

DEPARTMENTS

## Awards Program - Fall 2021

To cite this article: 2021 *Electrochem. Soc. Interface* **30** 62

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The Electrochemical Society  
Advancing solid state & electrochemical science & technology

## 241st ECS Meeting

May 29 – June 2, 2022 Vancouver • BC • Canada  
Extended abstract submission deadline: **Dec 17, 2021**

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 **Submit your abstract**



## Awards, Fellowships, Grants

ECS distinguishes outstanding technical achievements in electrochemistry, solid state science and technology, and recognizes exceptional service to the Society through the **Honors & Awards Program**. Opportunities for recognition are offered in the following categories: Society Awards, Division Awards, Section Awards, and Student Awards.

ECS recognizes that today's emerging scientists are the next generation of leaders in our field. Our competitive **Fellowships** and **Grants** empower students and young professionals to make discoveries and shape our science long into the future.



See highlights below and visit [www.electrochem.org/awards](http://www.electrochem.org/awards) for more information.

### Society Awards



The **ECS Allen J. Bard Award** was established in 2013 to recognize distinguished contributions to electrochemical science. The award consists of a plaque with a glassy carbon medallion; US \$7,500 prize; complimentary meeting registration for the award recipient and companion; dinner honoring the recipient during the designated meeting; and

Life Membership in the Society.

**Application materials are due by April 15, 2022**



The **Gordon E. Moore Medal for Outstanding Achievement in Solid State Science and Technology Award** was established in 1971 for distinguished contributions to the field of solid state science and technology. The award consists of a silver medal; plaque; US \$7,500 prize;

complimentary meeting registration for the award recipient and companion; dinner honoring the recipient during the designated meeting; and Life Membership in the Society.

**Materials are due by April 15, 2022.**

### Division Awards



The **Battery Division Early Career Award Sponsored by Neware Corporation** was established in 2020 to encourage excellence among postdoctoral researchers in battery and fuel cell research with the primary purpose of recognizing and supporting the development of talent and future leaders in battery and fuel cell science and technology. The award consists of a framed scroll; US \$2,000 prize; and complimentary meeting registration.

**Nominations are accepted beginning October 15, 2021; materials are due by March 15, 2022.**



The **Battery Division Postdoctoral Associate Research Award Sponsored by MTI Corporation and the Jiang Family Foundation** was established in 2016 to encourage excellence among postdoctoral researchers in battery and fuel cell research. The award consists of a framed scroll; US \$2,000 prize; and complimentary meeting registration. Two awards are granted each year.

**Nominations are accepted beginning October 15, 2021; materials are due by March 15, 2022.**



The **Battery Division Research Award** was established in 1958 to recognize excellence in battery and fuel cell research, and encourage publication in ECS journals. The award—which recognizes outstanding contributions to the science of primary and secondary cells, batteries, and fuel cells—consists of a framed certificate and US \$2,000 prize.

**Nominations are accepted beginning October 15, 2021; materials are due by March 15, 2022.**



The **Battery Division Student Research Award Sponsored by Mercedes-Benz Research & Development** recognizes promising young engineers and scientists in the field of electrochemical power sources. The award encourages recipients to initiate or continue careers in the field. Eligible candidates must be enrolled in a college or university at the nomination deadline. The award consists of a framed certificate and US \$1,000 prize.

**Nominations are accepted beginning October 15, 2021; materials are due by March 15, 2022.**



The **Battery Division Technology Award** was established in 1993 to encourage the development of battery and fuel cell technology, and to recognize significant achievements in this area. The field of interest covered by the award is defined as “that area of electrochemical technology which deals with the design, fabrication, scale-up, performance, lifetime, operation, control, and application of devices (i.e., primary and secondary cells and batteries, and fuel cells) in which chemical energy can be converted into usable electrical energy by an electrochemical process.” The award consists of a scroll; US \$2,000 prize; and Battery Division membership for as long as the recipient maintains Society membership.

**Nominations are accepted beginning October 15, 2021; materials are due by March 15, 2022.**

## AWARDS PROGRAM



The **Corrosion Division H.H. Uhlig Award** was established in 1973 to recognize excellence in corrosion research and outstanding technical contributions to the field of corrosion science and technology. The award consists of a scroll and US \$1,500 prize.

**Materials are due by December 15, 2021.**



The **Corrosion Division Morris Cohen Graduate Student Award** was established in 1991 to recognize and reward outstanding graduate research in the field of corrosion science and/or engineering. The award consists of a framed certificate; US \$1,000 prize; and up to US \$1,000 for travel expenses.

**Materials are due by December 15, 2021.**



The **Corrosion Division Rusty Award for Mid-Career Excellence** was established in 2021 to recognize mid-career achievement and contributions to the field of corrosion science and technology by a scientist or engineer. The award consists of a framed certificate; US \$1,000 prize; complimentary meeting registration; and up to US \$1,000 for travel expenses.

**Materials are due by December 15, 2021.**



The **Electrodeposition Division Early Career Investigator Award** was established in 2015 to recognize an outstanding young researcher in the field of electrochemical deposition science and technology. The award consists of a framed certificate and US \$1,000 prize.

**Nominations are accepted beginning October 1, 2021; materials are due by April 1, 2022.**



The **Electrodeposition Division Research Award** recognizes outstanding research contributions to the field of electrodeposition and encourages the publication of high quality papers in the *Journal of The Electrochemical Society*. The award is based on recent outstanding achievement in, or contribution to, the field of electrodeposition. It is given to an author or co-author of a paper that must have appeared in the *Journal* or another ECS publication. The award consists of a framed certificate and US \$2,000 prize.

**Nominations are accepted beginning October 1, 2021; materials are due by April 1, 2022.**



The **Luminescence and Display Materials Division Outstanding Achievement Award** was established in 2002 to encourage excellence in luminescence and display materials research, and outstanding technical contributions to the field. For the purposes of this award, luminescence and display materials science is defined as that area of knowledge that encompasses the physics, chemistry, and materials technology of luminescence and display materials and devices. The award consists of a scroll; US \$1,000 prize; and up to US \$1,000 for travel expenses to facilitate meeting attendance.

**Materials are due by January 1, 2022.**

## Student Awards



The **ECS Korea Section Student Award** was established in 2005 to recognize academic accomplishments in any area of science or engineering in which electrochemical and/or solid state science and technology is the central consideration. The award consists of a US \$500 prize and is presented at a designated Korea Section meeting. The recipient may be asked to speak at that meeting on a subject of major interest to him/her in the field of electrochemical and/or solid state science and technology.

**Materials are due by December 31, 2021.**




The **San Francisco Section Daniel Cubicciotti Student Award** was established in 1994 to assist a deserving student in Northern California pursue a career in the physical sciences or engineering. The award consists of an etched metal plaque and US \$2,000 prize. Up to two honorable mentions are also offered, each receiving a framed certificate and US \$500 prize.

