The Electrochemical Society
Interface

DEPARTMENTS

Awards Program Fall 2022

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Awards, Fellowships, Grants

Through ECS Society, Division, Section, and Student Awards, the Honors & Awards Program recognizes outstanding technical achievements in electrochemistry and solid state science and technology, and exceptional service to the Society.

Highlights follow. Visit www.electrochem.org/awards for more information.

The **Carl Wagner Memorial Award** was established in 1980 to recognize mid-career achievement; excellence in research areas of interest of the Society; and significant contributions to the teaching or guidance of students or colleagues in education, industry, or government. The award consists of a framed scroll, sterling medal, complimentary meeting registration for the award recipient and a companion, dinner held in the recipient's honor during the designated meeting, and ECS Life Membership. **Materials are due October 1, 2022.**

The **ECS Toyota Young Investigator Fellowship**, established in 2015 in partnership with the Toyota Research Institute of North America, encourages young professionals and scholars to pursue research into batteries, fuel cells, and hydrogen, and future sustainable technologies. Each year, at least one candidate receives the fellowship restricted grant of no less than US $50,000 to conduct the proposed research within one year, and a one-year complimentary ECS membership. Recipients must present at a Society biannual meeting and publish their research in a relevant ECS journal within 24 months of receiving the award. **Materials are due January 31 annually.**

Fellow of the Electrochemical Society, established in 1989 as the Society's highest honor, recognizes advanced individual technological contributions in the field of electrochemistry and solid state science and technology, and active ECS membership. The award consists of a framed certificate and lapel pin. **Materials are due February 1, 2023.**

The **Henry B. Linford Award for Distinguished Teaching** was established in 1981 for excellence in teaching in subject areas of interest to the Society. The award consists of a silver medal and plaque containing a bronze replica thereof; $2,500 prize; Society Life Membership; and complimentary meeting registration. **Materials are due April 15, 2023.**

Leadership Circle Awards, established in 2002 to honor and thank our electrochemistry and solid state science partners, are granted in the anniversary year that an institutional member reaches a milestone level. Awardees receive a commemorative plaque and recognition on the ECS website and in *Interface*. **Nominations are not accepted.**

The **Olin Palladium Award** was established in 1950 to recognize distinguished contributions to the fields of electrochemical or corrosion science. The award consists of a palladium medal; wall plaque; US $7,500; ECS Life Membership; and complimentary meeting registration. **Materials are due October 1, 2022.**

The **Vittorio de Nora Award**, established in 1971, recognizes distinguished contributions to the field of electrochemical engineering and technology. The award consists of a gold medal and plaque that contains a bronze replica thereof; $7,500; Society Life Membership; and complimentary meeting registration. **Materials are due April 15, 2023**

Division Awards

The **Battery Division Early Career Award *Sponsored by Neware Technology Limited***, established in 2020, encourages excellence among early career professionals 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; and complimentary meeting registration. **Nominations are accepted beginning October 15, 2022; materials are due March 15, 2023.**

The **Battery Division Postdoctoral Associate Research Award *Sponsored by MTI Corporation and the Jiang Family Foundation***, established in 2016, encourages excellence among postdoctoral researchers in battery and fuel cell research. The award consists of a framed scroll; US $2,000; and complimentary meeting registration. Two awards are granted each year. **Nominations are accepted beginning October 15, 2022; materials are due March 15, 2023.**

The **Battery Division Research Award**, established in 1958, recognizes excellence in battery and fuel cell research and encourages 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. **Nominations are accepted beginning October 15, 2022; materials are due March 15, 2023.**

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The **Battery Division Technology Award**, established in 1993, encourages the development of battery and fuel cell technology, and recognizes significant achievements in this area. The award's field of interest is "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; and Battery Division membership while the recipient is an ECS member. **Nominations are accepted from October 15, 2022; materials are due March 15, 2023.**

Biannual Meeting Travel Grants are awarded at each Society biannual meeting. Many ECS divisions and sections offer travel grants to undergraduates, graduate students, postdoctoral researchers, and young professionals and faculty presenting papers at ECS biannual meetings. The awards consist of financial support ranging from complimentary meeting registration to luncheon/reception tickets, travel support, and more. Divisions and sections maintain their own application requirements. **243rd ECS Meeting Travel Grant applications are accepted from December 2, 2022 to February 27, 2023.**

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. **Materials are due December 15, 2022.**

The **Corrosion Division Rusty Award for Mid-Career Excellence**, established in 2021, recognizes a mid-career scientist or engineer's achievement and contributions to the field of corrosion science and technology. The award consists of a framed certificate; US $1,000; complimentary meeting registration; and up to US $1,000 for travel expenses. **Materials are due December 15, 2022.**

The **Electrodeposition Division Early Career Investigator Award**, established in 2015, recognizes an outstanding young researcher in the field of electrochemical deposition science and technology. The award consists of a framed certificate and US $1,000. **Nominations are accepted from October 1, 2022 to April 1, 2023**.

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 contributions to, the field of electrodeposition, and is given to an author/co-author of a paper published in JES or another ECS publication. The award consists of a framed certificate and US $2,000. **Nominations are accepted from October 1, 2022 to April 1, 2023.**

The **High-Temperature Energy, Materials, and Processes Division J. Bruce Wagner, Jr. Young Investigator Award**, established in 1998, recognizes a young Society member who demonstrates exceptional promise for a successful career in science and/or technology in the field of high-temperature materials. The award consists of a scroll and US $1,000. If needed, the recipient may receive complimentary meeting registration and up to US $1,000 in travel expenses. **Nominations are accepted from October 2, 2022 to February 1, 2023.**

Section Awards

The **Canada Section W. Lash Miller Award**, established in 1967, recognizes publications and/or excellence in the field of electrochemical science and technology and/or solid state science and technology. Recipients must be Canadian residents who completed their last advanced education degree no more than 15 years before the award year. The award is a framed certificate and CAD $1,500. **Materials are due December 31, 2022.**

The **Europe Section Heinz Gerischer Award**, established in 2001, recognizes an individual or group of no more than three individuals who have made an outstanding contribution to the science of semiconductor electrochemistry and photoelectrochemistry, including the underlying areas of physical and materials chemistry of significance to this field. The award consists of a framed certificate and €2,000, and if needed, up to €1,000 in travel expenses. **Materials are due September 30, 2022.**

Student Awards

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 and encourages recipients to initiate or continue careers in the field. Eligible candidates must be enrolled in college or university at the nomination deadline. The award consists of a framed certificate and US $1,000. **Nominations are accepted beginning October 15, 2022; materials are due March 15, 2023.**

The **Canada Section Student Award**, established in 1987, recognizes promising young engineers and scientists in the field of electrochemical power sources. The award of US $1,500 is intended to encourage recipients to initiate or continue careers in the field. **Materials are due February 28, 2023.**

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; and up to US $1,000 in travel expenses. **Materials are due December 15, 2022.**

The **Korea Section Student Award**, established in 2005, recognizes 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 of US $500 is presented at a Korea Section meeting at which the recipient may speak on a subject of major interest in the field of electrochemical and/or solid state science and technology. **Materials are due December 31, 2022.**

The **Pacific Northwest Section Electrochemistry Student Award** ***Sponsored by Thermo Fisher Scientific***, established in 2021, recognizes promising young engineers and scientists in Washington, Oregon, and Idaho pursuing PhDs in electrochemical engineering and applied electrochemistry. The award is US $1,000. **Materials are due February 28, 2023.**

The **San Francisco Section Daniel Cubicciotti Student Award**, established in 1994, assists a deserving student in Northern California pursue a career in the physical sciences or engineering. The award consists of a metal plaque and US $2,000. Up to two honorable mentions are also awarded, each receiving a framed certificate and US $500. **Materials are due February 15, 2023.**

