

New Editors for *Interface*

ECS is pleased to announce the appointment of Vijay Ramani and Petr Vanýsek as Co-Editors of *Interface*. Because *Interface* is at the next turning point in its growth, the ECS Publications Subcommittee selected two editors: one focused on the outreach, education, and news areas, and one focused on the technical articles. Co-Editor Petr Vanýsek will cover primarily current content and the future development of departments such as Society, Student, and Section News. Professor Vanýsek will also work with guest contributor Zoltan Nagy on the ECS Classics series. Co-Editor Vijay Ramani will be responsible primarily for the featured technical articles in the magazine, Tech Highlights, and The Chalkboard series. While these areas are the primary responsibilities for Ramani and Vanýsek, there will be a great deal of overlap as they perform their editorial roles and bring new ideas to the magazine. We welcome Drs. Ramani and Vanýsek and will be eager to see where they will take us on the pages of *Interface*.



Vijay Ramani is the Hyosung S. R. Cho Endowed Chair Professor of Chemical Engineering at Illinois Institute of Technology, Chicago. His research interests lie at the confluence of electrochemical engineering, materials science, and renewable energy technologies. Current research directions in his group include multi-functional electrolyte and electrocatalyst materials for electrochemical systems, analyzing the source and distribution of overpotential

(losses) in electrochemical systems, mitigating component degradation in electrochemical devices, and *in situ* diagnostics to probe electrochemical systems.

NSF, ONR, and DOE currently fund his research, with mechanisms including an NSF CAREER award in 2009 and an ONR Young Investigator Award (ONR-YIP) in 2010. He also received the 3M Non-tenured Faculty Award in 2010 and the Supramaniam Srinivasan Young Investigator Award from the ECS Energy Technology Division in 2012. He is the immediate past Chair of the ECS Industrial Electrochemistry and Electrochemical Engineering Division, and Vice President of Area 1E of AIChE. He holds an Extraordinary Professorship in Chemical Resource Beneficiation at North West University, South Africa, and an Adjunct Professorship in Chemical Engineering at IIT-Madras.

Dr. Ramani has a PhD in from the University of Connecticut, Storrs, and a BE from Annamalai University, India, both in chemical engineering.



Petr Vanýsek received his PhD in physical electrochemistry from the Czechoslovak Academy of Sciences and began his academic career in the U.S. first as a postdoctoral associate at the University of North Carolina. After a short stint as a faculty in residence at the University of New Hampshire, he moved as an analytical chemist to his present academic department at Northern Illinois University, where he is now a full professor in the Department of Chemistry and

Biochemistry. Here Vanýsek also served a three-year administrative appointment as the Director of Graduate Studies. He teaches courses in general chemistry, electrochemistry and analytical chemistry, as well as giving special outreach lectures on alternate sources of energy, nanotechnology, and applications of impedance spectroscopy.

Dr. Vanýsek's research interests are in analytical instrumentation, sensors, impedance spectroscopy, and electroanalytical methodology, as well as in the physical electrochemistry of interfaces between immiscible fluids, particularly focused on X-ray reflectivity visualization of the molecular structure of such interfaces. His interests, which straddle both material sciences and electroanalytical chemistry, led to his involvement in two ECS Divisions, Sensor and Physical and Analytical Electrochemistry; at different times he served on the executive committees of both. Professor Vanýsek, who became an ECS member in 1986, was involved in numerous elected and appointed positions, where he offered his services to the Society. He was the Society Secretary from 2004 to 2008 and he served as the Interim Editor of the *Journal of The Electrochemical Society* from 2012 to 2013. He also represents ECS to the Federation of Materials Societies. ■



ECS celebrates the many successful achievements of members of the electrochemical and solid-state science community.

We thank you for your dedication to scientific research and discovery, for the innovations you continually develop that are fueling an energy revolution, and, above all, for your commitment to helping to make the world a better place for generations to come.

While nonprofit is our tax status, we need funds to continue our programs and services.

Through generous supporters like you, we will be able to reach our goals and broaden dissemination of our scientific content.