**Materials are due by February 15, 2022.**



The **Canada Section Student Award** was established in 1987 to recognize promising young engineers and scientists in the field of electrochemical power sources. The award is intended to encourage recipients to initiate or continue careers in the field. It consists of a US \$1,500 prize.

**Materials are due by February 28, 2022.**



### SUPPORT THE NEXT GENERATION THROUGH STUDENT AWARDS!

Student awards—part of the ECS Honors and Awards Program—support the next generation of scientists by expanding opportunities as they progress in their careers. These awards acknowledge student and early career scientists' dedication and outstanding achievements in their fields of study.

Visit [www.electrochem.org/student-awards](http://www.electrochem.org/student-awards) to learn more.



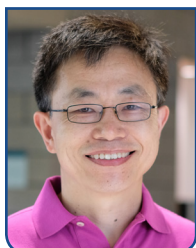
# AWARDS PROGRAM

## Award Winners

*The following awards are part of the ECS Honors & Awards Program, which has recognized professional and volunteer achievement in our multi-disciplinary sciences for decades. Join us in celebrating your peers as we extend congratulations to all!*

## Society Awards

### Carl Wagner Memorial Award



**YUSHAN YAN** is the Henry B. du Pont Chair in Chemical and Biomolecular Engineering at the University of Delaware (UD). He previously served as the Founding Associate Dean for Research and Entrepreneurship at UD; Department Chair at the University of California, Riverside; and Senior Staff Engineer at AlliedSignal. Recognition of his research includes the Donald Breck Award from the International Zeolite Association; Nanoscale Science and Engineering Forum

Award; Braskem Award for Excellence in Materials Science and Engineering; R. H. Wilhelm Award for Chemical Reaction Engineering from the American Institute of Chemical Engineers; ECS Energy Technology Division Research Award; and Fellow of The Electrochemical Society, American Association for the Advancement of Science, and National Academy of Inventors.

Named a Highly Cited Researcher by Web of Science, Yan is an inventor of over 20 issued US patents that contributed to several startups, including NanoH<sub>2</sub>O and Versogen (for which he is the Founder and CEO). He is the author of more than 270 publications that are widely cited (24,000+ citations, h-index of 85, Web of Science; 30,000+ citations, h-index of 93, Google Scholar). Yan received his BS in Chemical Physics at the University of Science and Technology of China, and PhD in Chemical Engineering at the California Institute of Technology. He has supervised more than 30 PhD students and more than 30 postdoctoral researchers, with over 20 of them now holding faculty positions.

### Olin Palladium Award



**GERALD S. FRANKEL** is Distinguished Professor of Engineering in the Department of Materials Science and Engineering and Director of the Fontana Corrosion Center at Ohio State University (OSU). His primary research interests are in the passivation and localized corrosion of metals and alloys, corrosion inhibition, protective coatings, and atmospheric corrosion. He earned his ScB in Materials Science Engineering from Brown University, and his ScD in Materials Science

and Engineering from the Massachusetts Institute of Technology. Before joining OSU in 1995, Frankel was a post-doctoral researcher at the Swiss Federal Technical Institute and then a Research Staff Member at the IBM Watson Research Center.

The author of over 300 papers in peer-reviewed journals, he is a member of the editorial board of the *Journal of The Electrochemical Society* and *Corrosion Science and Technology*. A Fellow of The Electrochemical Society, NACE International, and ASM International, his research has been recognized by the 2015 W.R. Whitney Award from NACE International; 2011 U.R. Evans Award from the UK Institute of Corrosion; 2010 OSU Distinguished Scholar Award; 2010 ECS Corrosion Division H.H. Uhlig Award; and 2004 Alexander von Humboldt Foundation Research Award for senior US scientists. He was appointed by President Obama to serve as a member of the Nuclear Waste Technical Review Board from 2012 to 2016. In 2016, he became the Director of a DOE-funded Engineering Frontier Research Center focused on the performance of nuclear waste forms.

### Norman Hackerman Young Author Award



**STEFAN OSWALD** received his BS and MS in Physics at the Technische Universität München (TUM). He started his PhD in 2018 with **Hubert Gasteiger**, Chair of Technical Electrochemistry at TUM. In collaboration with BASF, Oswald researches cathode active materials for lithium-ion batteries. Oswald's work centers on understanding morphology effects on the long-term performance of nickel-rich layered oxides.

To illuminate fundamental properties of poly- and single crystalline NCMs, he developed a novel method for monitoring particle cracking by in situ impedance spectroscopy. Oswald has authored one publication. Since 2018, he has served as Treasurer of the ECS Munich Student Chapter.

### Bruce Deal and Andy Grove Young Author Award



**TINGYU BAI** received a BS in Metallurgical Engineering from the University of Science and Technology Beijing. She completed a PhD in Materials Science and Engineering from the University of California, Los Angeles (UCLA) in 2020. Bai's research at UCLA focused on the study of thermal transport in diamond with the goal of using diamond for heat management applications. Different characterization techniques have been used in this research to study the CVD

(chemical vapor deposition) diamond film and understand the factors that influence its thermal property.

## AWARDS PROGRAM



**NICK HINES** is a PhD student in the George W. Woodruff School of Mechanical Engineering at the Georgia Institute of Technology (Georgia Tech) under advisor Dr. **Samuel Graham**. Nick's graduate research centers on developing advanced solutions for the thermal management and reliability of GaN and AlGaN-based high electron mobility transistors (HEMTs) for RF and power electronic applications. In 2015, he received a BS in Applied Physics from

Morehouse College and BS in Mechanical Engineering from Georgia Tech through the Atlanta University Center Dual Degree Engineering Program (AUC DDEP). He then completed an MS in Mechanical Engineering at Georgia Tech (2019) and plans to complete his PhD there in May 2022. Beyond his research interests, Nick is passionate about tutoring and mentorship.



**YEKAN (STEVEN) WANG** is a PhD candidate in the Department of Materials Engineering at the University of California, Los Angeles (UCLA). His research interests include structural characterization of defects and interfacial imperfections in wide bandgap and ultra-wide bandgap materials/systems, using a combination of non-destructive x-ray scattering and electron scattering techniques. His research aims to help enhance both thermal and electrical transport in wide bandgap power electronics, as well as other heterogeneous materials integration applications. He received his BS (2015) and MS (2017) in Materials Engineering also at UCLA.

## Division Awards

### Battery Division Early Career Award Sponsored by Nwre



**BETAR M. GALLANT** is an Associate Professor and the ABS Career Development Professor in the Department of Mechanical Engineering at the Massachusetts Institute of Technology (MIT). Her research group at MIT focuses on advanced battery chemistries and materials for high-energy primary and rechargeable batteries, including fluorinated cathode conversion reactions and lithium and calcium metal anodes and their interfaces. Her group is leading research into CO<sub>2</sub> capture and its

integration with direct electrochemical conversion in the captured state.