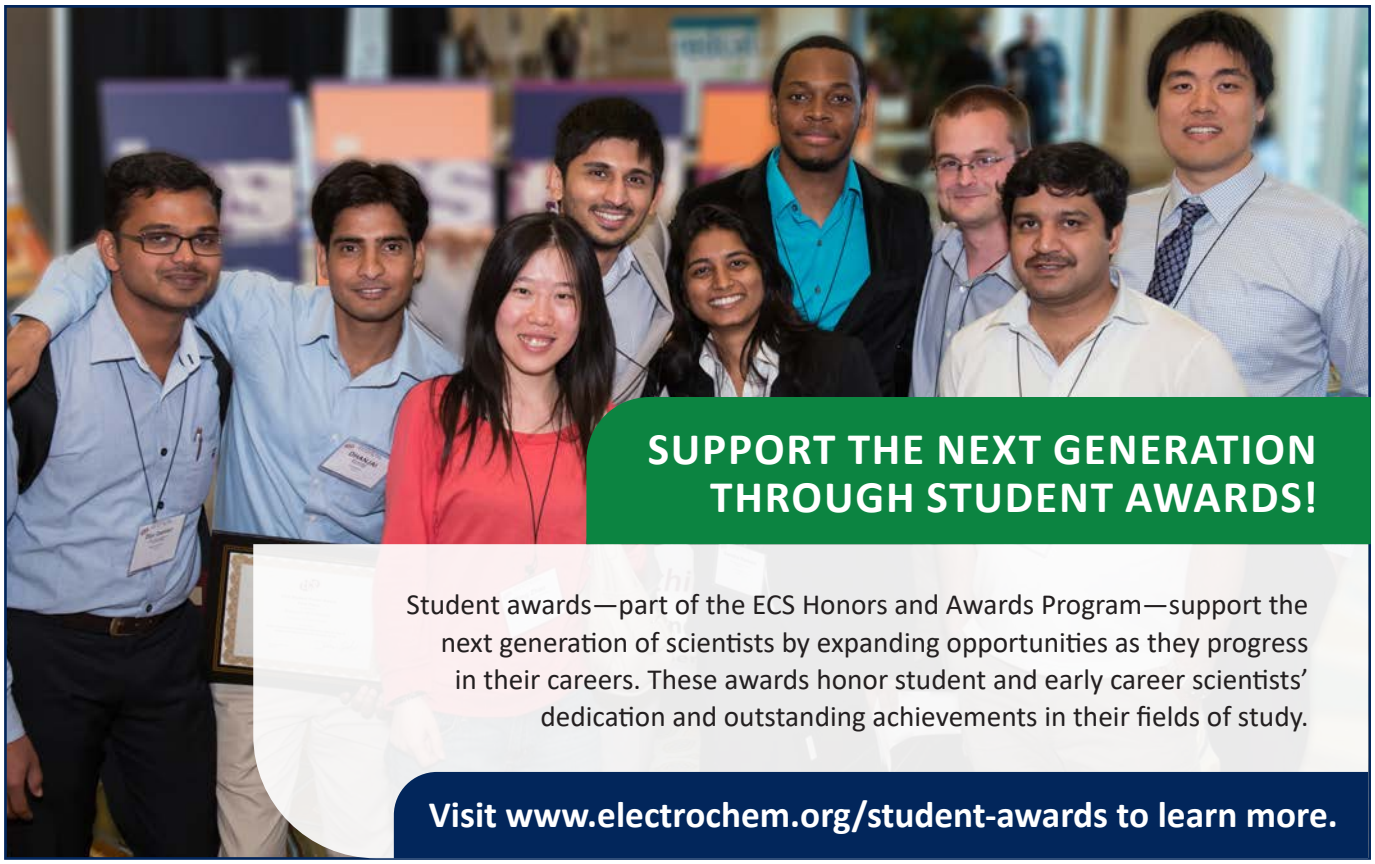
The **Sensor Division Student Research Award,** established in 2021, recognizes promising graduate students for conducting outstanding research in the field of sensors. The award consists of a framed certificate; US $200; complimentary meeting registration; and Sensor Division Business Lunch ticket. **Materials are due March 1, 2023.**

ECS Summer Fellowships, established in 1928, assist students pursuing research from June through August in a field of interest to ECS. Up to four summer fellowships are awarded each year: the Edward G. Weston Fellowship, Joseph W. Richards Fellowship, F. M. Becket Fellowship, and H. H. Uhlig Fellowship. Recipients receive US $5,000 to support their research and publication of a summary report in *Interface*. **Materials are due January 15 annually.**

The **Colin Garfield Fink Fellowship**, first awarded in 1962, assists a postdoctoral scientist/researcher pursue research from June through August in a field of interest to the Society. The award consists of US $5,000 and publication of a summary report in *Interface*. **Materials are due January 15 annually.**

ECS General Student Poster Session Awards, established in 1993, acknowledge the quality and thoroughness in candidates' work, the originality and independence of their contributions, the significance and timeliness of their research results, and the depth of understanding of the research topics and their relationship to the Society's fields of interest. Each Society biannual meeting awards a first place of US $1,500; second place of US $1,000; and third place of US $500. Awardees receive a certificate and announcement accompanying the respective meeting's "Biannual Meeting Highlights" *Interface* article. Applicants must submit abstracts to the General Student Poster Session. **The 243rd ECS Meeting abstract submission deadline is December 2, 2022.**

The **ECS Outstanding Student Chapter Award** (formerly the Gwendolyn B. Wood Section Excellence Award) was established in 2012 to recognize distinguished student chapters that demonstrate active participation in the Society's technical activities, establish community and outreach activities in the areas of electrochemical and solid state science and engineering education, and create and maintain a robust membership base. The winning Outstanding Student Chapter receives a recognition plaque; US $1,000; and award recognition and chapter group photo in *Interface* or other electronic communications. Up to two chapters are named Chapters of Excellence and receive recognition certificates and acknowledgement in *Interface*. **Materials are due April 15.**



Award Winners

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

Society Awards

Charles W. Tobias Young Investigator Award

Photo: Lillie Pacquette

Fikile Brushett is an Associate Professor in the Department of Chemical Engineering at the Massachusetts Institute of Technology (MIT). Prof. Brushett is especially interested in the fundamental processes that define the performance, cost, and lifetime of present-day and future electrochemical systems. His research approach combines synthesis and characterization of redox-active materials, design and engineering of electrochemical reactors, and techno-economic modeling of electrochemical systems. He places a strong emphasis on connecting system-level performance and cost goals to materials–level property requirements, and on leveraging this knowledge to guide the exploration of new chemistries and reactor formats. Ultimately, Prof. Brushett aims to develop robust and transferable guiding principles for the design of materials, processes, and devices that harness electrochemical phenomena. His group currently works on redox flow batteries for grid storage and on electrochemical processes for carbon management and chemical manufacturing. He also serves as the Research Integration Co-Lead for the Joint Center for Energy Storage Research, a DOE-funded Energy Innovation Hub.

He received his BS in Chemical and Biomolecular Engineering from the University of Pennsylvania in 2006 and his PhD in Chemical Engineering from the University of Illinois at Urbana-Champaign in 2010 under the supervision of Professor **Paul J. A. Kenis**. From 2010 to 2012, he was a Director's Postdoctoral Fellow in the Electrochemical Energy Storage Group at Argonne National Laboratory under the supervision of Dr. **John T. Vaughey**. In 2012, he began his independent career at MIT where his research group seeks to advance the science and engineering of electrochemical technologies that enable a sustainable energy economy.

Edward G. Acheson Award

Yue Kuo is Nesbitt Professor and Professor of Chemical Engineering at Texas A&M University. Prof. Kuo has extensive semiconductor research experience, especially on thin film–related processes, materials, and devices of TFTs and ICs. He worked in industry (i.e., IBM T. J. Watson Research Center at Yorktown Heights, and Data General Corp. Semiconductor Division in Silicon Valley) before joining Texas A&M University in 1998.

Prof. Kuo received a PhD in Engineering Science from Columbia University. He has a distinguished record of accomplishment in advancing solid state science and technology. His research has resulted in breakthroughs that have solved some long-term problems in industry, and his inventions are used worldwide. He has received many awards and honors, including ECS Fellow, ECS Gordon E. Moore Medal, ECS Electronics and Photonics Division (EPD) Award, 10 IBM awards, and many global university, industry, government, and professional awards. He is also a Fellow of IEEE, American Vacuum Society, and Materials Research Society. He has served on advisory and review boards, and panels for US National Academies, industry, universities, and governments.

Prof. Kuo has served as ECS President (2018–2019) and EPD Chair, and on ECS journal editorial boards and many committees. He founded the world's longest continuous *ECS Thin Film Transistors (TFT) Symposium* series (held for 32 years) and the *Semiconductor Technology for Ultra Large Integrated Circuits (ULSIC vs. TFT) Conference* series (held for 14 years). He has consulted for semiconductor companies and advised students in many countries.

Norman Hackerman Young Author Award

*For the paper, Quantifying the Impact of Charge Transport Bottlenecks in Composite Cathodes of All-Solid-State Batteries [P. Minnmann et al., J. Electrochem. Soc., **168**, 040537 (2021)]*

Philip Minnmann received his BSc and MSc in Material Science with distinction from RWTH Aachen University and is currently a PhD candidate at the Institute for Physical Chemistry at Justus-Liebig-University Giessen. His main research interest is investigating charge transport to gain a better understanding of the correlation between microstructure and cathode kinetics. He used impedance spectroscopy to determine partial conductivities and to relate kinetic limitations of composite cathodes during full cell cycling to electronic and ionic charge transport bottlenecks. He also studied the influence of the solid electrolyte particle size distributions on the charge transport pathways. His current focus is on limitations of sheet type composite cathodes and their optimization.

During his undergraduate studies, Minnmann worked at the Forschungszentrum Jülich with **Rüdiger Eichel** on the mechanochemical synthesis of solid lithium-ion conductors for solid state batteries. He later joined JLU Giessen, where he worked with **Jürgen Janek** on solid state batteries with a focus on composite cathodes as part of the Cluster of Competence for Solid State Batteries (FestBatt), funded by the German Ministry of Education and Research.

Simon Burkhardt is a development engineer and project manager for Li-ion batteries at a German battery manufacturer. While completing a PhD in Physics at Justus Liebig University Giessen, he researched charge transport in solids, specifically for the study of charge transport in transition metal oxides that are typically used in electrochemical energy storage or in electrochromic devices. He focused on the development and application of experimental methods to investigate mixed ionic and electronic conduction in single µm-sized particles and to study hydrogen diffusion in electrochromic thin films.

