

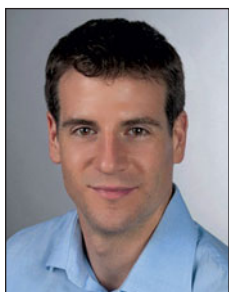

Dmitri V. Talapin

Guest Editor for this issue of *MRS Bulletin*

Department of Chemistry, The University of Chicago, USA; tel. 773-834-2607; and email dvtalapin@uchicago.edu.

Talapin is a professor in the Department of Chemistry and James Franck Institute at the University of Chicago. He received a doctorate degree from Hamburg University in Germany, followed by postdoctoral work at IBM T.J. Watson Research Center in Yorktown Heights, NY. His research interests revolve around inorganic nanomaterials, spanning synthetic methodology,

self-assembly phenomena, charge transport, and device fabrication. He was the recipient of the MRS Outstanding Young Investigator Award in 2011.


Jonathan Steckel

Guest Editor for this issue of *MRS Bulletin*

QD Vision, Inc., Lexington, MA, USA; tel. 781-652-7404; and email jsteckel@qdvision.com.

Steckel is a co-founder and QD Vision's Director of Research and Advanced Development. He graduated with high honors in chemistry from Oberlin College in 2001 and was awarded the Harry N. Holmes Prize for excellence in chemistry. He received his PhD degree in chemistry from the Massachusetts Institute of Technology in 2006. He has more than 30 papers, patents, and patent

applications in the field of semiconductor nanoparticles and quantum dot LEDs. Steckel was awarded the 2011 Semi Award for North America in recognition of his pioneering work in the commercialization of quantum dot technology.


Trisha L. Andrew

University of Wisconsin–Madison, USA; tel. 608-262-1502; and email tandrew@chem.wisc.edu.

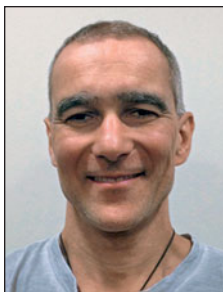
Andrew is an assistant professor of chemistry at the University of Wisconsin–Madison. She received her PhD degree in chemistry from the Massachusetts Institute of Technology in 2011. Her research is focused on the use of organic chromophores in optoelectronic devices and open-shell organic semiconductors as spin-elements in magnetic devices. Trisha is an AAAS/L'Oreal USA Women in Science Fellow and

a recipient of the 3M Non-Tenured Faculty Award.


Wan Ki Bae

Chemistry Division, Los Alamos National Laboratory, USA; tel. 505-606-0427; and email wbae@lanl.gov.

Bae is a senior research scientist at the Korea Institute of Science and Technology. He received his BS (2003), MS (2005), and PhD degrees (2009) in chemical engineering from Seoul National University, South Korea. He conducted postdoctoral research work at Los Alamos National Laboratory. Bae's research interests include synthesis and characterization of colloidal nanostructures and their optoelectronic applications.


Mounji Bawendi

Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, USA; email mgb@mit.edu.

Bawendi is the Lester Wolfe Professor of Chemistry at the Massachusetts Institute of Technology (MIT). He received his AB degree in 1982 from Harvard University and his PhD degree in chemistry in 1988 from the University of Chicago. This was followed by two years of postdoctoral research at Bell Laboratories, working with Louis Brus. Bawendi joined the faculty at MIT in 1990, becoming associate professor in 1995 and professor

in 1996. His research interests include the development of novel methods for synthesizing, characterizing, and processing quantum dots and magnetic nanoparticles, studying the fundamental optical properties of quantum dots and their applications in biological and biomedical imaging and sensing, light-emitting devices, photodetection, and solar energy conversion. In addition, Bawendi is a fellow of the American Association for the Advancement of Science, a Fellow of the American Academy of Arts and Sciences, and a member of the National Academy of Sciences.


Deniz Bozyigit

ETH Zürich, Gloriastrasse 35 ETZ J87, 8092 Zürich, Switzerland; tel. 41-044-632-75-96; and email denizb@iis.ee.ethz.ch.

Bozyigit is a PhD degree student in the research group of Vanessa Wood in the Department of Information Technology and Electrical Engineering at ETH Zürich, where he investigates performance limitations to nanocrystal-based devices. In 2011, he received his MSc degree in electrical engineering at ETH Zürich with distinction, working on superconducting microwave circuits as building blocks for quantum computing. His

research interests include the development and application of electronic and optical characterization techniques to study charge transport and electronic trapping physics.


Sergio Brovelli

Dipartimento di Scienza dei Materiali, Università degli Studi di Milano-Bicocca, via R. Cozzi 53, 20125 Milano, Italy; tel. 39-02-6448-5181; and email sergio.brovelli@unimib.it.

Brovelli is a professor of physics at the Università degli Studi di Milano-Bicocca where he received his MS (2003) and PhD (2006) degrees in materials science. He was a Marie Curie Research Associate at University College London and London Centre for Nanotechnology (UK) and a director's postdoctoral fellow at the Los Alamos

National Laboratory. His research focuses on spectroscopic studies of photo-physical properties of nanoscale organic and inorganic materials in relation to their composition and morphology, and the impact of these properties on performance of light-emitting diodes, lasers, and photovoltaic devices.


Vladimir Bulović

Massachusetts Institute of Technology, USA; tel. 617-253-7012; and email bulovic@mit.edu.

Bulović is a professor of electrical engineering at the Massachusetts Institute of Technology (MIT), where he also holds the Fariborz Maseeh Chair in Emerging Technology. He received his MS degree from Columbia University in 1993 and his PhD degree from Princeton University in 1998. He leads the Organic and Nanostructured Electronics Laboratory, directs the MIT Microsystems Technology Laboratories, and co-directs the MIT-ENI Solar Frontiers Center.

Bulović's research interests include studies of physical properties of organic and organic/inorganic nanocrystal composite thin films and structures, and

development of novel nanostructured optoelectronic devices. He is an inventor of 55 US patents in areas of light-emitting diodes, lasers, photovoltaics, photodetectors, chemical sensors, programmable memories, and micro-electro machines. He co-founded QD Vision, Inc., of Lexington, MA, Kateeva, Inc., of Menlo Park, CA, and Ubiquitous Energy, Inc.



Jean-Michel Caruge
QD Vision, Lexington, MA, USA;
jcaruge@qdvision.com.

Caruge is a group leader in the QLED Group at QD Vision, Inc., in Lexington, Mass. Prior to joining QD Vision, he worked as a senior quantitative analyst at Barrie & Hibbert and was a postdoctoral fellow in nanoscience and nanotechnology at MIT from 2002–2007. He received his PhD degree in physics from the University Bordeaux 1 in 2001.



Ou Chen
Department of Chemistry, Massachusetts
Institute of Technology, Cambridge,
MA, USA; email chenou@mit.edu.

Chen is a postdoctoral associate in the Department of Chemistry at the Massachusetts Institute of Technology (MIT), working with Professor Mounji Bawendi. He received his BS degree in chemical physics from the University of Science and Technology of China (USTC) in 2004 and completed his PhD degree studies in the Department of Chemistry at the University of Florida.

Chen's research interests focus on the development of methods for synthesizing and characterizing quantum dots and magnetic nanoparticles as novel materials building blocks, and applying them in a variety of applications.



Kyung-Sang Cho
Samsung Advanced Institute of Technology,
Samsung Electronics, Korea; tel. 82-31-280-
6753; and email k-s.cho@samsung.com.

Cho is a member of the Frontier Research Lab at the Samsung Advanced Institute of Technology (SAIT). He received his PhD degree in chemical engineering from Sogang University, Korea, in 1998. After working as a postdoctoral researcher in the nanoscale materials and device group at the IBM T.J. Watson Research Center in Yorktown Heights (2001–2003), he joined SAIT in 2004. His research focuses on

the synthesis and development of colloidal quantum dot nanomaterials and their applications to optoelectronic devices.



Byoung Lyong Choi
Samsung Advanced Institute of Technology,
Samsung Electronics, Korea; tel. 82-31-280-
9446; and email choibl@samsung.com.

