

Francesca lacopi

Guest Editor for this issue of MRS Bulletin Queensland Micro- and Nanotechnology Centre, Griffith University, Australia; tel. (07) 373 58014; and email f.iacopi@griffith.edu.au.

lacopi is an associate professor at the Queensland Micro- and Nanotechnology Centre, Griffith University. She received her MSc degree in physics from Roma La Sapienza University, Italy, and her PhD degree in electrical engineering/materials science from the Katholieke Universiteit Leuven, Belgium (2004). She has 15 years of academic and indus-

trial experience in materials and processes for semiconductor technologies across devices, interconnects, packaging, and heterogeneous integration. Previously, she worked at the Interuniversity Microelectronics Center, Belgium, and the University of Tokyo, Japan. She directed the chip-package interaction strategy for GLOBALFOUNDRIES, USA, from 2010 to 2011. She has seven patents and over 100 publications. Iacopi was a recipient of a Gold Graduate Student Award from MRS in 2003, a Future Fellowship from the Australian Research Council in 2012, and a Global Innovation Award at the TechConnect Summit in Washington, DC, in 2014.



Marleen Van Hove

Guest Editor for this issue of *MRS Bulletin* Interuniversity Microelectronics Centre, Belgium; tel. +32-16-281898; and email marleen.vanhove@imec.be.

Van Hove is a senior researcher in GaN power electronics with the Interuniversity Microelectronics Centre (IMEC). She obtained her degree in physics in 1980 from the Catholic University of Louvain, Belgium where she continued research at the Physics Department's Institute of Nuclear and Radiation Physics. She obtained her PhD degree and joined IMEC in

1985. She specialized in GaAs and InP III–V processing between 1986 and 1997. After that, she coordinated complementary metal oxide semiconductor (CMOS) back-end integration at IMEC. At the end of 2006, Van Hove returned to III–V research, focusing on research and development of CMOS-compatible GaN-on-Si power switching devices.



**Matthew Charles** 

Guest Editor for this issue of MRS Bulletin

Commissariat à l'énergie atomique et aux énergies alternatives (CEA-LETI), Minatec Campus, France; tel. +33 (0)4 38 78 93 19; and email matthew.charles@cea.fr.

Charles has been with CEA-LETI since 2010. He received his undergraduate and doctorate degrees at the University of Cambridge, where he began studying gallium nitride growth on silicon. Following this, he spent nearly five years at AIXTRON, where he worked with GaN, GaAs, and ZnO while demonstrating the performance

of metal-organic chemical vapor deposition tools. At CEA-LETI, he is in charge of 200-mm GaN silicon epitaxy, helping to develop and industrialize high-electron-mobility transistors using GaN on silicon substrates using the 200-mm CMOS transistor cleanroom facility, including performing epitaxy on a fully automated AIXTRON tool.



Kazuhiro Endo

Guest Editor for this issue of *MRS Bulletin* Kanazawa Institute of Technology, Japan; tel. +81-76-274-7968; and email kendo@neptune.kanazawa-it.ac.jp.

Endo is a professor at the Kanazawa Institute of Technology. He received his BEng, MEng, and PhD degrees from the University of Tokyo. He was a researcher and then head of the Advanced Thin Films Laboratory at the Electrotechnical Laboratory (now called the National Institute for Advanced Industrial Science and Technology). His interests include synthesis, processing, and

characterization of thin films, heterostructures, and single crystals; device fabrication and physics (e.g., THz devices based on high Tc superconductors); and perovskites, SiC, chalcogenides, and CFRP. Endo has been involved in a multiyear National Project on Environment-Resistant Devices based on SiC in the Government Planning Office. He has published over 250 papers and presented more than 50 invited talks. He is a recipient of an Excellent Research Achievement Award from the Electrotechnical Laboratory.



## Amirhossein Aminbeidokhti

Griffith School of Engineering and Queensland Micro- and Nanotechnology Centre, Griffith University, Australia; tel. +61-7-3735 8057; and email amirhossein. aminbeidokhti@griffithuni.edu.au.

Aminbeidokhti is a PhD degree candidate at Queensland Micro- and Nanotechnology Centre, Griffith University. He received his BEng degree in 2009 and MEng degree in 2011 in electronic engineering from Semnan University, Iran. His research interests include power and high-frequency semiconductor devices. He is currently

working on the design, fabrication, characterization, analysis, and modeling of GaN-based high-electron-mobility transistors for power switching applications.



## **Eldad Bahat-Treidel**

Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik, Germany; tel. +49-30-6392-2791; and email eldad.bahat-treidel@fbh-berlin.de.

Bahat-Treidel joined Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik in 2006 for the development GaN switching transistors for high-voltage power applications. He holds a BSc degree in chemical engineering (2004) and a MSc degree in electro-optic engineering (1996) from Ben-Gurion University of the Negev, Israel. He received his PhD degree in

electrical engineering in 2012 from the Technical University of Berlin, Germany, for his work on GaN-based heterostructure field-effect transistors for high-voltage operation. He joined Intel Electronics Ltd. as a photolithography engineer in 1996, and then joined Tower Semiconductor Ltd. as a senior research and development photolithography engineer in 2004.