Burkhardt then worked as a research associate in Prof. **Jürgen Janek**'s research group at the Institute of Physical Chemistry. There, he contributed to the research and development of oxide and sulfide solid electrolytes as well as lithium and sodium all solid state batteries. He then coordinated FestBatt, a German research consortium on solid state batteries.

Bruce Deal and Andy Grove Young Author Award

For the paper, Low-Temperature Parylene-Based Adhesive Bonding Technology for 150 and 200 mm Wafers for Fully Biocompatible and Highly Reliable Microsystems. [F. Selbmann et al., ECS J. Solid State Sci. Technol.*, **10**, 074010 (2021)]*

Franz Selbmann has headed the Flexible Devices Group at the Institute for Electronic and Sensor Materials at TU Bergakademie Freiberg since 2019. Their research focuses on flexible electronics and sensors, including related materials science on advanced and smart materials, research on fabrication and integration technologies, transfer processes, and developing new concepts for flexible devices.

He received his BS in Electronic and Sensor Materials at the Technische Universität Bergakademie Freiberg in 2012, developing advanced technologies for fine line metallization of solar cells as part of his thesis. In 2014, Selbmann supported the Silicon Saxony Association representative during a multi-month stay at the College of Nanoscale Science and Engineering at the New York State University Polytechnic Institute. He completed an MS degree in 2015 at Fraunhofer Institute for Electronic Nano Systems ENAS, Chemnitz with a thesis in the field of parylene encapsulation. In 2016, he researched advanced materials for microsystems at Tohoku University. His PhD is a collaboration between the Institute for Electronic and Sensor Materials at TU Bergakademie Freiberg and the Fraunhofer Institute for Electronic Nano Systems. He focuses on the development of parylene as a structural and functional material in microsystems as well as a material for flexible devices.

Division Awards

Battery Division Early Career Award

Sponsored by Neware Technology Limited

Feng Lin is an Associate Professor of Chemistry at Virginia Tech. His research covers the design and synthesis, processing, characterization, and applications of energy materials in electrochemical systems, including batteries, catalysis, and smart windows. His research team has also established an integral analytical program to study materials dynamics under operating conditions using operando synchrotron X-ray and electron analytical techniques.

Prof. Lin holds a BS in Materials Science and Engineering from Tianjin University (2009) and PhD in Materials Science from the Colorado School of Mines (2012) with joint research at the National Renewable Energy Laboratory. Before joining Virginia Tech in 2016, Prof. Lin worked at QuantumScape Corporation as a senior member, and at Lawrence Berkeley National Laboratory as a Postdoctoral Fellow. His awards and recognitions include SLAC Spicer Young Investigator; Ralph E. Powe Junior Faculty Enhancement Award; *Journal of Materials Chemistry* Emerging Investigator; RCSA Scialog Fellow; American Chemical Society Petroleum Research Foundation Doctoral New Investigator; Energy Storage Materials Young Scientist Award; National Science Foundation CAREER Award; John C. Schug Faculty Research Award; ECS Battery Division Early Career Award; and Scientific Highlights by the US Department of Energy National Laboratories.

Battery Division Postdoctoral Associate Research Award

Sponsored by MTI Corporation and the Jiang Family Foundation

Photo: Christopher Woodley

Paul Coman is a Research Assistant Professor in the Department of Chemistry at the University of South Carolina. His research focuses on developing mathematical modeling for improving the performance and safety of Li-ion batteries. Prior to his current position, Prof. Coman was a Postdoctoral Fellow at the same university in **Ralph E. White**'s group, working with various Li-ion battery projects—from modeling of thermal runaway to performance studies, aging and thermal modeling, and design of battery packs, in collaboration with **Eric C. Darcy** from NASA JSC. Prof. Coman graduated with his PhD from the University of Southern Denmark (SDU) after completing a BS at the Technical University of Iasi and MS at SDU. He has worked on modeling Li-ion batteries since 2013.

Alexis Maurel is a Fulbright Postdoctoral Researcher in the Aerospace and Mechanical Engineering Department at the University of Texas at El Paso (UTEP). Dr. Maurel received the 2021 Fulbright France Research Fellowship to pursue his research at UTEP with **Eric MacDonald** (Mechanical Engineering) and **Sreeprasad Sreenivasan** (Chemistry Department). His research takes place at the ESTRELLA lab (Energy SToRage and ELectronics 3D Printing Laboratory) where he works on additive manufacturing of lithium- and sodium-ion batteries via material extrusion and vat photopolymerization, in close collaboration with his former PhD advisors, Sandia and Oak Ridge National Laboratories, Youngstown State University, and NASA. His current work is dedicated to 3D printing of batteries from lunar and Martian regolith.

Dr. Maurel received a 2-year diploma in Chemical Engineering in 2014, followed by his BS in Materials Chemistry in 2015 from Université Paul Sabatier. His research then focused on wastewater recycling in Mexico. In 2017, Dr. Maurel received his MS in Materials for Energy Storage and Conversion from a joint Erasmus Mundus program with Politechnika Warszawska, Universidad de Córdoba, Université Paul Sabatier Toulouse, and Université de Picardie Jules Verne. He completed his PhD in Materials Chemistry in 2020 at the Université de Picardie Jules Verne, researching battery 3D printing under the supervision of **Loic Dupont**, **Sylvie Grugeon**, and **Stéphane Panier**, in collaboration with **Michel Armand**. For this work, he received the Best PhD Thesis Prize.

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Battery Division Research Award

Boryann Liaw is a Directorate Fellow at Idaho National Laboratory (INL). Since the early 1990s, Dr. Liaw has conducted laboratory and real-life battery and vehicle testing, data collection and analysis, battery modeling and simulation, battery performance and life prediction, battery fast charging technology development, and battery failure mode and effect analyses.

Dr. Liaw received his BS in Chemistry from National Tsinghua University, his MS in Chemistry from University of Georgia, and PhD in Materials Science and Engineering from Stanford University. He was a faculty member at University of Hawai'i at Mānoa for more than 27 years, co-founder of Ambient Micro, and founder of High Power Research Laboratory. He joined INL in May 2016 as Department Manager of Energy Storage and Advanced Vehicles. A Fellow of the Electrochemical Society, Dr. Liaw has actively served in Society leadership roles on several journal editorial boards, executive boards, and associate editorships. He is a Past President of the International Battery Materials Association and serves as scientific advisor to several international and national programs, including the Department of Energy's Energy Frontier Research Center at Stony Brook University. His recent accolades include the IBA Technology Award (2020) and Asian American Engineer of the Year (2019).

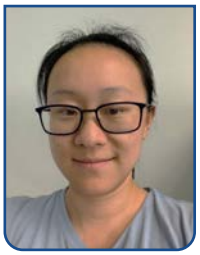
Atsuo Yamada is Professor of Chemical System Engineering at the Tokyo Institute of Technology. His research, focused on battery materials, is particularly recognized for sophisticated approaches to structure-property relationships, including very early stage exploration/optimization of LFP and, more recently, identification and understanding of several functional electrolytes.

Prof. Yamada's career spans academic and industrial research. After serving as a Laboratory Head at the Sony Research Center, in 2002 he was appointed as Associate Professor at the Tokyo Institute of Technology, and then, in 2009, Full Professor at the University of Tokyo. Prof. Yamada spent a year as Visiting Scholar in **John B. Goodenough**'s lab at the University of Texas at Austin. On a sabbatical as Invited Professor at the Université de Bordeaux, he worked on enhancing research communication with Dr. **Claude Delmas** at the Institut de Chimie de la Matière Condensée de Bordeaux, a Joint Research Unit of the university and the Centre National de la Recherche Scientifique and the Institut Polytechnique de Bordeaux. Over the last decade, Prof. Yamada has led important Japanese national research programs: Elements Strategy Initiative for Catalysts and Batteries, Specially Promoted Research, Core Research for Evolutional Science and Technology, and Data Creation and Utilization Type Materials Research and Development Project. He now serves on the Advanced Energy Materials Scientific Advisory Board.

Among his many honors, Prof. Yamada received the American Ceramic Society Spriggs Award and Purdy Award, ECS Japan Scientific Achievement Award, and International Battery Association Research Award. He holds a PhD and 90 patents, has published 25 chapters and well over 260 refereed journal papers with over 28,000 citations, delivered 125 plenary, keynote, and invited presentations, and ranked as a Clarivate Analytics Highly Cited Researcher.

Battery Division Student Research Award

Sponsored by
Mercedes-Benz Research & Development



Singyuk Hou's academic career has revolved around the research of electrolytes and interfaces for metal anodes. After completing her BS and MS in Chemistry, she started her PhD under the supervision of Prof. **Chunsheng Wang** at the University of Maryland, College Park. Her PhD research focuses on the molecule-level control of the solvation structure using chelants that promote the charge transfer kinetics of magnesium and calcium metal batteries. It also extends to SEI engineering for high-energy lithium-ion and lithium metal batteries by developing novel electrolyte systems. She has published more than 50 peer-reviewed papers and co-authored four patents.