We hope we can count on your support with a gift to The Electrochemical Society

To make a tax-deductible donation, please visit

www.electrochem.org/donate

ECS Welcomes New Staff Member



Dan Fatton has joined ECS as Director of Development. He has considerable experience in fundraising, previously serving for five years as Outreach & Development Director for New Jersey Future, a public policy nonprofit dedicated to smart growth. Dan managed individual and corporate giving, breaking revenue records and also spearheading transportation policy initiatives. Prior to his tenure with New Jersey Future, Dan managed the New Jersey State Employees

Charitable Campaign and founded a major giving program for EarthRights International, a nonprofit focused on human rights and the environment.

Dan received a master's degree in City and Regional Planning from the Bloustein School of Planning and Public Policy at Rutgers University and his bachelor's degree from James Madison University.

Dan founded Ideal Image Consulting in 2010, building upon

his ten-year career in nonprofit development and communications. His consulting clients have included the New Jersey Bicycle & Pedestrian Coalition, Conserve Wildlife Foundation of New Jersey, and the National Wildlife Habitat Council. Dan has provided technical assistance to the community pilot program for the Shaping NJ anti-obesity initiative, and served on the steering committee for the Partnership for Healthy Kids-Trenton.

He is a member of the Trenton Green Team, serves as board president for the I Am Trenton Community Foundation, and chairs Trenton Cycling Revolution, a bicycle and pedestrian advocacy organization. Dan is a fellow of the 2012 class of Leadership New Jersey.

ECS Executive Director Roque Calvo announced Dan's appointment by saying, "With his background and experience, Dan is a valuable addition to the staff at a very important time for ECS. The opportunities created with renewable energy sources have made electrochemical science and technology an increasingly important discipline, and Dan will have an important role in communicating our message and generating vital funds to support programs in this area."



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New Division Officers

New officers for the 2013-2015 term have been elected for the following Divisions.



Electrodeposition Division

(The Division voted to affirm the current Executive Committee remain in office for the 2013-2015 term.)

Chair

Giovanni Zangari, University of Virginia

Vice-Chair

Elizabeth Podlaha-Murphy, Northeastern University

Secretary

Stanko Brankovic, University of Houston

Treasurer

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Natasa Vasiljevic, University of Bristol

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 Xingbo Liu, West Virginia University
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 Toshio Maruyama, Tokyo Inst of Technology
 Patrick Masset, Fraunhofer UMSICHT-ATZ
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 Jason Nicholas, Michigan State University
 Juan Nino, University of Florida
 Elizabeth Opila, University of Virginia
 Emily Ryan, Boston University
 Subhash Singhal, Pacific Northwest Labs
 Enrico Traversa, University of Rome
 Anil Virkar, University of Utah
 Eric Wachsman, University of Maryland
 Werner Weppner, Christian-Albrechts University Kiel
 Mark Williams, URS Corporation
 Leta Woo, Lawrence Livermore National Laboratory
 Eric Wuchina, Naval Surface Warfare Center
 Carderock Division
 Shu Yamaguchi, The University of Tokyo
 Harumi Yokokawa, National Institute of Advanced
 Industrial Science & Technology



High Temperature Materials Division

Chair

Xiao-Dong Zhou, University of South Carolina

Senior Vice-Chair

Turgut Gur, Stanford University

Junior Vice-Chair

Greg Jackson, Colorado School of Mines

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Members-at-Large

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Mark Allendorf, Sandia National Laboratories

Roberta Amendola, Montana State University

Timothy Armstrong, Carpenter Technology,
 Corporate Research & Development

Sean Bishop, Kyushu University

Fanglin (Frank) Chen, University of South Carolina

Zhe (Joseph) Cheng, Florida International University

Wilson Chiu, University of Connecticut

Koichi Eguchi, Kyoto University

Emiliana Fabbri, Nanomaterials for Fuel Cells Group

Fernando Garzon, Los Alamos National Laboratory

Robert Glass, Lawrence Livermore National Laboratory

Srikanth Gopalan, