington, District of Columbia, United States