John Holoubek is a PhD candidate and NASA Graduate Fellow at the University of California, San Diego under the supervision of Professors **Zheng Chen** and **Ping Liu**. He works on understanding the impact of electrolyte chemistry and structure on battery performance, primarily at reduced temperatures. This research integrates experimental investigation and computational modeling to connect variance in electrochemical behavior to molecular phenomena at the electrode/electrolyte interphase. The primary technological motivation is to improve the kinetic behavior of high-energy battery chemistries with an emphasis on the Li metal anode. Holoubek has also contributed to research in lithium-ion, aqueous, and dual-ion batteries.

Battery Division Technology Award

Jun Lu is a scientist at Argonne National Laboratory. His research focuses on solving some of the world's most challenging rechargeable Li-ion battery (LIB) and next generation Li battery problems. Over the past 10 years, he has pioneered and led research on novel cationic and anionic redox (CAR) materials for high energy density LIBs, Li-O_2, and Li-S batteries.

Dr. Lu has published more than 430 papers in journals that include *Journal of The Electrochemical Society*, *Nature*, *Science*, *Nature Energy*, *Nature Nanotechnology*, *Nature Review Materials*, *Nature Communications*, *Chemical Reviews*, *Journal of the American Chemical Society*, and *Proceedings of the National Academy of Sciences*. He has received more than 45,000 citations with an h-index of 117. He ranked as a Clarivate Analytics Global Highly Cited Researchers from 2018 to 2021. Dr. Lu has filed more than 20 patents and patent applications. He received the 2022 IBA Research Award; 2020 IBA Early Career Award; 2019 R&D 100 Award; 2019 American Chemical Society Division of Energy & Fuels Emerging Researcher Award; 2018 Rising Star Award for Argonne Commercialization Excellence; 2016 International Automotive Lithium Battery Young Investigator Award; and 2016 International Academy of Electrochemical Energy Science Award for Research Excellence in Electrochemistry Energy.

Corrosion Division H. H. Uhlig Award

Photo: Eric Zamora Photography

Mark Orazem is a Distinguished Professor and the Dr. and Mrs. Frederick C. Edie Professor in the Department of Chemical Engineering at the University of Florida (UF). He obtained his BS and MS degrees from Kansas State University and PhD in 1983 from the University of California, Berkeley. In 1983, he began his career as an Assistant Professor at the University of Virginia, and joined the UF faculty in 1988. He has received numerous UF term professorships and teaching awards and was recognized as a University of Florida Foundation Preeminence Professor. Prof. Orazem is a Fellow of The Electrochemical Society and the International Society of Electrochemistry (ISE), and served as ISE President from 2011 to 2013. He has more than 220 refereed publications. Prof. Orazem co-authored, with **Bernard Tribollet** of the Centre Nationale de la Recherche Scientifique (CNRS), *Electrochemical Impedance Spectroscopy,* which was published by Wiley in 2008. Chemical Industry Press published the textbook's Chinese translation in 2014. The second edition appeared in 2017 with the Chinese translation in preparation. Woodhead Publishing published his edited book, *Underground Pipeline Corrosion,* in 2014. With co-author Bernard Tribollet, Prof. Orazem received the 2019 Claude Gabrielli Award for contributions to electrochemical impedance spectroscopy. Prof. Orazem received the 2012 Henry B. Linford Award for Distinguished Teaching.

Corrosion Division Morris Cohen Graduate Student Award

Mariko Kadowaki is a Researcher at the National Institute for Materials Science in Japan. She finished her BS in 2016, MS in 2018, and PhD in 2021 in the Department of Materials Science at Tohoku University. During her PhD research, she applied a micro-electrochemical technique to clarify the relationship between the microstructure of carbon steels and pitting corrosion resistance. She also applied first-principles calculations to elucidate the electronic interaction between Fe and interstitial atoms in carbon steels. An active member of The Electrochemical Society, in 2017 she received a 232nd ECS Meeting Student Poster Session Award Honorable Mention. She won the 2021 Japan Society for the Promotion of Science Ikushi Prize as well as a L'Oréal-UNESCO For Women in Science Japan Fellowship for Materials Science.

Corrosion Division Rusty Award for Mid-Career Excellence

David M. Bastidas is Associate Professor at The University of Akron in the Department of Chemical, Biomolecular, and Corrosion Engineering, and Corrosion Expert at the National Center for Education and Research on Corrosion & Materials Performance. His research focuses on electrochemical thermodynamics, kinetics of corrosion, and inhibition mechanisms. He leads the research lab in Corrosion Protection and Materials Performance.

Prof. Bastidas completed his BSc in Chemical Science and PhD in Material Science and Engineering at the Universitat de Barcelona. He served as Chair of the 2022 Corrosion and Materials Degradation Conference and Trustee of The University of Akron AMPP Section. Prof. Bastidas is the Faculty Advisor of the Corrosion Squad Student Association and received the Outstanding Campus Advisor Award and Outstanding Faculty Engagement Award in 2022. His research has garnered accolades that include the inaugural winner of the 2022 ECS Corrosion Division Rusty Award for Mid-Career Excellence; inclusion on the 2020 Top Researchers list; 2020 National Corrosion Award of Excellence; and Outstanding Research Career Award I3 Program. Prof. Bastidas has authored over 150 publications and presented at a number of invited conferences.

Electrodeposition Division Research Award

Nikolay Dimitrov is a Professor in the Department of Chemistry at The State University of New York at Binghamton. His research interests are in electrodeposition, catalysis, and design and synthesis of functional nanomaterials. Prof. Dimitrov's basic-science research focuses on studying, understanding, and controlling the surface morphology evolution during electro- or electroless deposition of metals and alloys. His applied research projects emphasize a study of the performance and reliability of structures and devices associated with electronic packaging. Illustrating the outstanding practical value of electrodeposition, these projects prove instrumental for understanding, controlling, and improving the reliability of lead-free solder joints. He also contributed to the design and optimization of approaches for through-hole copper filling for the development of glass interposers applicable in 2.5/3D packaging.

Prof. Dimitrov completed his education (BS/MS from Sofia University and PhD from the Bulgarian Academy of Sciences) in 1993. He then held postdoctoral and research faculty appointments at Arizona State University until 2003 when he joined SUNY Binghamton. His multifaceted scholarly activity was recognized by the 2008 NSF CAREER Award and 2020 Distinguished Research Award of the American Chemical Society Binghamton Chapter.

Electrodeposition Division Early Career Investigator Award

Fudong Han is the Priti and Mukesh Chatter '82 Career Development Chair and Assistant Professor in the Department of Mechanical, Aerospace, and Nuclear Engineering at Rensselaer Polytechnic Institute. His research focuses on developing advanced materials for electrochemical energy storage, particularly solid state batteries, with the aid of advanced neutron-based characterization techniques.

Prof. Han received his BS in 2009 and his MS in 2012 in Materials Science and Engineering from Shandong University. He completed a PhD in Chemical Engineering in 2018 and a year of postdoctoral research at the University of Maryland, College Park. Prof. Han was a Guest Scientist in the Materials for Energy and Sustainable Development Group at the National Institute of Standards and Technology. He received the 2018 ECS Battery Division Student Research Award and 2017 Materials Research Society Graduate Student Gold Award. His work on battery research has led to two patents and patent applications. Prof. Han is the author

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of more than 70 papers in scientific journals with 12,000 citations and an h-index of 50. He has also authored two book chapters on solid state batteries.

Energy Technology Division Walter van Schalkwijk Award in Sustainable Energy

Katherine Ayers is Vice President of R&D for Nel Hydrogen US, with responsibility for developing and executing Nel's technology strategy in proton exchange membrane electrolysis. Dr. Ayers manages a broad portfolio of internally and externally funded research projects, across a range of collaborators in academia, industry, and national labs. She is also the lead principal investigator on the US Department of Energy benchmarking program, spanning the primary water-splitting technologies funded by the Hydrogen and Fuel Cell Technologies Office (HFTO), with the goal of providing protocols and standards for consistency in water-splitting research.

Dr. Ayers completed her PhD in Chemistry at the California Institute of Technology working with **Nate Lewis**, and spent several years in the battery industry before joining Nel in 2007. She has served on multiple scientific advisory boards for Energy Frontier Research Centers and similar consortia such as the JCAP Solar Fuels Hub, as well as two federal-level advisory committees for the DOE: HTAC (Hydrogen and Fuel Cells Technical Advisory Committee) and BESAC (Basic Energy Sciences Advisory Committee). She received R&D Awards at the 2012 and 2021 DOE Merit Reviews from the HFTO Production Team, and an American Chemical Society Rising Stars Award in 2014 from the Women Chemists Committee. She also received the Fuel Cell Seminar Award in 2015. She became a Fellow of The Electrochemical Society in 2020.

High-Temperature Energy, Materials, & Processes Division Outstanding Achievement Award

Scott A. Barnett is a Professor in the Materials Science and Engineering Department at Northwestern University (since 1986). His past research topics include semiconductor growth by molecular beam epitaxy, ion-assisted thin film deposition, nitride hard coatings and superlattices, solid oxide fuel cells and electrolyzers, Li-ion battery cathodes, and electrode materials characterization using three-dimensional tomography and impedance spectroscopy. Current research interests include the development and characterization of novel fuel cell electrode materials, energy storage using solid oxide cells and Li-ion batteries, and accelerated testing to characterize cell degradation processes.