Choi is a Samsung Master of Samsung Electronics. He joined the Frontier Research Laboratory at the Samsung Advanced Institute of Technology after he received his PhD degree in nuclear engineering from Seoul National University (1996). His current research focuses on the fundamental study of nanotechnology for quantum dots, nanowires, and graphene and their industrial applications, such as quantum

dot LEDs, thermoelectric nanowire devices, and optoelectronic integrated circuits based on silicon technology.



Seth Coe-Sullivan
QD Vision, Lexington, MA, USA; tel. 781-652-
7400; and email scoe-sullivan@qdvision.com.

Coe-Sullivan is co-founder, member of the board of directors, and chief technology officer (CTO) of QD Vision. He received his PhD degree in electrical engineering from the Massachusetts Institute of Technology in May 2005, where his thesis work led to the formation of QD Vision. His technology expertise includes quantum dot materials and devices for solid-state lighting and displays, as well as the environmental health and safety implications of quantum dots and

nanomaterials broadly. His role as CTO spans technology and intellectual property strategy, technical marketing, fundraising, and business development for advanced projects.



Cuong H. Dang
Nanyang Technological University,
Singapore; tel. 65-6790-4036; and
email HCDang@ntu.edu.sg.

Dang is a senior research fellow at Luminous! Centre of Excellence for Semiconductor Lighting and Displays, the School of Electrical and Electronics Engineering, Nanyang Technological University. He received his PhD degree in physics and his MSc degree in electrical engineering from Brown University. He worked as a postdoctoral research associate, a senior research associate, and a manager of the Nano-Photonics

Laboratory at Brown University. His research focuses on nanophotonics, nanomaterials, nanoelectronics, as well as their applications in sensors, photovoltaics, light-emitting diodes, and lasers. Dang also is a member of the Institute of Electrical and Electronics Engineers (IEEE), the IEEE Photonics Society, and the Optical Society of America.



Eunjo Jang
Samsung Advanced Institute of Technology,
Samsung Electronics, Korea; tel. 82-31-280-
6753; and email ejang12@samsung.com.

Jang leads the Quantum Dot Project as a Samsung Master. She received her BS, MS, and PhD degrees in chemical engineering from Pohang University of Science and Technology, Korea, in 1993, 1995, and 1998, respectively. She joined Samsung Electronics in 2000 and has been working on the synthesis of nanomaterials and development of their optoelectronic applications, including QD-LEDs. She has published more than

25 peer-reviewed papers and has 58 patents granted.



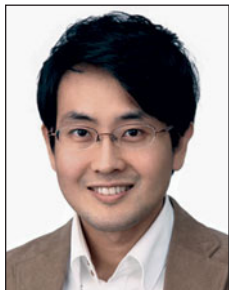
Shinae Jun
Samsung Advanced Institute of Technology,
Samsung Electronics, Korea; tel. 82-31-280-
6703; and e-mail shinae.jun@samsung.com.

Jun is a member of the research staff at the Samsung Advanced Institute of Technology (SAIT). She obtained her PhD degree from the Korea Advanced Institute of Science and Technology in 2001. After working as a postdoctoral researcher at the Massachusetts Institute of Technology, she joined the quantum dot project at SAIT, where she has worked since 2003. She is currently working on the synthesis of quantum

dots and quantum-dot-containing composites for LED applications.



Peter T. Kazlas
 QD Vision, Lexington, MA, USA; tel. 781-652-7400; and email pkazlas@qdvision.com.
 Kazlas is director of process development and optical components at QD Vision, leading optical component development activities for next-generation display and lighting products based on quantum dots. He received his BS and MS degrees from Tufts University and his PhD degree from the University of Colorado at Boulder, all in electrical engineering. Prior to joining QD Vision, Kazlas held various technical leadership positions at Smith & Nephew, E Ink, and Draper Laboratory.