DOI: 10.1557/mrs.2015.94



### Frank Brunner

Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik, Germany; tel. +49-30-6392-2687; and email frank.brunner@fbh-berlin.de.

Brunner is responsible for epitaxy of GaN-based microwave transistors at the Ferdinand-Braun-Institut (FBH) since 2005. Additionally, he is in charge of the design and development of (Al,Ga) N-related optoelectronic device structures. He received his PhD degree in electrical engineering from the University of Karlsruhe, Germany, in 2002. His PhD work involved development of

MOVPE growth processes for GaAs-based heterojunction bipolar transistors. His postdoctoral work at FBH was comprised of optimization of epitaxial structures for InP-based high-frequency electronic devices. He is a shareholder of the GaN technology spin-off BeMiTec AG.



### Robert F. Davis

Carnegie Mellon University, USA; tel. +1 412-268-7264; and email rfd@andrew.cmu.edu. Davis is the John and Clare Bertucci Distinguished Professor of Materials Science and Engineering at Carnegie Mellon University. He received his PhD degree in materials science and engineering from the University of California-Berkeley. Davis is a member of the National Academy of Engineering, Fellow of The American Ceramic Society, and member of the Materials Research Society and The Minerals, Metals, and Materials Society. He has edited or co-edited seven books, authored

or co-authored more than 270 chapters and 400 peer-reviewed papers, and given more than 170 invited presentations.

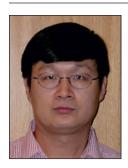


Sima Dimitrijev

Queensland Micro- and Nanotechnology Centre, Griffith University, Australia; tel. +61-7-373 55068; and email s.dimitrijev@griffith.edu.au.

Dimitrijev is a professor at Griffith University's School of Engineering and the deputy director of the Queensland Micro- and Nanotechnology Centre. He received his BEng (1982), MSci (1985), and PhD (1989) degrees in electronic engineering from the University of Nis, Yugoslavia. Prior to his present position, he was with the Semiconductor Factory of the Electronics Industry,

Nis, where he worked on the development of complementary metal oxide semiconductor technology (1982-1983). Dimitrijev was also a faculty member of electronic engineering at the University of Nis (1983-1990). He is an editorial board member of Microelectronics Reliability.



**Jisheng Han** 

Queensland Micro- and Nanotechnology Centre, Griffith University, Australia; tel. +61-7-3735 8011; and email j.han@griffith.edu.au. Han has been a research fellow and senior research fellow at Queensland Micro- and Nanotechnology Centre, Griffith University, since 2006. He received his BSci and MSci degrees in solid-state physics from Shandong University, China, and his PhD degree from the University of South Australia. He was with the School of Physics, Shandong University, where he was involved in research and teaching electronic

ceramic materials. From 1999 to 2006, Han was a research fellow in the School of Microelectronic Engineering, Griffith University. His research interests include processing and characterization of SiC and GaN-based devices.



### **Oliver Hilt**

Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik, Germany; tel. +49-30-6392-2791; and email oliver.hilt@fbh-berlin.de. Hilt is head of the GaN Power Electronics Group at Ferdinand-Braun-Institut (FBH), having joined FBH in 2006 for the development of GaN switching transistors for high-voltage power applications. He received his PhD degree in experimental physics in 1995 from the Free University of Berlin, Germany, for his work on the charge transport in liquefied rare gases, performed at the Hahn-Meitner-Institut Berlin,

Germany. Hilt analyzed charge transport in organic conductors and semiconductors for optoelectronic applications in The Netherlands at Technical University Delft and Leiden University. In 1999, he joined sglux GmbH, Germany, to develop ultraviolet photodiodes and became CEO in 2003.



## Makoto Kitabatake

Device Solutions Center, R&D Division, Panasonic Corporation, Japan; tel. (+81)6-6906-0485; and email kitabatake.makoto@jp.panasonic.com.

Kitabatake is with Panasonic's Device Solutions Center. He received his MSc degree in applied physics and PhD degree in engineering from Tohoku University, Japan. He has 34 years of industrial experience in materials, surface science, and semiconductor technologies across processing, device, and power electronics. Kitabatake has been directing a research group

developing an integrated evaluation platform for SiC epitaxial wafers in a Japanese national project for the past five years. He has published over 70 papers and holds over 60 Japanese and 60 US patents.



### Arne Knauer

Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik. Germany; tel. +49-30-6392-2673; and email arne.knauer@fbh-berlin.de.

Knauer has worked at the Ferdinand-Braun-Institut Berlin since 1992 on metal-organic vapor-phase epitaxy of (AI,Ga)(As,P)- and (Al,Ga,In)N-related device structures. He received a diploma in physics in 1981 from the State University of Chisinau, Moldova, for his work on the epitaxy and optical properties of ZnSe layers on sapphire. In 1981, he joined the Cen-

tral Institute of Optics and Spectroscopy in the Academy of Sciences, Germany, working on materials science of semiconductor lasers (0.85 mm and 1.55 μm). In 1990, he received his doctorate in natural sciences in experimental physics from Humboldt University Berlin, Germany.