After receiving his PhD in Metallurgy from the University of Illinois at Urbana-Champaign in 1982, Prof. Barnett held postdoctoral appointments at the University of Illinois and Linkøping University (1983–1986). He has been a Fulbright Guest Professor at Centro Atómico Bariloche (2016), Otto Mønsted Guest Professor at the Danish Technical University (2013), Cheng Tsang Man Endowed Professor at Nanyang Technological University (2009), and a visiting scientist at Los Alamos National Laboratory (1998). Prof. Barnett was founder and Chief Technical Consultant at Functional Coating Technology, LLC (2001–2011) and Applied Thin Films, Inc. (1998–2001). The author or co-author of more than 300 publications (h-index of 90), he has 15 patents, and has advised nearly 50 PhD students. Prof. Barnett is a Fellow of The Electrochemical Society, AVS, and American Ceramic Society. He was recognized as an Office of Naval Research Young Investigator.

High-Temperature Energy, Materials, & Processes Division J. B. Wagner, Jr. Young Investigator Award

Liangbing Hu is the Herbert Rabin Distinguished Professor at the University of Maryland, College Park. His research group focuses on materials innovation, device integration, and manufacturing in general, with ongoing research activities on wood nanotechnologies, 3000K extreme materials, and beyond Li-ion batteries.

Prof. Hu received his BS in Physics from the University of Science and Technology of China in 2002, where he worked on colossal magnetoresistance (CMR) materials for three years. He completed a PhD at the University of California, Los Angeles (2002–2007), focusing on carbon-nanotube–based nanoelectronics. In 2006, Prof. Hu joined Unidym, Inc. as a co-founding scientist, leading the development of roll-to-roll printed carbon nanotube films and device integration in touchscreens, LCDs, flexible OLEDs, and solar cells. During a postdoc at Stanford University from 2009 to 2011, he researched various energy storage technologies using nanomaterials/nanostructures.

Prof. Hu has published some 400 research papers (including about 10 in *Science* and *Nature*). Among the many awards he has received are Clarivate Analytics Highly Cited Researcher (2016–2021); Wiley-Small Journal 2019 Young Innovator Award; Blavatnik National Awards Honoree; 2019 TAPPI Nano Middle Career Award; 2019 Exemplary Research Recognition; 2018/2020/2021 R&D 100 Winners; 2018 HIVE 50 Innovator; 2017 Nano Letters Young Investigator Lectureship; 2016 Office of Naval Research Young Investigator Award; 2016 American Chemical Society Division of Energy and Fuel Emerging Investigator Award; 2016 SME Outstanding Young Manufacturing Engineer Award; 2019 and 2014 University of Maryland Invention of the Year; and 2013 Air Force Young Investigator Award.

Luminescence and Display Materials Division Outstanding Achievement Award

Kailash Mishra received his PhD in Physics from Sambalpur University, and completed post-doctoral research at the State University of New York at Albany. In 1985, he joined OSRAM Sylvania Lighting Research Center (then GTE Sylvania) as an advanced R&D engineer. Dr. Mishra continued working at OSRAM Sylvania first as a staff scientist and then as R&D Manager until his retirement in 2017 as the global Head of Technology Scouting. At the Lighting Research Center, Dr. Mishra was engaged in phosphor research for lighting applications.

Dr. Mishra's main research interest is in the theory of electronic structures and associated properties of luminescent materials, and the fundamentals of luminescence. He is one of the early researchers who applied methods of quantum chemistry to study the structure and luminescence properties of materials. Dr. Mishra demonstrated

how to obtain a cogent picture of luminescence by applying band structure and cluster molecular orbital methods in a synergetic manner. In recent years, he has engaged in the application of quantum electrodynamics to study various luminescence processes in materials. Dr. Mishra is currently engaged in studying application of adiabatic approximation to investigate the temperature dependence of radiative and nonradiative processes in solids. He has coauthored more than 130 papers in peer-reviewed journals and has 10 patents.

Since joining ECS in 1998, Mishra has served as Chair of the ECS Luminescence and Display Materials Division, co-organized several ECS symposia, and co-edited multiple volumes of *ECS Transactions*. He is a Fellow of The Electrochemical Society and has served as a Technical Editor of the *ECS Journal of Solid State Science and Technology* since 2011.

Sensor Division Outstanding Achievement Award

Photo: Jesper Scheel

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. Prof. Boisen co-founded the companies Cantion, Silmeco BluSense Diagnostics, and LightNovo, and is currently heading a research project on therapeutic drug monitoring that should result in a start-up company in a few years' time.

Prof. Boisen completed an MS in Physics at Roskilde University and PhD at DTU in 1997. After a research period at IBM Almaden and postdoc at DTU, she joined DTU as Associate Professor in 1999 and became a full professor in 2005. Prof. Boisen is a board member of the Leo Foundation, Villum Foundation, Danish Academy of Technical Sciences, and Royal Danish Academy of Sciences. She has an h-index of 62 with more than 14,000 citations. Her work has garnered significant recognition. In 2021, Prof. Boisen was elected Fellow of The Electrochemical Society and MNE 2021 Fellow at the annual international conference on Micro and Nano Engineering (MNE). In 2020, she was awarded the Order of Dannebrog by Her Majesty Margrethe II, Queen of Denmark. Prof. 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).

Section Awards

Canada Section Electrochemical Award

David P. Wilkinson is Professor of Chemical Engineering and a Tier 1 Canada Research Chair in Clean Energy and Electrochemical Technologies at the University of British Columbia (UBC). His university research covers a wide range of electrochemical areas, including fuel cells, electrolyzers, battery research, carbon dioxide conversion, electrochemical approaches to clean energy and fuels, and electrochemical treatment of wastewater and drinking water. Much of this research is used by companies, which resulted in the formation of Mangrove Lithium, a new company using a modified electrodialysis process for improved lithium refining.

He received his chemical engineering degree from UBC and then received his PhD in Chemistry in 1987 at the University of Ottawa under the guidance of Prof. **Brian Conway**. He was an ECS Summer Fellow during his PhD research on proton donor and medium effects in electrochemical proton discharge. Before joining UBC in 2004, Prof. Wilkinson spent over 18 years in electrochemical industries, as a group leader in electrochemistry at Moli Energy developing rechargeable Li metal batteries, and at Ballard Power Systems as a Director and Vice President of R&D in polymer electrolyte membrane fuel cell and hydrogen technology. He spent a short period as a Group Leader and Principal Research Officer with the Canada National Research Council. In 2002, he received the ECS Battery Division Technology Award for his work related to rechargeable Li batteries and polymer electrolyte fuel cells.

Prof. Wilkinson has published more than 230 refereed publications, a co-authored book, a number of edited books and book chapters, and holds over 82 issued patents. He has received a number of honors for his work, including the Grove Medal, Lifetime Award of the Canadian Hydrogen and Fuel Cells Association, and Order of Canada, as well as fellowships in the Engineering Institute of Canada, Canadian Academy of Engineering, Chemical Institute of Canada, and the Royal Society of Canada.

Canada Section Student Award

Sho Fujita is a PhD candidate in the Department of Chemistry at Queen's University. His research interests lie in electrochemistry, electrocatalysis, and surface science. Fujita's work at Queen's under the supervision of Dr. **Gregory Jerkiewicz** focuses on the synthesis, design, and characterization of nanomaterials for microscopic rechargeable batteries. Fujita completed his BSc in Engineering and MSc in Chemical Engineering at Yokohama National University under the supervision of Dr. **Shigenori Mitsushima**. For his MSc, he collaborated with industrial companies on the degradation mechanism and electrocatalytic activity of a lithium-doped nickel oxide anode for use in alkaline water electrolyzers.

Europe Section Alessandro Volta Award

Jerry Barker is co-founder and Chief Scientist at Faradion Limited, a UK-based start-up specializing in Na-ion battery technology. In 2019, Dr. Barker was appointed Honorary Professor in the School of Chemistry at the University of St. Andrews. To target the low-cost and sustainable Li-CAM supply chain, he founded the start-up company, Redoxion Limited, in April 2022.

After completing a PhD in Solid State Electrochemistry from the University of Exeter, Dr. Barker worked at British Petroleum (BP) and spent time at the University of California, Santa Barbara. There he studied alkali ion doped polyacetylene with Nobel Prize laureates **Alan Heeger** and **Hideki Shirakawa**. As Chief Electrochemist at BP Solar, Dr. Barker developed a process for the large-scale electrodeposition of II-VI semiconductors for PV

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applications. He also served as Chief Scientist and Research Director at Valence Technology, Inc.

Dr. Barker is the named inventor on more than 115 issued US patents covering numerous alkali ion active materials as well as the carbothermal reduction (CTR) volume manufacturing method. CTR is widely regarded as the benchmark process for the large-scale synthesis of $LiFePO_4$. His inventions have culminated in five commercially successful battery enterprises. Dr. Barker has published extensively (h-index 59 and over 11,000 citations). In 2012, he received the IBA Technology Award for his contributions to Li-ion battery materials. He has appeared as a patent litigation expert witness in Europe and North America. Currently, Dr. Barker acts as an Expert Panel member for the Faraday Institution and Advisory Board member for Australia's storEnergy initiative.

Stefano Passerini is Professor at the Karlsruhe Institute of Technology and Director of the Helmholtz Institute Ulm. His research focuses on the basic understanding and development of materials for high-energy batteries and supercapacitors, with the goal to create sustainable energy storage systems from environmentally friendly and available materials and processes. He is an internationally recognized pioneer in the field of ionic liquids and the development of sodium-ion batteries.