She received her ScB, ScM, and PhD degrees from MIT, and was a Kavli Nanoscience Institute Postdoctoral Fellow at the California Institute of Technology. She is the recipient of multiple awards, including an MIT Bose Fellow; Army Research Office Young Investigator Award; Scialog Fellow in Energy Storage and in Negative Emissions Science; NSF CAREER Award; and Ruth and Joel Spira Award for Distinguished Teaching at MIT.



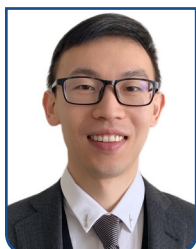
**WEI SUN** is a postdoctoral researcher under the supervision of Prof. **Martin Winter** in the MEET Battery Research Center at the Westfälische Wilhelms-Universität Münster. His research interests lie in the field of energy storage materials and electrochemistry, with a recent focus on understanding the chemistry of rechargeable zinc-based batteries. After completing a PhD in Materials Processing Engineering at the South China University of Technology in 2017, he was a Visiting

Scholar in Prof. **Chunsheng Wang's** group at the University of Maryland (2015–2017). He has published over 30 peer-reviewed papers in prestigious journals, including *Science* and the *Journal of American Chemistry Society* with 3000+ citations and a Google Scholar h-index of 24. He is the main participant in two key research projects funded by the German Federal Ministry of Education and Research. Sun has served as a judge for German-Israeli Foundation projects, as well as a reviewer for journals that include *Science Advances* and *Energy & Environmental Materials*.

### Battery Division

### Postdoctoral Associate Research Award

Sponsored by MTI Corporation and the Jiang Family Foundation



**LIN MA** is the first-ever Dr. Brad E. Forch Distinguished Postdoctoral Fellow at the U.S. Army Research Laboratory, University of Maryland, supervised by Dr. **Kang Xu** and Prof. **Chunsheng Wang**. His research interests focus on the use of electrochemistry and materials chemistry in clean energy technologies (mainly energy storage systems) to address energy and environmental challenges. He began his career in the energy storage field with the development of

conversion cathode materials under the supervision of Prof. **Yong Yang** at Xiamen University, where he obtained his BSc in chemistry (2012). He earned his PhD in 2019—with support from a Killam Fellowship—working with Prof. **Jeff Dahn** at Dalhousie University on high voltage Li-ion batteries. Ma received the ECS Battery

### Battery Division Research Award



**CHUNSHENG WANG** holds the Robert Franklin and Frances Riggs Wright Distinguished Chair in Chemical Engineering at the University of Maryland (UMD), College Park, and is co-founder and Director of The UMD-ARL Center for Research in Extreme Batteries. His research interests are electroanalytical technologies, advanced materials for rechargeable batteries, fuel cells, and supercapacitors. Wang's current research focuses on Li-ion battery

electrolytes. He developed a water-in-salt electrolyte and transition metal-free LiBr-LiCl-Graphite cathode for Li-ion batteries. His breakthrough research sets the foundation for new battery chemistries for years to come.

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## AWARDS PROGRAM

### Division Awards

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Wang completed his PhD at Zhejiang University in 1995. He has published over 300 papers and is ranked as a Highly Cited Researcher by Clarivate. Wang received the 2016 and 2021 UMD Invention of the Year Awards and 2004 NASA Technology Brief Patent Application and Software Release Award. His battery technologies have been licensed by AquaLith Advanced Materials and other companies.

### Battery Division Student Research Award

Sponsored by Mercedes-Benz Research & Development



**MUHAMMAD MOMINUR RAHMAN** recently completed his PhD in Chemistry under the supervision of Prof. **Feng Lin** at the Virginia Polytechnic Institute and State University (Virginia Tech). His graduate research focused on the design and development of layered cathode materials for alkali-ion batteries, defect dynamics in layered cathodes, advanced synchrotron characterization of electrode materials for alkali-ion batteries, multiscale

electrochemistry, and understanding the solid-liquid interfaces in alkali-ion batteries. He earned his BS (2014) and MS (2016) degrees in Applied Chemistry and Chemical Engineering from the University of Dhaka.

Rahman's research is published in journals such as *Nature Communications*, *Energy & Environmental Science*, *Matter*, *ACS Materials Letters*, and the *Journal of Physical Chemistry C*. His research contributions have been highlighted by multiple public and scientific media such as *DOE Science*, *ScienceDaily*, *Virginia Tech News*, *Xiamen University Malaysia News*, and *SLAC Science Highlights*. Rahman received the 2021 ECS Battery Division Student Research Award, 2020 Chemistry Graduate Research Award, and 2019 Graduate School Doctoral Assistantship Award from Virginia Tech, and the 2014 Dean's Award from University of Dhaka.



**YANG YU** is a Senior Cell Materials Engineer at Tesla. He received his PhD in Materials Science and Engineering from the Massachusetts Institute of Technology (MIT) in 2021 under the supervision of Prof. **Yang Shao-Horn**. As an undergraduate at Northwestern University, Yu conducted research with Prof. **Chris Wolverton** using density functional theory to understand the energetic and structural evolution of Li-ion battery cathode materials upon charging. Yu

completed his BS summa cum laude in Materials Science and Engineering and Manufacturing and Design Engineering there in 2016. At MIT, he combined his expertise in theoretical calculations with advanced x-ray and vibration spectroscopies to understand the bulk and surface redox process of Ni-rich NMC cathodes as well as Li-excess materials. Through systematic tuning of metal-oxygen interactions, he demonstrated the importance of covalency between transition metal and oxygen to maintain a reversible oxygen redox behavior, enabling future high-throughput high energy-density cathode screening.

Yu has published 21 journal articles, including nine (co-)first authored peer-reviewed journal articles on cathode materials in journals that include *Energy & Environmental Science*, *Chemistry of Materials*, and *ACS Applied Materials & Interfaces*.

### Battery Division Technology Award

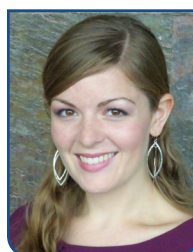


**ARUMUGAM MANTHIRAM** is the Cockrell Family Regents Chair in Engineering and Director of the Texas Materials Institute at the University of Texas at Austin (UT-Austin). He joined UT-Austin's Department of Mechanical Engineering faculty in 1991 after receiving his PhD in Chemistry from the Indian Institute of Technology Madras (1981) and completing postdocs at the University of Oxford and at UT-Austin. His research is focused on batteries and fuel cells.