Tae-Ho Kim
 Samsung Advanced Institute of Technology, Samsung Electronics; tel. 82-31-280-6732; and email taeho1220.kim@samsung.com.
 Kim is currently a research staff member in the Frontier Research Laboratory at the Samsung Advanced Institute of Technology (SAIT). He received his BS and MS degrees in chemical engineering from Hanyang University in 2000 and 2002, respectively, and his PhD degree in chemical engineering from the Korea Advanced Institute of Science and Technology in 2006. From 2006 to 2008, Kim joined John Rogers' group at the University of Illinois at Urbana-Champaign as a postdoctoral researcher. Since 2008, he has been working on unusual-format optoelectronic and electronic devices using printable nanomaterials, including QD-LEDs at SAIT.



Victor I. Klimov
 Chemistry Division, Los Alamos National Laboratory, USA; tel. 505-665-8284; and email klimov@lanl.gov.
 Klimov is a fellow of the Los Alamos National Laboratory and director of the Center for Advanced Solar Photophysics, an Energy Frontier Research Center of the US Department of Energy. He received his MS (1978), PhD (1981), and DSc (1993) degrees from Moscow State University. His research interests include optical spectroscopy of semiconductor and metal nanostructures, carrier relaxation processes, energy and charge transfer, and applications of semiconductor nanocrystals in lasers, light-emitting diodes, and photovoltaics. Klimov also is a Fellow of both the American Physical Society and the Optical Society of America and a recipient of the Humboldt Research Award in 2013.



Axel Maurice
 CEA-LETI, Minatec Campus and CEA-INAC, Grenoble, France; tel. 33-4-38-78-93-22; and email axel.maurice@cea.fr or axelmaurice@gmail.com.
 Maurice is a PhD degree student at CEA-LETI, Minatec Campus and CEA-INAC, Grenoble, France. In 2010, he obtained a degree in physics and materials engineering from Polytech Clermont-Ferrand, and a master's degree in nanophysics from Blaise Pascal University, Clermont-Ferrand. During his PhD degree studies, he developed the chemical synthesis of cadmium-free semiconductor quantum dots—in particular InSb- and InP-based nanocrystals—and their integration in optoelectronic devices.



Arto V. Nurmikko
 School of Engineering, Brown University, USA; tel. 401-863-2869; and email Arto_Nurmikko@Brown.edu.
 Nurmikko is an L. Herbert Ballou University Professor of Engineering and Physics at Brown University. He received his degrees from the University of California, Berkeley, with post-doctoral stays at the Massachusetts Institute of Technology and Hebrew University. He conducts research in nanophotonics, neuroengineering, and brain sciences, including device research to new technologies. His current interests include compact red/green/blue semiconductor lasers, development of implantable wireless neural interfaces, and high resolution acoustic microscopy. Nurmikko has published in several fields (more than 350 journal articles), led many multi-institutional research teams, advised federal funding agencies, and lectured worldwide. He also is a Fellow of the American Physical Society, the Institute of Electrical and Electronics Engineers, and the Optical Society of America. He has been the recipient of a Guggenheim fellowship and elected to the American Academy of Arts and Sciences.



Peter Reiss
 Laboratory of Molecular, Organic, and Hybrid Electronics at the Institute of Nanoscience and Cryogenics, CEA Grenoble, France; tel. 33-4-38-78-97-19; and email peter.reiss@cea.fr.
 Reiss is head of the Laboratory of Molecular, Organic, and Hybrid Electronics at the Institute of Nanoscience and Cryogenics, CEA Grenoble, France. He received his PhD degree in inorganic chemistry from the University of Karlsruhe (TH), Germany, in 2000. His current research interests comprise the development of colloidal semiconductor quantum dots for biological, lighting/display, and solar energy conversion applications. Reiss published more than 80 scientific papers, 5 book chapters, and holds 8 patents. He acts as an assistant editor for *Nanoscale Research Letters* (Springer) and co-organizes the biennial conference "Nanoscience with Nanocrystals."



Yasuhiro Shirasaki
 Massachusetts Institute of Technology, Cambridge, MA, USA; tel. 617-452-3194; and email yshir@alum.mit.edu.
 Shirasaki is a postdoctoral associate in the Organic and Nanostructured Electronics Laboratory at the Massachusetts Institute of Technology (MIT). He graduated with a BS degree (2006) in physics and BS (2006), MEng (2008), and PhD (2013) degrees in electrical engineering, all from MIT. His current research focuses on investigating efficiency loss mechanisms in colloidal quantum dot LEDs to improve their performances for display and solid-state lighting applications.