Prof. Passerini received his PhD in Electrochemistry from Sapienza – Università di Roma in 1992. He then worked as a senior scientist at the University of Minnesota and later at ENEA (Italian National Agency for New Technologies, Energy and Environment). He has been a visiting scientist at Waseda University and the Universidade de São Paulo. Appointed Professor at the Karlsruhe Institute of Technology in 2014, he became Director of the Helmholtz Institute Ulm in 2018.

The co-author of more than 600 scientific papers (h-index of 103), a few book chapters, and several international patents, Prof. Passerini has been the Editor-in-Chief of the *Journal of Power Sources* since 2015. His work has been recognized with numerous accolades, including Fellow of The Electrochemical Society (2020) and International Society of Electrochemistry (2016). He has been a member of the Leopoldina Academy of Science since 2019. The ECS Battery Division gave him their Research Award in 2012.

Korea Section Student Award

Youngjin Ham recently received her PhD from the Department of Materials Science and Engineering at the Korea Advanced Institute of Science and Technology. Her research focused mainly on the development of strategic design principles for multidimensional electrodes toward practical organic batteries and biocatalytic CO_2 reduction, as published in *Energy & Environmental Science* and *Advanced Energy Materials*. Throughout her PhD work, Dr. Ham pursued approaches spanning the engineering of electrode architectures via 3D nanopatterning techniques and molecular-level control of redox functionality using graphene-based materials. Her work has been highlighted in more than 30 media outlets and recognized by several awards, including the Korea Institute of Materials Science's 2022 Best Academic Paper Award.

PNW Section Electrochemistry Student Award

Sponsored by Thermo Fisher Scientific

Mitchell Kaiser is a PhD student at the University of Washington (UW). He received his BS in Chemistry and ACS certification at UW in 2018. As an undergraduate in Prof. **Daniel Gamelin**'s UW lab, he studied the post-synthetic modification of cesium-bismuth-halide nanoparticles by anion exchange to achieve structures not accessible via direct hot-injection synthesis. Kaiser is now a member of Prof. **Jun Liu**'s lab, fabricating ultramicroelectrode devices from monolayer molybdenum disulfide. He uses a technique called quantum capacitance spectroscopy that he developed with Dr. **Mengyu Yan** to study the relationship of the electronic structure of pristine and modified electrode materials and the catalytic activity of the material for various reactions.

San Francisco Daniel Cubicciotti Award

WINNER

Julie Fornaciari recently completed her PhD in chemical engineering at the University of California, Berkeley under Prof. **Alex Bell** and Dr. **Adam Weber**. Her research centered on electrochemical energy conversion and storage of hydrogen gas. She spent the past five years working on low temperature water electrolysis, focused on multiscale transport in electrolytic devices, and on diagnostic experiments and characterization of these devices.

A first-generation college graduate, Dr. Fornaciari joined the US Department of Energy as a Hydrogen Shot Fellow in the Hydrogen and Fuel Cell Technology Office. In addition to her research, she is passionate about science communication and on bridging the gap between scientists and non-scientists. She has volunteered for various programs through the nonprofit Community Resource for Science, including the Bay Area Scientists Inspiring Students (BASIS) program; and was a writer and editor for the *Berkeley Science Review*; a Berkeley SciComm Fellow; and served on the ComSciCon Flagship Conference program committee.

HONORABLE MENTION

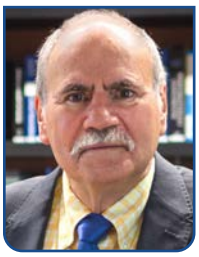
Rachel Zhuojun Huang is a fifth-year PhD student at Stanford University. Her research at the intersection of polymer and electrochemistry focuses mainly on polymeric interface for lithium metal anodes and next generation safe polymeric electrolytes. She completed a BS in Materials Science and Engineering at the University of California, Berkeley.

HONORABLE MENTION

Matthew Liu is a PhD student in the Chemical Engineering Department at Stanford University and a NASA Space Technology Graduate Research Fellow. Liu studies electrochemical reactive-separation processes to recover ammonia from nitrogen-rich wastewaters as a member of **William Tarpeh**'s lab. His particular focus is on electrocatalytic nitrate reduction, which has led him to investigate systems driven by heterogeneous catalysis, molecular catalysis, and single atom catalysis. Liu is also interested in how the structure and composition of the microenvironment at the electrode-electrolyte interface directs nitrate reduction performance. As an undergraduate studying at the University of California, Berkeley and researching at Lawrence Berkeley National Laboratory, he also focused on energy and the environment, studying free-radical chemistry in aqueous aerosol under **Frances Houle** and electrochemical carbon dioxide reduction under Prof. **Bryan McCloskey**.

2022 Class of Fellows

The designation "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 for scientific achievements, leadership, and active participation in the affairs of ECS. Each year, their peers choose up to 15 renowned scientists and engineers for this honor
Please join us in celebrating the 2022 Class of Fellows of The Electrochemical Society.



Michel Armand is Emeritus Researcher at the Centre National de la Recherche Scientifique (CNRS), and works at CIC-EnergiGUNE in Spain. After introducing the intercalation concept, Dr. Armand led the community with outstanding contributions to the field of battery electrochemistry with major industrial applications. His most important findings are solid state polymer electrolytes for Li metal polymer batteries which are now commercialized; new highly conductive salt families like LiTFSI (commercialized) and LiFSI for advanced electrolytes; and carbon-nanopainting of $LiFePO_4$ leading to wide-scale commercialization of this olivine in electric vehicles and grid storage batteries.

Dr. Armand received his PhD in Physics from Université Joseph Fourier in 1978. He was a Senior Scientist at Lawrence Berkeley National Laboratory (1982–1983); Director of Research at CNRS starting in 1989; Professor at the Université de Montréal (1995–2004); and Director of the Joint CNRS-UdM International Laboratory on Electroactive Materials (2000–2004). Dr. Armand joined CIC-EnergiGUNE in 2011 as part of the Scientific Committee of the Electrochemical Storage, Batteries, and Supercaps area, while leading the creation of the Polymer Electrolyte Research Group, currently a leader in European research on solid state batteries.

Dr. Armand is the author or co-author of more than 500 publications (h-factor 95) with more than 69,500 citations, as well as contributing to 16 book chapters. Among the many honors he has received are the 2010 Galileo Award; 2000 ECS Europe Section Volta Award; 1995 International Society for Electrochemistry Pergamon Medal; 1988 ECS Battery Division Award; 1985 Royal Society Faraday Division Award; and CNRS 1978 Bronze and 1989 Silver Medals. Stanford University included him on their 2019 List of 100,000 Top Scientists. The Clarivate Highly Cited Researchers List included him for multiple years. In 2020, the Society published the *JES Focus Issue on Challenges in Novel Electrolytes, Organic Materials, and Innovative Chemistries for Batteries in Honor of Michel Armand*.

Perla Balbuena is Professor of Chemical Engineering and holds the Mike O'Connor Chair I at Texas A&M University, where she also holds joint appointments in Chemistry and Materials Science and Engineering. Her expertise is in first principles analysis of materials and interfacial reactions for catalysis, electrocatalysis, and battery materials. Her work has contributed to elucidating crucial interfacial reaction mechanisms such as the formation and growth of solid-electrolyte interphases in advanced battery technologies.

Prof. Balbuena completed a PhD in Chemical Engineering at the University of Texas at Austin in 1996 after finishing a BS in 1973 at Universidad Tecnológica Nacional, Argentina, and an MSE in 1983 at the University of Pennsylvania. Included in the numerous awards she has received throughout her career are the 2020 Texas A&M Engineering Experiment Station (TEES) Research Impact Award; 2017 Engineering Genesis Award; 2002 University of South Carolina Young Investigator Award; NSF CAREER awards (1997–1999); and fellowships from TEES, the American Association for the Advancement of Science, and the American Institute of Chemical Engineers. Prof. Balbuena serves as an Associate Editor for the *Journal of The Electrochemical Society* and *ECS Advances*.

Gerbrand Ceder holds the Samsung Distinguished Chair in Nanoscience and Nanotechnology at the University of California, Berkeley, with a joint appointment as Senior Faculty Scientist at Lawrence Berkeley National Laboratory. There he combines theory, computation, and experiments to develop novel materials for energy storage. For over 25 years, Prof. Ceder has worked in Li-ion technology, and more recently also on alternative energy storage approaches such as solid state batteries, Na-ion, and Mg-ion devices. He is a co-inventor of the disordered rocksalt cathode materials (DRX) for Li-ion technology and was active in formulating the US Materials Genome Initiative.

Prof. Ceder began his academic career studying at the Katholieke Universiteit Leuven, and then received his PhD in Materials Science from UC Berkeley. After 24 years as a professor at the Massachusetts Institute of Technology (MIT), he returned to UC Berkeley. The author of more than 500 papers (h-index 154), he holds more than 50 US and foreign patents. Prof. Ceder is a member of the US National Academy of Engineering, Royal Flemish Academy of Belgium for Science and Art, and American Academy for the Arts and Sciences. He is a Fellow of the Materials Research Society (MRS); Metals, Minerals, and Materials Society; and American Physical Society; and received the 2017 National Academy of Engineering Award; 2016 International Battery Research Award; 2016 MRS Materials Theory Award; 2009 MRS Gold Medal; 2007 MIT School of Engineering Graduate Teaching Award; and 2004 ECS Battery Research Award.