Manthiram is a Fellow of The Electrochemical Society, Materials Research Society, American Ceramic Society, Royal Society of Chemistry, American Association for the Advancement of Science, and World Academy of Materials and Manufacturing Engineering. An elected member of the World Academy of Ceramics, he has received the 2020 International Battery Association Research Award; 2020 ECS Henry B. Linford Award for Distinguished Teaching; 2019 Honorary Mechanical Engineer of the ME Academy of Distinguished Alumni Award; 2016 Billy and Claude R. Hocott Distinguished Centennial Engineering Research Award; 2015 Distinguished Alumnus Award of the Indian Institute of Technology Madras; 2014 ECS Battery Division Research Award; and 2012 UT-Austin's university-wide Outstanding Graduate Teaching Award. Manthiram has been a Web of Science Highly Cited Researcher every year since 2017. He delivered the 2019 Chemistry Nobel Prize Lecture on behalf of Prof. **John Goodenough**.

The former chair of the ECS Battery Division and ECS Texas Section, he founded the ECS UT-Austin Student Chapter in 2006 and continues to serve as its Faculty Advisor. The author of 850 journal articles with 78,000 citations, Manthiram has an h-index of 138. He has mentored 270 students and postdoctoral researchers, including graduating 65 PhD students.

### Corrosion Division Morris Cohen Graduate Student Award



**THALIA STANDISH** is a Research Scientist at Surface Science Western, where she conducts material analyses to advance academic research and to help solve industrial problems. She received her PhD in Chemistry from Western University in 2019. Her graduate research focused on evaluating the galvanic corrosion behavior of copper-coated carbon steel for used nuclear fuel containers, using a combination of electrochemical techniques, x-ray micro-computed

tomography (micro-CT), and surface analytical techniques. Standish is currently developing expertise in Raman spectroscopy, Fourier transform infrared spectroscopy (FTIR), and thermal analysis techniques, focusing on polymeric materials in particular.

During her PhD studies, Thalia published several peer-reviewed research articles and presented her research on numerous occasions, in various formats, to audiences ranging from the general public to experts in her subject area. Her outstanding research ability, academic excellence, and exceptional communication, interpersonal, and leadership skills have been acknowledged via numerous scholarships and awards.



## Electrodeposition Division Research Award



**NOAM ELIAZ** is a Full Professor, Director of the Biomaterials and Corrosion Laboratory, and was the founding first chair of the Department of Materials Science and Engineering at Tel Aviv University (TAU); he also is an Adjunct Professor at the Vellore Institute of Technology.

His research is multidisciplinary and combines fundamental with applied research. It includes electrodeposition of functional alloys, development of novel electrochemically assisted calcium phosphate coatings for dental implants (he currently serves as the Chief Scientist of SGS Dental), additive manufacturing (either from powders or from electrolyte solutions), corrosion, new applications of bio-ferrography, and failure analysis. The products of his research are used in defense organizations and implant companies.

Eliaz received his BSc (academically reserve) and PhD (direct track) degrees in Materials Engineering, and his MBA, all *cum laude* from Ben-Gurion University. After two years as a Fulbright and Rothschild Postdoctoral Scholar at the Massachusetts Institute of Technology, he joined TAU in 2001. Eliaz has produced many technical publications, including coauthoring a bestselling textbook on physical electrochemistry, editing three books, and publishing over 140 journal articles. In 2014, an article of his became the first-ever open access article in *Journal of the European Ceramic Society*. He has over 9,600 citations and an h-index of 49. He was on Stanford University's list of Top 2% Scientists of the World; served for 12 years as Editor-in-Chief of *Corrosion Reviews*, and is currently on the editorial boards of six international journals.

Eliaz has garnered numerous awards, including the T.P. Hoar Award, and NACE International's H. H. Uhlig, Fellow, and Technical Achievement Awards. He was elected to the Israel Young Academy in 2015, and to US National Academy of Inventors (Senior Member) in 2020. He is a member of the Governing Board of GIF. His group members have won prestigious accolades including the Israel Defense Prize and three currently hold faculty positions in Israel, India, and China.

## Electrodeposition Division Early Career Investigator Award



**JINGXU (KENT) ZHENG** is a Postdoctoral Associate in the Department of Physics at the Massachusetts Institute of Technology (MIT) under the supervision of Prof. **Joseph Checkelsky**. As well as continuing his earlier battery research, Zheng works on electrochemical synthesis of quantum materials that host exotic electronic states (i.e., topological insulators and superconductors). He completed his PhD in 2020 at Cornell University with Prof. **Lynden**

**Archer** as his supervisor. His thesis research focused primarily on the design of reversible metallic anodes in batteries, including Li, Zn, and Al, by regulating their electrodeposition morphologies. Zheng earned a BS degree in Engineering and History from Shanghai Jiao Tong University in 2017. His undergraduate research aimed at the atomic-scale characterization of crystalline materials and their phase transformations using advanced transmission electron microscopy. He is the co-author of more than 40 research papers.

## High Temperature Materials Division Subhash Singhal Award



**NGUYEN MINH** is an internationally renowned expert on solid oxide fuel cells (SOFCs) and related technologies, currently with the Center for Energy Research at the University of California San Diego (UCSD). Over the past thirty years, he has dedicated his research to the development of SOFCs and new energy systems. His experience covers the full spectrum of industrial/product R&D areas, ranging from technology assessment, strategy and roadmap

formulation, fundamental and engineering study, to processes and manufacturing development, system design and operation, prototype demonstration, and cost/market analysis.

At UCSD, Minh's SOFC research focuses on basic and applied science and engineering studies on properties, phenomena, and designs key to stack technology and the development of advanced concepts. Before UCSD, he was Chief Scientist/Manager, Fuel Cells, at General Electric and Honeywell/AlliedSignal, and a Group Leader/Staff in electrochemical technology at Argonne National Laboratory.

Minh is the author/co-author of the book *Science and Technology of Ceramic Fuel Cells*, as well as nine book chapters, 21 patents, and about 150 published technical articles on SOFCs and related technologies. His review paper "Ceramic Fuel Cells," published in the *Journal of the American Ceramic Society* in 1993, serves as a classic article that has been widely cited and translated into several languages. Minh has received awards that include the 2007 ASME Francis T. Bacon Medal and 2017 Fuel Cell Seminar & Energy Exposition Award.

## Organic and Biological Electrochemistry Division Manuel M. Baizer Award



**R. DANIEL (DAN) LITTLE** is a Distinguished Research Professor at the University of California, Santa Barbara. Little is keenly and forever interested in the nature of reactive intermediates and in understanding their behavior: what makes them do what they do, how, and why. He thoroughly enjoys teaching and is passionate about incorporating organic electrochemistry into the undergraduate and graduate curriculum.

He earned his PhD in Chemistry from the University of Wisconsin—his home state—in 1974 under the tutelage of **Howard Zimmerman**. He completed his BS degree in Chemistry and Mathematics at the University of Wisconsin, Superior, at which time he also carried out undergraduate research at the University of South Dakota and Argonne National Laboratory with **L. Kaplan** and **K. E. Wilzbach**. Before beginning his academic career at UCSB, he completed postdoctoral studies with **Jerome Berson** at Yale University.