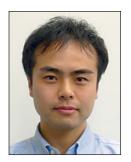


# Hamid Amini Moghadam

Griffith School of Engineering and Queensland Micro- and Nanotechnology Centre, Griffith University, Australia; tel. +61-7-3735 8023; and email hamid. aminimoghadam@griffithuni.edu.au.

Moghadam has been a PhD student at the Queensland Micro- and Nanotechnology Centre at Griffith University since 2012. He received his BEng degree in electronic engineering in 2005 from Azad University, Iran, and MEng degree in electronic engineering in 2011 from Semnan University, Iran. Moghadam's current research

interest focuses on high-power SiC-based semiconductor devices, including metal oxide semiconductor field-effect transistors and Schottky diodes.



Atsushi Ohoka
Panasonic Corporation, Japan; and
email ohoka.atsushi@jp.panasonic.com.

Ohoka received his BS and MS degrees in electrical engineering from the University of California–San Diego in 2009 and 2011. Since October 2011, Ohoka has been with Panasonic Corporation, where he works on SiC-based power semiconductor devices for industrial and automotive applications. His current research activities includes design and characterization of high-voltage SiC DMOSFETs.



### Hajime Okumura

Advanced Power Electronics Research Center, National Institute of Advanced Industrial Science and Technology, Japan; tel. +81-29-861-2000; and email h-okumura@aist.go.jp. Okumura has been the director of the Advanced Power Electronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST) since 2010. He received his master's degree in chemistry from Kyoto University, Japan, and his doctoral degree in engineering from Osaka University, Japan. His specialty is materials science, including compound

semiconductors, especially crystal growth and characterization. His recent interests are in power applications of wide-gap semiconductors such as SiC and GaN. Okumura has been a project leader of several national projects and has been involved as a chief technology officer of a limited liability partnership and a technical officer of the Japanese government. He has published more than 300 scientific articles and is the recipient of an AIST President Award.



### **Fabrice Semond**

Centre de Recherche sur l'Hétéro-Epitaxie et ses Applications (CRHEA-CNRS), France; tel. +33 493 95 78 19; and email fs@crhea.cnrs.fr. Semond is with the CRHEA-CNRS, where he works on epitaxial growth of GaN-on-silicon. He received his PhD degree from the Université Paris-Sud Orsay, France. Before his current position, Semond spent three years working at CEA Saclay, France, on SiC surfaces and interfaces. He has more than 15 years of experience in molecular beam epitaxy. Semond's research interests include GaN-on-silicon growth for elec-

tronic and optoelectronic applications. He holds seven patents and is the author or co-author of more than 200 publications.



#### Joachim Würfl

Ferdinand-Braun-Institut (FBH), Leibniz Institut für Hoechstfrequenztechnik, Germany; tel. +49.30.6392-2690; and email joachim.wuerfl@fbh-berlin.de.

Würfl joined Ferdinand-Braun-Institut in 1992 and has been head of GaN electronics at FBH since 2007. Additionally, since 2008, he is CEO of Berlin Microwave Technologies AG. He manages several projects on GaN-based discrete power devices, X- and Ka-band microwave monolithic integrated circuits, as well as high-voltage power devices, and has been in charge of

the design and development of power heterojunction bipolar transistors and power GaN devices. From 1992 to 2007 he has been responsible for clean room technology and processing of electronic devices. He received his PhD degree in electrical engineering in 1989 at the Technical University of Darmstadt, Germany where he worked on the technology and design of high-temperature and high-power GaAs-based devices, and then developed micromechanical sensors based on III/V compound semiconductors as a postdoctoral researcher.



### **Carl-Mikael Zetterling**

Department of Integrated Devices and Circuits, KTH Royal Institute of Technology, Sweden; tel. +46-087904344; and email bellman@kth.se. Zetterling has been a full professor since 2005 at the KTH Royal Institute of Technology, where he received his MScEE (1991) and PhD (1997) degrees. From 1995 to 1996, he was an invited scholar at the Center for Integrated Systems, Stanford University, USA. In 1998, he spent three months as an invited professor at the Kyoto University, Japan, and again in 2001 for two months at the Kyoto Institute of Technology,

Japan. He has contributed to more than 200 publications. Zetterling's field of research is process technology and device design of high-temperature and high-power devices in SiC. Recently, his work has expanded to high-temperature analog and digital integrated circuits in SiC.



# Rimma Zhytnyska

Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik, Germany; tel. +49-30-6392-2780; and email rimma-zhytnyska@fbh-berlin.de.

Zhytnyska is a PhD degree candidate at the Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH). She received a Dipl.-Ing. degree in microsystem technology engineering from Technische Fachhochschule, Germany, in 2007 and her MSc degree in electrical engineering from the Technical University of Berlin, Germany, in 2009, where she worked

on the development of flip-chip technology for GaN power transistors. Since 2007, Zhytnyska has worked at FBH on the development and design of GaN switching transistors for power applications.