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Photo: Peter Morenus, University of Connecticut

Wilson K. S. Chiu is Professor of Mechanical Engineering at the University of Connecticut. In collaboration with an international team of scientists and engineers, Prof. Chiu pioneered new synchrotron-based X-ray imaging and spectroscopy methods to elucidate complex 3D electrochemical and transport processes in energy materials. Applications include solid oxide and polymer electrolyte membrane fuel cells and electrolyzers, mixed ionic-electronic conducting separation membranes, battery and solar materials, ceramic waste forms, and molten salts.

Prof. Chiu earned his PhD in Mechanical Engineering from Rutgers University. He has held visiting appointments at Columbia University and the Università degli Studi di Napoli Federico II. Prof. Chiu has published seven book chapters/special volumes, 126 journal articles, and 203 conference articles/abstracts. He has served on beam line advisory, science review, and proposal review committees for synchrotron light sources. Among his honors, Prof. Chiu is an elected Fellow of the American Society of Mechanical Engineers (ASME) and American Society of Thermal and Fluids Engineers. He was awarded an Otto Mønsted Guest Professorship; United Technologies Corporation Professorship in Engineering Innovation; and elected to the Connecticut Academy of Science and Engineering. He received the Office of Naval Research Young Investigator Award, Army Research Office Young Investigator Award, and the NSF CAREER Award. Prof. Chiu is the Editor-in-Chief of the ASME *Journal of Electrochemical Energy Conversion and Storage*, guest editor for the *Journal of The Electrochemical Society*, and has served as an associate editor and on the editorial board of several other journals. He is the lead organizer of the triannual ECS *Symposium on Heterogeneous Functional Materials (HeteroFoaMs) for Energy Conversion and Storage*.

Photo: Ryan Wakefield, University of Sout Florida

Andrew Hoff is Professor and Graduate Director of the Electrical Engineering Program at the University of South Florida (USF). His research focuses on diverse applications of plasma processing in the material and biomedical realms. These include afterglow chemical processes, corona-Kelvin metrology, and drug and DNA molecular delivery for cancer treatment.

Prof. Hoff received his PhD in Electrical Engineering from Pennsylvania State University in 1988 and joined the faculty at USF that year as a founding member of the Center for Microelectronics Research. Prof. Hoff is Past Director of the CMR Metrology Laboratory and Co-Director of the state workforce training Agile Initiative (1998–2004). He directed or collaborated on NSF-ATE workforce development programs in Florida from 2002 to 2018. Prof. Hoff received a 2013 Outstanding Engineering Educator award from the Florida West Coast IEEE and the 2000 Pioneering Award for Non-Contact Metrology.

Prof. Hoff joined ECS as a student member in the late 1970s and began attending conferences in the late 1980s. He has served the Society through the Electronics and Photonics division (EPD) since he joined it in 2003; as member of the Executive Committee (2004–present); symposium organizer; ECS Publication Committee division representative (2005–2009); *Interface* Advisory Board member (2005–2011); and EPD Division Secretary (2007–2009), Vice Chairman (2009–2011), Chairman (2011–2013), and Past Chairman (2013–2015).

Gao Liu is Senior Scientist and Group Leader of the Applied Energy Materials Group at Lawrence Berkeley National Laboratory (LBNL) where he specializes in energy storage R&D. With over 20 years of experience in developing materials and system engineering for electrical energy storage, Dr. Liu has led research projects for industry and the US Department of Energy (DOE). His research combines synthetic chemistry, composite engineering, and electrochemistry to solve interdisciplinary problems in energy generation, storage, and usage. Dr. Liu's lab uses advanced diagnostics to understand fundamental and critical issues in energy systems, and synthetic techniques to develop new materials that improve overall system performance. His ongoing research in battery and energy storage covers electrode binder, silicon, sulfur, and lithium metal materials, electrode engineering, electrolytes and additives, and solid state conductors. Besides energy storage research, Dr. Liu also performs materials and engineering research in building resiliency, circular economy, and advanced manufacturing.

Dr. Liu received a BS from Beijing University in 1993, and a PhD in Chemistry from Michigan State University in 2001. He has more than 180 peer-reviewed publications and more than 20 granted patents. His work has garnered numerous awards, including the 2013 and 2015 R&D 100 Award, 2014 FMC Corporation Scientific Achievement Award, and University of California 2011 Discovery Grant.

Photo: Jess Vescera, University of Rhode Island

Brett Lucht is Professor of Chemistry at the University of Rhode Island. His research focuses on novel electrolytes and electrolyte electrode interfaces for lithium-ion battery applications, which include extending the calendar life and improving low temperature properties, the performance of novel high capacity anodes such as lithium metal and silicon, and the performance of high voltage cathode materials. He conducts basic science and applied research, and collaborates extensively with industrial partners. Prof. Lucht has mentored more than 100 students, including more than 40 graduate students, 30 undergraduate students, and 20 postdoctoral fellows, along with several visiting students.

Prof. Lucht received a BS in Chemistry from the University of Puget Sound in 1991 and PhD in Chemistry in 1996 from Cornell University. He completed postdoctoral research at the University of California, Berkeley before beginning work at the University of Rhode Island in 1998. Prof. Lucht was promoted to Associate Professor with tenure in 2002 and Professor in 2006. He is Associate Editor for the *Journal of The Electrochemical Society* and *ECS Advances* as well as Vice Chair of the ECS Battery Division. He has published more than 170 manuscripts (h-index 64) and two book chapters, and holds nine patents. Prof. Lucht has been an invited or keynote speaker for more than 100 companies, universities, national laboratories, and international conferences.

Janine Mauzeroll is Professor of Chemistry at McGill University. There she heads a research group of 20 graduate students, undergraduates, postdoctoral fellows, and research associates focused on topics ranging from electrochemistry in organic and biological media to electronically conducting polymers. Her group systematically combines experimental and numerical simulation approaches to study

electrochemical systems in the fields of biology, corrosion, batteries, electrolysis, electrocatalysts, and electrosynthesis.

Prof. Mauzeroll completed her BS at McGill in 1999, followed by a PhD in 2004 from the University of Texas at Austin (2004) with **Allen J. Bard**. She completed a postdoctoral fellowship in 2005 in **Jean-Michel Savéant**'s laboratory. After serving as Assistant and then Associate Professor at the Université du Québec à Montréal from 2005 to 2011, Prof. Mauzeroll returned to her alma mater, McGill, as Associate Professor in 2012. She received the 2015 Chemical Society of Canada Fred Beamish Award and 2003 ECS Summer Fellowship.

A Technical Editor for the *Journal of The Electrochemical Society* Organic and Bioelectrochemistry topical interest area since 2016, Prof. Mauzeroll was recently appointed Technical Editor for the Organic and Bioelectrochemistry topical interest area of *ECS Advances*. Prof. Mauzeroll has also served on the editorial boards of *Analytical Chemistry* and *ChemElectroChem.* She chaired the 2020 Gordon Conference on Electrochemistry and has given more than 100 presentations with 60 invitations to give talks at major universities, plenary lectures, and numerous invited lectures. She is active in her scientific community with 13 conferences (organized or chaired) and service on 26 scientific committees (including the Chair of the NSERC Chemistry Liaison Committee and a Member of NSERC-Discovery Grant Committee on Chemistry).

Nguyen Minh is presently with the Center for Energy Research at the University of California, San Diego (UCSD). An internationally known expert on solid oxide fuel cells (SOFCs), solid oxide electrolysis cells (SOECs), and related technologies, his current SOFC research at UCSD focuses on basic and applied science and engineering studies on properties, phenomena, and designs key to SOFC/SOEC stack technology and development of advanced concepts. Over the last 30 years, he has dedicated his research to the development of SOFCs/SOECs and new energy systems. His experience covers a full spectrum of industrial/product R&D areas, ranging from technology assessment, strategy and roadmap formulation, and fundamental and engineering study to materials processes, and manufacturing development, system design and operation, prototype demonstration, and cost/market analysis.

Before UCSD, Dr. Minh was Chief Scientist/Manager, Fuel Cells at General Electric and Honeywell/AlliedSignal, and a Group Leader/Staff in Electrochemical Technology at Argonne National Laboratory. He is the author/co-author of the book, *Science and Technology of Ceramic Fuel Cells*, and nine book chapters, some 150 published technical articles on SOFCs and related technologies, and 21 patents. His review paper, "Ceramic Fuel Cells," published in the *Journal of the American Ceramic Society* in 1993, is a classic widely cited in the literature and translated into several languages. Dr. Minh has received awards that include the 2007 American Society of Mechanical Engineers Francis T. Bacon Medal; 2017 Fuel Cell Seminar & Energy Exposition Award; and 2021 Electrochemical Society H-Temp Division Subhash Singhal Award.