Little is grateful to **Manuel Baizer** for nurturing his interest in electrochemistry when Baizer was an Adjunct Professor at UCSB. He thanks his dedicated and exceptionally talented students whose contributions made it possible for him to publish extensively and lecture throughout the world. Their efforts formed the foundation for his receipt of the 2016 ISE Jaroslav Heyrovsky Prize for Molecular Electrochemistry.

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## Division Awards

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### Physical and Analytical Electrochemistry Division Max Bredig Award in Molten Salt and Ionic Liquid Chemistry



**TOM WELTON** is currently President of the Royal Society of Chemistry. In 2004, he became the world's first Professor of Sustainable Chemistry at Imperial College London, where he has been a faculty member since 1993. He has worked with ionic liquids continuously since 1985 when he embarked upon his PhD, supervised by **Ken Seddon** at the University of Sussex, on "The Chemistry and Spectroscopy of Ionic Liquids." He investigates the properties of ionic liquids,

their interactions with solutes, and their effects on chemical reactions. He is best known for quantifying these effects and providing mechanistic understandings of their use in organic synthesis. Much of his earlier work was on the application of ionic liquids to transition metal catalyzed reactions. More recently, he has been interested in the use of ionic liquids for the processing of lignocellulosic biomass. Beyond his own research, he has been Head of the Chemistry Department (2007–2014) and Dean of the Faculty of Natural Sciences (2014–2019). He is a champion for greater inclusion of underrepresented groups in chemistry. In 2017, he was awarded Officer of the Order of the British Empire for his work on diversity in education. He was named Fellow of the Royal Society of Chemistry in 2007.

### Sensor Division Outstanding Achievement Award



**MARC MADOU** is the Chancellor's Professor of Mechanical and Aerospace Engineering at the University of California, Irvine (UCI), with joint appointments in the departments of Biomedical Engineering and Chemical and Biomolecular Engineering. He specializes in the application of miniaturization technology to chemical and biological problems (BIO-MEMS).

Madou completed his BS (1973), MS (1975), and PhD (1978) at the Rijksuniversiteit Ghent. Before joining UCI in 2002, he was Vice President of Advanced Technology at Nanogen (2001–2002). Madou was the

founder of SRI International's Microsensor Department; founder and President of Teknekron Sensor Development Corporation; Visiting Miller Professor at the University of California, Berkeley; and held an endowed chair at Ohio State University. He is the author of several books in this burgeoning field he helped pioneer in academia and industry. *Fundamentals of Microfabrication*, an introduction to MEMS and NEMS, is known as the "bible" of micromachining. He has founded several micromachining companies and has been on the board of many others. Many of his students have become well known in their own right in academia and through successful MEMS start-ups. Today, Madou works with research teams in India (IIT Kharagpur), Mexico (Tec de Monterrey and UNAM), Malaysia (UM), and Germany (KIT). In the recent past, he also worked on large projects with teams in South Korea and Canada.

He is considered the pioneer of two research fields that are now being pursued worldwide: carbon micro- and nanofabrication and compact disc fluids for molecular diagnostics. These two technologies have resulted in at least 10 start-up companies. From those founded by Madou, the lithium-ion battery company Enevate is the largest and best known. Madou has an h-index of 79.



**YASUHIRO SHIMIZU** is Professor and Dean of the Graduate School of Engineering at Nagasaki University. His research has focused on chemical sensors, including various kinds of gas sensors capable of detecting humidity, oxygen, VOCs, and odors, by employing several detection principles. Most recently, his work has been directed at developing gas sensors for use in safety and in health care.

Shimizu received his PhD in Engineering in 1987 from Kyushu University after completing his BS in Applied Chemistry there in 1980. He joined the faculty of Nagasaki University in 2005. His scientific contributions and service to The Electrochemical Society of Japan (ECSJ) was recognized with his appointment as a Fellow in 2020. Other awards include the 2008 ECSJ Scientific Achievement Award; 2001 Seiyama Award of the Japan Association of Chemical Sensors (JACS); 2001 and 2005 ECSJ Distinguished Paper Awards; and 1992 ECSJ Sano Award for a young distinguished researcher. He has been Chair of the Asia/Pacific Region in the Executive Steering Committee of the International Meeting on Chemical Sensors since 2016, and Chair of the International Steering Committee of the Asian Conference on Chemical Sensors since 2017, and served as President of the Japan Association of Chemical Sensors (JACS), an expert division of ECSJ, in 2015 and 2016; Editor of *Sensors and Actuators B: Chemical* (January 2008 to June 2018), and Co-Editor in Chief of *Sensors and Actuators B: Chemical* since July 2018. The latest record of his scientific achievements can be seen on the ORCID website (<https://orcid.org/0000-0002-1973-4392>). ■

## Section Awards

### Canada Section Student Award



**HOLLY FRUEHWALD** is pursuing a PhD in Materials Science at the University of Ontario Institute of Technology (Ontario Tech) where she completed her BS in 2017. Her research focuses on the development of non-precious metal materials for applications in clean electrochemical energy technologies under the co-supervision of Profs. **Brad Easton** and **Olena Zenkina**. Fruehwald is

generally interested in the development of novel catalysts for fuel cells, supercapacitors, and electrolyzer applications. She recently received the NSERC Alexander Graham Bell Canadian Graduate scholarship. Her research was featured on the covers of *ChemElectroChem* and *Catalysis Science and Technology*. She is passionate about outreach and about communicating science, specifically electrochemistry, on social media.



## Canada Section W. Lash Miller Award



**FIorenzo VETRONE** is Full Professor at the Institut National de la Recherche Scientifique, Centre Énergie, Matériaux et Télécommunications (INRS-EMT), Université du Québec. A pioneer in the field of rare earth doped upconverting nanoparticles, he published the first paper in the field in 2000. The overarching theme of his research group is to develop multifunctional nanoplateforms, excited by near-infrared light to simultaneously trigger other light-activated modalities.

Vetrone received his PhD in Chemistry from Concordia University followed by postdoctoral fellowships from the UK Royal Society and the Natural Sciences and Engineering Research Council of Canada (NSERC). He was appointed Assistant Professor of Nanobiotechnology at INRS-EMT in October 2010 and promoted to Associate Professor in June 2015. Concordia hired Vetrone to develop an ambitious and vigorous research program at the vanguard of nanomaterials research and their implementation in the life sciences and in nanomedicine.