Katherine W. Song
 Massachusetts Institute of Technology, Cambridge, MA, USA; email kwsong@mit.edu.
 Song is a PhD degree candidate in electrical engineering and computer science (EECS) at the Massachusetts Institute of Technology (MIT). She holds a SM degree in EECS from MIT and a BSE in electrical engineering from Princeton University. She has worked on a variety of thin-film electronics, including flexible amorphous silicon thin-film transistors and circuits, organic solar cells, and, most recently, quantum dot light-emitting devices. Her current research interests lie in the development of implantable electronics for biomedical systems.

**Geoffrey J. Supran**

Massachusetts Institute of Technology,
Cambridge, MA, USA; tel. 617-452-3194;
and email gjsupran@mit.edu.

Supran is a PhD degree student in the Department of Materials Science and Engineering at the Massachusetts Institute of Technology (MIT), working in the Organic and Nanostructured Electronics Laboratory under the supervision of Professor Vladimir Bulović. Supran obtained a First Class Honour's degree (BA) in natural sciences (physics) from Trinity College, University of Cambridge, in 2009. He matriculated the same

year as an Eni-MIT Energy Initiative Fellow at MIT, where he is developing high-performance infrared light-emitting devices based on colloidal quantum dots.

**He Wei**

Department of Chemistry, Massachusetts
Institute of Technology, Cambridge,
MA, USA; email hewei@mit.edu.

Wei is currently a graduate student working in the laboratory of Professor Mounqi Bawendi in the Department of Chemistry at the Massachusetts Institute of Technology. He received his BS degree from the Department of Chemical Physics at the University of Science and Technology of China in 2009. By using fluorescent quantum dots, as well as magnetic nanoparticles, Wei mainly studies their inorganic core synthesis, organic

surfactant exchange and functionalization, and a variety of applications, including imaging and sensing.

**Vanessa Wood**

ETH Zürich, Gloriastrasse 35 ETZ J86,
8092 Zürich, Switzerland; tel. 41-044-632-
66-54; and email vwood@ethz.ch.

Wood is an assistant professor in the Department of Information Technology and Electrical Engineering at ETH Zürich, where she heads the Laboratory for Nanoelectronics. In 2010, she received her PhD degree in electrical engineering from the Massachusetts Institute of Technology (MIT), during which she worked on the development of inorganic QD-LEDs. Prior to joining

ETH, she was a postdoctoral researcher in the Department of Materials Science and Engineering at MIT, working on novel lithium-ion flow batteries. In 2012, Wood received an Intel Early Career Faculty Honor Award.

Nano Particles and Coatings



*Iron and carbon
multi-layer film.*



The ULVAC Arc Plasma Deposition System (APD) produces extremely smooth thin films and uniformly sized nano particles. The APD System deposits magnetic, DLC and metal films in R&D, material science, fuel cell and automotive applications.

The APD System delivers:

- Extremely smooth ultra-thin films – 0.01 to 0.3 nm/sec
- Size-controlled nano particles – 1 nm to 30 nm dia.
- Dense film formation without process gas
- Small target size: 10 mm dia. x 17 mm
- Uniformity +/- 10% over 50 mm diameter coated area

Need Nano particles or coatings?

Call 800-99ULVAC or
email sales@us.ulvac.com.

ULVAC

Methuen, MA • Tel: 978-686-7550
sales@us.ulvac.com • www.ulvac.com

Influence the Future of Your Society

COMING SOON—
Election of MRS Officers & Board Members

VOTE

- Watch your email for unique ballot log-in information from "Election-America for MRS"
- Candidate bios & statements will be posted as available at www.mrs.org/elections-2013

Ensure your voting privileges. Update your member record/contact information at www.mrs.org today!

MRS MATERIALS RESEARCH SOCIETY®
Advancing materials. Improving the quality of life.