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Guest Editor for this issue of *MRS Bulletin*

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Bassim has been a materials research engineer at the Naval Research Laboratory in the Materials Science and Technology Division since 2007. He graduated from the University of Florida with a PhD degree in materials science and engineering in 2002, and joined NRL as a post-doctoral fellow from 2003–2006 with a focus on electron and ion microscopy of thin films, followed by a second postdoctoral fellowship

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Lucille A. Giannuzzi

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Giannuzzi is president of both L.A. Giannuzzi & Associates LLC and EXpressLO LLC. She received her BE and MS degrees from SUNY Stony Brook and her PhD degree from The Pennsylvania State University. Giannuzzi spent 10 years with the University of Central Florida, then spent seven years with FEI Company before opening her own consulting and *ex situ* lift-out product companies.

Her research interests include ion- and electron-solid interactions, grain-boundary diffusion and segregation, structure property relationships of materials using ion and electron-beam microscopy, and product development. She has received an NSF CAREER Award, is a Fellow of AVS, and is a member of numerous societies, including MRS. Giannuzzi has authored more than 100 publications and is co-editor of the book *Introduction to Focused Ion Beams*.


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Antoniou is the principal FIB engineer at the Center for Nanoscale Systems at Harvard University. He received his BSc and MSc degrees in electrical engineering from Texas A&M University, College Station, TX. He has over 25 years of work experience in the electronics field, having worked in semiconductor fabrication facilities for Motorola Inc., microprocessor product engineering at Ross Technology, and for FIB product

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Cantoni is the EM facility manager for materials and basic science at the Swiss Federal Institute of Technology EPFL in Lausanne. He received his PhD degree in experimental physics in the department of solid-state physics at ETH Zurich in 1994. After a stay as a STA (science and technology agency) Fellow in Japan, he joined the electron microscopy center at EPFL in Lausanne. He has studied a wide variety of

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Holzer is a senior scientist at the Institute of Computational Physics in Zurich University of Applied Sciences (ZHAW). His research is focused on microstructure effects related to materials science applications, such as electrodes of solid oxide fuel cells or porous membranes. He received a PhD degree in earth science from the University of Bern (Switzerland) in 1997. Afterward, he worked at the Federal

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Joy is a professor in the Department of Biochemistry, Cellular and Molecular Biology and the Department of Materials Science and Engineering at the University of Tennessee. He earned his MA degree in the natural sciences from Trinity College, Cambridge (UK) in 1966 and his DPhil degree in materials science from the University of Oxford (UK) in 1969. He is a Fellow of both

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**Paul G. Kotula**

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Kotula is a staff member at Sandia National Laboratories in Albuquerque, NM. He received his BS degree from Cornell University in 1991 and his PhD degree from the University of Minnesota in 1995, both in materials science and engineering. He has authored or co-authored over 100 journal articles on a wide variety of topics involving electron microscopy and microanalysis in the physical and biological sciences, as well as three patents and three book chapters.

He has received an R&D 100 Award, two Best Analytical Techniques paper awards in *Microscopy and Microanalysis*, and the Heinrich Award for Outstanding Young Scientist from the Microanalysis Society.

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Maas joined TNO in 2007 as a systems engineer for metrology and detection, focusing on developing instrumentation, processes, and applications for sub-20 nm nanofabrication and extreme imaging. He has a MSc degree in technical physics (Delft, 1993) and a PhD degree (UvA, AMOLF, 1998). At Philips Research Eindhoven, he developed an electrostatic aberration corrector for FEI's low-voltage SEM. In 2005, this corrector showed contrast and resolution improvement down to 500 V beam energy.

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Marsh is the chief scientist of Marsh Imaging and Visualization. He earned his BS degree in chemistry from Centenary College in 1998 and his PhD degree in structural and computational biology and molecular biophysics from Baylor College of Medicine in 2007. His research interests focus on maximizing the revelations of x-ray imaging and electron microscopy experiments.

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Michael is a senior scientist in the Materials Science Center at Sandia National Laboratories. He received his BS, MS, and PhD degrees in materials science and engineering from Lehigh University. Before joining Sandia, Michael was employed as a senior research engineer at Bethlehem Steel's Homer Research Laboratory. Recently, Michael has been involved in the use of focused ion beams for the preparation of samples for 3D structure of materials. He has

received the Burton Medal from the Microscopy Society of America and the Heinrich and Duncumb Award for Excellence in Microanalysis from the Microanalysis Society. Michael has published many papers on the applications of electron and ion microscopy. His research interests involve the application of advanced scanning ion and electron microscopies to the study of materials.

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Notte is the director of research and development at the Ion Microscopy Innovation Center at Carl Zeiss Microscopy, LLC. He received his PhD degree in physics from the University of California, Berkeley, where he developed an electron plasma trap and integrated imaging system. He worked for several SEM/FIB companies before joining ALIS, the startup company that introduced the first commercial helium ion microscope. Within Zeiss, Notte's chief concerns

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**Leonidas Ocola**

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Ocola is a staff scientist at the Center for Nanoscale Materials at Argonne National Laboratory. He received his BSc degree (1989) from the Universidad Nacional de Ingeniería (Lima, Peru), and his MSc (1991) and PhD (1996) degrees from the University of Wisconsin–Madison in physics. He has published over 110 papers and one book and holds two patents. He is involved in nanofabrication research, electron beam, and direct-write ion-beam lithography.

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Rue works at FEI Company in Hillsboro, OR, where he has been responsible for FIB process and chemistry development since 2005. He received his BS degree in chemistry (1994) from Boise State University and his PhD degree in physical chemistry (2000) from the University of Utah. From 2000–2005, he worked for IBM in Fishkill, NY, where he was involved in technique development for circuit edit applications.



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Noel Smith
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 Smith is a co-founder and scientist at Oregon Physics LLC. He received his PhD degree in physics from Warwick University in the UK, where he developed a low-energy focused ion beam for high depth resolution SIMS analysis. He has developed ion/electron optics and ion sources for a number of FIB and surface science instrument development companies before co-founding Oregon Physics in 2007. Smith's interests focus on the further development of ion sources and probe forming optics.



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 Steele is a co-founder of zeroK Nanotech Corporation, a startup company focused on the commercialization of high-brightness ion sources that utilize laser-cooling. He received his PhD degree in physics from the Georgia Institute of Technology, where he researched laser-cooling of ions with application to nuclear clocks and quantum information processing. Prior to founding zeroK, Steele worked at the National Institute of Standards and Technology

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