He has published some 100 papers in peer-reviewed publications such as *Journal of the American Chemical Society*, *Nano Letters*, *ACS Nano*, *Chemistry of Materials*, *Advanced Materials*, *Advanced Functional Materials*, *Nanoscale*, and *Science*, with a number of ISI Highly Cited Papers. Vetrone has given over 120 invited lectures at prestigious conferences, research institutions, and summer schools around the world. His research has been recognized by prestigious awards from the Natural Sciences and Engineering Research Council of Canada; International Union of Pure and Applied Chemistry; Royal Society; ASM International; Provinces of Benevento and Shandong; and most recently, the Keith Laidler Award from the Chemical Institute of Canada/Canadian Society for Chemistry. Vetrone was elected as a member of the Global Young Academy, and in 2019, to the College of New Scholars, Artists and Scientists of the Royal Society of Canada.

## Europe Section Heinz Gerischer Award



**D. NOEL BUCKLEY** is Professor Emeritus of Physics at the University of Limerick and Adjunct Professor of Chemical Engineering at Case Western Reserve University. His current research includes electrochemistry at the compound-semiconductor/solution interface; the kinetics of vanadium redox couples on carbon electrodes that are the basis for the vanadium flow battery; and stress in electrodeposited metal nanofilms.

He has long been interested in the communication of science. Buckley teaches graduate courses on Scientific Writing and Methodology of Research, and has presented short courses on scientific writing at several ECS meetings and European Union Innovative Training projects.

Buckley obtained his BSc and PhD from the National University of Ireland. His PhD research with the late Prof. **Declan Burke** was on the oxygen electrochemistry of ruthenium and iridium and led to the discovery of electrochromism in iridium oxides. He subsequently completed postdoctoral research with the late Prof. **Wayne Worrell** at the University of Pennsylvania before joining Bell Laboratories.

There he played a key role in the early development of compound semiconductor science and technology, in recognition of which he received the ECS Electronics and Photonics Division Award in 2017.

A Past President and Fellow of The Electrochemical Society, Buckley served as Associate Editor of the *Journal of The Electrochemical Society* and *Electrochemical and Solid State Letters*, and a member of the Editorial Advisory Board of *ECS Transactions*. He has been Chair of the ECS Europe Section, and Chair, Secretary, and Treasurer of the Electronics and Photonics Division.

## Korea Section Student Award



**Ik SEON KWON** is a PhD candidate at Korea University (KU), working in Prof. **Jeunghye Park's** Laboratory. His research focuses on developing promising water-splitting electrocatalysts with various group V, VI, and VII transition metal dichalcogenide (TMD) materials. Kwon received a BS in Advanced Materials Chemistry at KU in 2015 and an MS in Micro Device Engineering in 2018. He began work in Prof. Park's lab at that time. Currently, he is synthesizing

composition-controlled TMD materials like  $\text{Mo}_1\text{-xNb}_x\text{Se}_2$ ,  $\text{Mo}_1\text{-xV}_x\text{Se}_2$ , and  $\text{Nb}_1\text{-xV}_x\text{Se}_2$ , using a colloidal synthesis method to research physicochemical properties. These results help enhance the electrocatalytic performance of TMDs.

Kwon is the first author on papers in *ACS Nano*, *Small*, *Journal of Materials Chemistry A*, and other significant journals. He has received awards that include the 2020 KU Graduate Student Achievement Award; Korean Synchrotron Radiation Users Association's 2019 Graduate Student Outstanding Paper Award; and the Korean Chemical Society's 2018 Excellent Poster Presentation Prize. In 2021, Kwon was selected for the BK21 Plus Outstanding Graduate Student Award given by the South Korean Ministry of Education.

## San Francisco Daniel Cubicciotti Award

### WINNER



**IWNETIM (TIM) ABATE** is a DARE Doctoral Fellow in Materials Science & Engineering at Stanford University. Working with Profs. **William Chueh** and **Thomas Devereaux**, his research aims to improve the energy capacity of batteries to meet the ever-growing global demand for energy storage. His work combines x-ray and electrochemical characterization with quantum mechanical simulations to design next-generation lithium and sodium-ion batteries. Prior to joining

Stanford, he completed a research stint at IBM Almaden and at Los Alamos National Laboratory working on metal-air batteries and hybrid photovoltaics, respectively. Abate is also co-founder and president of a non-profit organization ([www.scifro.org](http://www.scifro.org)) working to empower African youth to solve local energy and medical problems through scientific research and innovation. Abate is an incoming University of California, Berkeley Miller and Presidential Postdoctoral Fellow starting in the fall of 2021.

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# AWARDS PROGRAM

## Section Awards

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### HONORABLE MENTION



**SARAH A. BERLINGER** is a PhD candidate and NSF Graduate Research Fellow in the Department of Chemical & Biomolecular Engineering at the University of California, Berkeley, where she is co-advised by Prof. **Bryan D. McCloskey** and Dr. **Adam Z. Weber** (Lawrence Berkeley National Laboratory). Her research focuses on understanding multi-component interactions among catalyst particles, polymers, and solvents in fuel cell electrode precursor inks, and how these forces drive electrode microstructure formation. Prior to her graduate studies, she completed a BS in Chemical Engineering at Columbia University. There, under the direction of Prof. **Alan C. West**, she researched battery charging protocols for capacity recovery and bioelectrochemical fuel production pathways. Outside of research, Sarah is passionate about mentorship and outreach. She mentored five undergraduate researchers over the past few years and is involved with Bay Area Scientists in Schools (BASIS).



**ERIC MCSHANE** received his BS in Chemical and Biomolecular Engineering from Cornell University in 2016, where he worked as an undergraduate researcher in the lab of **Tobias Hanrath**. Before beginning his graduate studies at the University of California, Berkeley in the fall of 2016, he earned the NSF Graduate Research Fellowship and joined **Bryan McCloskey's** lab to study the kinetic, transport, and degradation phenomena underpinning lithium-ion battery operation during fast charge. Outside the lab, McShane has been an active teacher in many arenas. He earned an Outstanding Graduate Student Instructor Award in 2017; developed a science lesson for second graders as part of Bay Area Scientists in Schools (BASIS); and created and remotely instructed a course for incarcerated students entitled *Statistics of Vaccinations and Herd Immunity* as part of a Mount Tamalpais College program. ■

## 2021 Class of Fellows

*Fellow of The Electrochemical Society was established in 1989 for advanced individual technological contributions to the fields of electrochemistry and solid state science and technology, and for service to the Society. These members are recognized at the Plenary Session for scientific achievements, leadership, and active participation in the affairs of ECS. Each year, up to 15 renowned scientists and engineers are chosen by their peers for this honor. Join us in celebrating the 2021 Class of Fellows of The Electrochemical Society.*



**SHEKHAR BHANSALI** is Distinguished University Professor at Florida International University (FIU), where he also holds the CALA-Technologies Lucent Distinguished Chair. He has served as Division Director (Electrical Communications and Cyber Systems) at the National Science Foundation since fall 2020. Bhansali's expertise is in electrochemical biosensors, wearable sensors, microfluidic sensors and systems, nanostructured catalysts, and microsystems.