Deborah J. Myers is a Senior Chemist and Leader of the Hydrogen and Fuel Cell Materials Group in Argonne National Laboratory's Chemical Sciences and Engineering Division. She is Co-Lead of the US Department of Energy (DOE) Hydrogen and Fuel Cell Technologies' Electrocatalysis Consortium (ElectroCat); Deputy Director for DOE's "Hydrogen from the Next Generation of Electrolyzers of Water" Consortium (H2NEW); and Deputy Director for DOE's "Million Mile Fuel Cell Truck" consortium (M2FCT). Dr. Myers' expertise is in the development, characterization, and understanding of fuel cell and electrolyzer electrocatalysts and electrodes. Her present research areas include: in situ and operando X-ray scattering, spectroscopy, and ex situ X-ray tomography techniques to understand the active sites, degradation mechanisms, and factors controlling the performance and durability of fuel cell and electrolyzer catalysts and electrodes; and high-throughput approaches to develop and implement platinum group metal-free oxygen reduction and oxygen evolution electrocatalysts for fuel cells and electrolyzers.

Dr. Myers received her PhD in 1989 from the University of Illinois, Urbana-Champaign with Professor **Andrzej Wieckowski**, specializing in physical electrochemistry. Her postdoctoral research, with Dr. **Zoltan Nagy** in the Argonne National Laboratory's Chemical Technology Division, focused on synchrotron X-ray reflectivity studies of electrode-electrolyte interfaces. Dr. Myers' subsequent staff position in Argonne's Fuel Cell Section focused on developing catalysts and electrolytes for solid oxide and direct methanol fuel cells and water-gas shift catalysts for hydrogen production. In 2001, she became Group Leader for Shift Catalysis and, subsequently, for Solid Oxide Fuel Cells, and in 2003, assumed her current position. Among the awards she has received are the 2004 and 2020 DOE Hydrogen Program R&D Award; 2017 Argonne National Laboratory Director's Award; 2004 and 2016 Argonne National Laboratory Pacesetter Award; 2015 US Car Award for the Fuel Cell Technology Team; and 2000 DOE National Laboratory Fuel Cell R&D Award. Dr. Myers is the author of more than 80 publications and two book chapters with over 8,000 citations (15 publications with more than 100 citations, including one with more than 3,000 citations), and more than 200 presentations (41 invited). She holds eight US patents.

James (Jamie) Noël is Associate Professor of Chemistry and Faculty Scholar at Western University. His research group works on corrosion and related electrochemical topics in several areas, with a focus on determining the corrosion lifetimes of materials potentially involved in the safe, permanent disposal of nuclear fuel waste, including both candidate container materials (copper, steel, titanium, and nickel-based superalloys) and nuclear fuels (uranium dioxide and thoria). Prof. Noël and his team helped to resolve the key corrosion questions required for the Government of Sweden to license a nuclear fuel waste repository in 2022 in Sweden. Prof. Noël's other interests include development of new experimental methods (e.g., combined electrochemical/neutron scattering approaches) and custom apparatus, such as vessels for electrochemical experiments in extreme environments (e.g., supercritical water, intense radiation fields, deep undersea, and under ultra-high vacuum).

Prof. Noël earned BS and MS degrees in Chemistry from the University of Guelph and a PhD in Chemistry from the University of Manitoba. He worked at Ontario Hydro and then Atomic Energy of Canada Ltd. before joining Western University as Research Scientist with **Dave Shoesmith**. When Shoesmith prepared for retirement, Prof. Noël was appointed to lead the research group. He is Chair of the ECS Corrosion Division and a former Chair of the ECS Education Committee and ECS Canada Section. He teaches two popular ECS Short Courses on the fundamentals of electrochemistry. Prof. Noël was named a 2022 Faculty Scholar at Western University (see page 34) and received the Canada Section's 2019 R.C. Jacobsen and 2003 Lash Miller Awards.

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Elizabeth (Lisa) J. Podlaha-Murphy is Chair of the Chemical and Biomolecular Engineering Department at Clarkson University. Her research experience and expertise lie in the area of electrodeposition of novel alloy and composite materials for a variety of applications, including water splitting for hydrogen generation, corrosion-resistant surface coatings, nanostructured materials for micro and nanodevice components, and modeling battery and electrochemical systems.

In 1986, Prof. Podlaha received her BS and MS in Chemical Engineering with an Honor's Program distinction from the University of Connecticut, followed by employment at IBM. Inspired by her IBM colleagues doing cutting-edge research, she returned to school, earning a PhD in Chemical Engineering from Columbia University. She completed a postdoctoral position in the Department of Materials Science at the École Polytechnique Fédérale de Lausanne. Her first academic appointment was at Louisiana State University as an Assistant/tenured Associate Professor in Chemical Engineering (1998–2007), and at Northeastern University as a tenured Associate/full Professor (2007–2017). As part of NSF, DOE, NIH, and DARPA funded projects, including the NSF CAREER Award, Prof. Podlaha has directed 26 graduate (20 PhD and 6 MS) and more than 40 undergraduate students in electrochemical research in the lab. She has authored or co-authored 84 peer reviewed journal publications (half of those in the *Journal of The Electrochemical Society* and *Electrochemical and Solid State Letters*), 24 proceedings papers, one book chapter, and four patents. Prof. Podlaha is the Treasurer of The Electrochemical Society (2022–2026). She was past Chair of the ECS Electrodeposition Division (ELDP) (2015–2017), and held the preceding officer positions of Member at Large, Treasurer, Secretary, and Vice Chair. Prof. Podlaha has served on many Society committees, including the Membership Committee, and organized, chaired, and co-chaired symposia. In 2019, she helped co-advise the newly formed ECS Student Chapter at Clarkson University.

Vijay Ramani is the Vice Provost for Graduate Education and International Affairs at Washington University in St. Louis (WUSTL). He holds the Roma B. and Raymond H. Wittcoff Distinguished University Professorship and serves as a Professor in the Department of Energy, Environmental, and Chemical Engineering. His research interests lie at the confluence of electrochemical engineering, materials science, and renewable energy technologies, with a focus on electrochemical energy conversion and storage (low temperature fuel cells, electrolyzers, and redox-flow batteries). Research directions in his group include multi-functional electrolyte and electrocatalyst materials for electrochemical systems, analyzing the source and distribution of overpotential in electrochemical systems, mitigating component degradation in electrochemical devices, and in situ diagnostics to probe electrochemical systems.

Prof. Ramani has a PhD from the University of Connecticut and BE from Annamalai University, both in Chemical Engineering. The National Science Foundation, Department of Energy, Office of Naval Research, and Advanced Research Projects Agency–Energy have funded his research with mechanisms including a 2009 NSF CAREER Award and 2010 ONR Young Investigator Award. He received the 2010 3M Non-tenured Faculty Award, and 2012 ECS ETD Division Supramaniam Srinivasan Young Investigator Award. Prof. Ramani has been affiliated with ECS since 2001 and is a Life Member. Prof. Ramani has served as co-editor of ECS *Interface* (2013–2017) and is a Past Chair of the ECS IE&EE Division and AIChE Area 1E.

Yasuhiro Shimizu is Professor and Dean of the Graduate School of Engineering at Nagasaki University. His research focuses 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 health care.

Prof. 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. The Electrochemical Society of Japan (ECSJ) recognized his scientific contributions and service by appointing him as a Fellow in 2020. Other awards include the 2021 ECS Sensor Division Outstanding Achievement Award; 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 served as Chair of the Asia/Pacific Region in the Executive Steering Committee of the International Meeting on Chemical Sensors (since 2016); Chair of the International Steering Committee of the Asian Conference on Chemical Sensors (since 2017); President of the Japan Association of Chemical Sensors (an ECSJ expert division) (2015–2016); Editor of *Sensors and Actuators B: Chemical* (2008–2018), and Co-Editor-in-Chief of *Sensors and Actuators B: Chemical* (since 2018).

Shunpei Yamazaki is the Founder and President of Semiconductor Energy Laboratory Co., Ltd. He is also General Managing Director of the Foundation for Promotion of Material Science (MST), and President and Founder of the Kato & Yamazaki Educational Foundation (KYEF). His current research focuses on the research and development of an oxide semiconductor.

Dr. Yamazaki received his BE (1965) and ME (1967) from Doshisha University. While a PhD student there, he invented a non-volatile memory known as "flash memory." After completing his PhD in 1971, Dr. Yamazaki joined TDK Corporation (formerly known as Tokyo Denki Kagaku Kogyo K.K). In 1980, he founded Semiconductor Energy Laboratory Co., Ltd. (SEL) and assumed the position of president. Doshisha University awarded Dr. Yamazaki honorary degrees in 2011 and the title of "Friends of Doshisha" in 2015. He has received the 2018 American Ceramic Society W. David Kingery Award; 2015 SID Special Recognition Award; 1997 Japanese Prime Minister's Medal with Purple Ribbon; and 1984 Richard M. Fulrath Award. Synectics ranked him 58th in the "Top 100 Living Geniuses Survey" in 2007. Dr. Yamazaki has published or co-published more than 500 papers and conference presentations. He holds the 2004, 2011, and 2016 Guinness World Records for "holding the most patents credited as inventor"—11,353 as of June 2016. In 2005, *USA Today* named him the most prolific inventor in history. He is a member of the Royal Swedish Academy of Engineering Sciences and Academician of World Academy of Ceramics.