Bhansali received his PhD in Electrical Engineering at the Royal Melbourne Institute of Technology, then completed a postdoctoral fellowship at the National Research Laboratory of Metrology (Japan). Bhansali served as Chair of the Electrical and Computer Engineering Department at FIU from 2011 to 2020, and was the Interim Director of the School of Electrical, Computer and Enterprise Engineering from 2019 to 2020. Previously, he spent 11 years as a professor at the University of South Florida. He holds 40 patents and has published over 300 papers. Bhansali has mentored and supported over 200 minority PhD students and 200 undergrads as they pursued their doctoral degrees in all areas of STEM. His mentoring has been recognized through multiple awards, including the Alfred P. Sloan Foundation Mentor of the Year Award and William R. Jones Outstanding Mentor Award. Bhansali is a Fellow of the American Association for the Advancement of Science; American Institute of Medical and Biological Engineering; Institute of Physics; and National Academy of Inventors.



**ANJA BOISEN** is Head of Section and Professor in the Department of Health Technology at the Danmarks Tekniske Universitet (DTU). She heads IDUN, a Danish National Research Foundation and the Villum Foundation Center of Excellence that conducts research in micro and nano technology. Her research group focuses on the development and application of micro and nano mechanical sensors and microfabricated systems for oral drug delivery. Boisen co-founded the companies Cantion, Silmeco BluSense Diagnostics, and LightNovo.

Boisen completed an MS in Physics at Roskilde University and a PhD at DTU in 1997. She completed a research period at IBM Almaden and a postdoc at DTU. She joined the DTU faculty as Associate Professor in 1999 and became a full professor in 2005. She is a board member of the Leo Foundation, Villum Foundation, Danish Academy of Technical Sciences, and Royal Danish Academy of Sciences.

Boisen has an h-index of 62 with over 14,000 citations. Her work has garnered significant recognition. In 2020, she was awarded the Order of Dannebrog by Her Majesty the Queen of Denmark. Boisen received the 2013 Danish Council for Independent Research Sapere Aude Top Researcher Award; 2012 Danish Ministry of Research, Innovation and Higher Education EliteForsk Award; and 2008 Villum Kann Rasmussen Award (the largest Danish research prize).

## AWARDS PROGRAM



**STANKO R. BRANKOVIC** is a Professor in the Departments of Electrical and Computer Engineering and Chemical and Biomolecular Engineering at the University of Houston (U of H). His group explores physical and chemical processes at the electrochemical interface and their use to produce materials and nanostructures with novel functionality and application. These research activities

into sensors, magnetic materials, thin films, electrocatalysis, and nanofabrication are

supported by federal (NSF, DOE, DOD), private, and state grants. Brankovic received his BE in Chemical and Biochemical Engineering in 1994 from the University of Belgrade and PhD in Science and Engineering of Materials in 1999 from Arizona State University. Before joining U of H in 2005, he completed a postdoctoral fellowship at the Brookhaven National Laboratory (1999–2001) and worked as a research staff member at the Seagate Research Center (2001–2005).

Brankovic served as Chair of the ECS Electrodeposition Division (2017–2019) and Chair of the Material Science Division of the International Society of Electrochemistry (2015–2017). His work has been acknowledged by the 2017 ECS Electrodeposition Research Award; 2017 Best Fundamental Paper Award of the American Institute of Chemical Engineering; 2010 University of Houston Research and Excellence Award; and 2010 National Science Foundation Faculty Early Career Development Award.



**ERNESTO JULIO CALVO** is Professor of Physical Chemistry at the Universidad de Buenos Aires (UBA) and a Permanent Research Staff member at the Consejo Nacional de Investigaciones Científicas y Técnicas. His research focuses on wiring redox enzymes to electrodes; layer-by-layer redox polyelectrolytes; and oxygen reduction on oxides, enzyme functionalized surfaces, and in Li-air cathodes. Calvo received first prize in the 2017 Bright Minds Challenge for

inventing a lithium extraction method powered by solar energy that is quicker and cleaner than existing technology.

Calvo completed an MS in Chemistry at UBA (1975) and PhD in Chemistry at the Universidad Nacional de La Plata (1979) under Prof. **David J. Schiffrin**. As a Postdoctoral Research Fellow in Chemistry and Materials Science at Imperial College London from 1979 to 1982, he worked with Profs. **Wyndham John Albery** and **Brian C. H. Steele**, and then with Prof. **Ernest B. Yeager** as a Senior Research Associate at Case Western Reserve University. He was Director of INQUIMAE (El Instituto de Química Física de los Materiales, Medio Ambiente y Energía) at UBA from 2008 to 2018. He served as the Vice President of the International Society of Electrochemistry from 2009 to 2011. Calvo has an h-index of 52 and has published some 180 research papers in peer-reviewed international journals. He has supervised 20 chemistry PhD students.

Calvo is an ECS Emeritus Member; Fellow of the Royal Society of Chemistry and International Union of Pure and Applied Chemistry; and member of the Latin America Academy of Science. Among the accolades garnered by his research are the 2020 Argentine National Academy of Exact, Physical and Natural Sciences Prize; 2017 Personality of the Year in Science and Technology; 2017 Schumacher Prize in Physical Chemistry of the Argentine Chemical Society; 2005 National Award in Science from the Argentine Ministry of Education and Science; 2003 Konex Award in Science and Technology; and 2000 John Simon Guggenheim Award.



**DOUGLAS C. HANSEN** is a Distinguished Research Scientist in the Nonstructural Materials Division at the University of Dayton Research Institute (UDRI), and he holds a Joint Faculty Appointment in the Graduate Chemical and Materials Engineering Program, University of Dayton. His research interests include biological interactions at metal surfaces—metal and alloy corrosion in the human body, biomaterials, and the interaction of marine biopolymers as corrosion inhibitors with metals and alloys; scanning probe techniques to explore corrosion, biochemical, and electrochemical processes such as the scanning Kelvin probe; and analytical techniques such as scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FTIR), and electrokinetic (zeta) potential measurements.

Hansen received his PhD from the University of Delaware in 1993 and then worked under **Ed McCafferty** at the US Naval Research Laboratory (NRL) as a National Research Council Postdoctoral Research Associate, investigating environmentally friendly corrosion inhibitors. In 1995, he joined NRL as a Research Chemist, and then spent seven years with Princeton Applied Research as their Senior Scientist before moving to Dayton.

Hansen has served ECS as Chair of the Corrosion Division; Chair of the Short Course Subcommittee, Sponsorship Committee, and Uhlig Award Subcommittee; member of the Honors and Awards, Nominating, New Technology, Education, Finance, and Development Committees; and member of the Interdisciplinary Science and Technology Subcommittee. Hansen has been the Lead or Co-Organizer of 26 ECS symposia over the years. The author of more than 110 publications, Hansen was selected Fellow of NACE International in 2019.



**JIHYUN KIM** is a Professor in the Department of Chemical and Biological Engineering and Director of the Inter-University Research Institute for Energy Technology at Korea University (KU). He has made numerous pioneering contributions in the development of processing techniques for wide and ultra-wide bandgap semiconductor material systems that are crucial for the demonstration of state-of-the-art performance of high-power compound semiconductor electronic

devices such as MOSFETs, rectifiers, and HEMTs. His interests also include electronic/optical properties and device fabrication of 2D semiconductor materials. His group has developed novel 2D devices (double heterojunction bipolar transistors, memristor, and photodetector and chemical sensors). He is also interested in radiation damage and radiation-hard devices in semiconductor materials, improving their reliability in harsh environments.

Kim received his BS from Seoul National University, and his PhD in Chemical Engineering from the University of Florida, where he studied GaN-based electronic devices. During his graduate study, he completed an internship in Semiconductor Physics Research at Bell Laboratories. His postdoctoral research at the Electronics Science and Technology Division of the US Naval Research Laboratory was on the optical and thermal analysis of wide-bandgap semiconductors. In 2006, he became a KU faculty member, where he has been honored with the Crimson Professorship. Kim is the author of more than 250 peer-reviewed articles (with over 10,000 citations) and seven book chapters. His service to ECS includes being Guest Editor of two focus issues of the *Journal of Solid State Science and Technology*; organizing five symposia; and editing six ECS conference volumes.

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## AWARDS PROGRAM

### 2021 Class of Fellows

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**JAGJIT NANDA** is a Distinguished Staff Scientist and Group Leader of the Energy Storage and Conversion Group at Oak Ridge National Laboratory's Chemical Sciences Division. He is also on the faculty of the Bredesen Center for Interdisciplinary Research and Graduate Education, and joint professor in the Chemical and Biomolecular Engineering Department at the University of Tennessee. Prior to joining Oak Ridge in 2009, Nanda worked as a technical lead at the

Research and Advanced Engineering Center, Ford Motor Company, leading R&D projects in lithium-ion battery materials and in nanomaterials for energy application.

Nanda received his PhD in Solid State Chemistry & Materials Science from the Indian Institute of Science in 2000, followed by a post-doctoral fellowship at Stanford University (2000–2002) and a Research Associate position at Los Alamos National Laboratory (2002–2005). He has published more than 150 journal and technical publications on the topic of energy storage and conversion, and holds 10 US and international patents in the area of energy storage R&D. Nanda is an active member of several professional scientific societies.



**ROSA PALACIN** is a Research Professor at the Institut de Ciència de Materials de Barcelona (ICMAB-CSIC). Her career has focused on solid state chemistry and electrochemistry applied to batteries, and has covered a wide diversity of technologies from commercial (e.g., Ni or Li-ion) or pre-commercial (Na-ion) concepts to new emerging chemistries (Mg, Ca). She has always placed emphasis on developing fertile cooperation scenarios between basic-oriented research and industry,

and often performed research under direct industrial contracts.

She received her BS (1991) and PhD (1995) in Chemistry from the Universitat Autònoma de Barcelona. Following a postdoc at Laboratoire de Réactivité et Chimie des Solides at the Université de Picardie Jules Verne (LRCS-UPJV), she started research on inorganic battery materials at ICMAB-CSIC in 1998. Palacin has received significant recognition, delivering numerous keynote/invited talks at international conferences/workshops, and being invited to write several reviews in wider scope and specialized journals. She has published over 140 articles in peer-reviewed journals, and is the co-inventor of nine patents (six of which are licensed and jointly owned with industry).

She has served as an Associate Editor for *Chemistry of Materials* since 2016. Palacin was the scientific co-director of ALISTORE ERI from 2010 to 2017. A member of the International Battery Association Board since 2012, she was also elected to the Governing Board of Batteries Europe ETIP (Future and Emerging Technologies) in 2019.



**SLAVA V. ROTKIN** is the Frontier Professor of Engineering Science & Mechanics at Pennsylvania State University (Penn State). He has made lasting contributions to the theory of fullerenes, nanocarbon, and two-dimensional (2D) materials and devices, in particular, by introducing novel concepts of quantum capacitance, van-der-Waals/quantum forces in NEMS, and heat tunneling in 1D/2D materials. Most recently, his work is focused on near-field optics and

plasmonics, nano-biophysics, and 2D quantum materials.

He received his MSc in Optoelectronics summa cum laude from the Saint Petersburg Electrotechnical University and his PhD in Physics & Mathematics under Prof. **Robert A. Suris** at the Ioffe Physical-Technical Institute of the Russian Academy of Sciences (Ioffe Institute). Rotkin was Professor of Physics and Professor of Materials Science & Engineering at Lehigh University (2004–2017), Beckman Fellow working with Prof. **Karl Hess** at the University of Illinois at Urbana-Champaign (1999–2004), and Staff Member at the Ioffe Institute (1994–1999).

Rotkin is the recipient of scientific awards that include the Hillman Award; Class of '68 Fellowship; Libsch Early Career Research Award; Feigl Junior Faculty Chair; Beckman Fellowship; and IEEE Senior Member. An editor of three books and author of 170 papers and proceedings, Rotkin has mentored 30 graduate students, 10 postdoctoral fellows, more than 60 undergraduates, and a dozen high-school students.

Rotkin has served The Electrochemical Society as a board member (2016–2020); a member of the *Interface* and *ECST* Advisory Boards (2014–2020); as ECS Nanocarbons Division Treasurer and Senior Advancement Officer (since 2020), Chair (2016–2020), Vice-Chair (2014–2016), and Secretary (2012–2014). He has been an organizer of 24 ECS meetings and more than a dozen other conferences/workshops.



**XIAO-DONG ZHOU** is currently the Stuller Endowed Chair in Chemical Engineering and Director for the Institute for Materials Research and Innovation at the University of Louisiana at Lafayette. Zhou's research interests are the synthesis, characterization, and theoretical understanding of materials for fuel cells, batteries, electrolyzers, and gas separation membranes. He is recognized for the fundamental understanding of materials and interfaces for the activation of small

molecules, such as O<sub>2</sub>, CO<sub>2</sub>, and CH<sub>4</sub>.

Zhou has his BS and MS in Chemical Engineering from the East China University of Science and Technology, and a PhD in Ceramic Engineering from the Missouri University of Science and Technology. He received an ECS High-Temperature Energy, Materials, & Processes Division J. Bruce Wagner Young Investigator Award and Department of Defense DARPA Young Investigator Award.

He serves the Society as a Technical Editor of the *Journal of The Electrochemical Society* in fuel cells, electrolyzers, and energy conversion. The former chair of the ECS High-Temperature Energy, Materials, & Processes Division, Zhou has served on the board of directors and on several ECS committees. He is the author of more than 150 peer-reviewed publications. ■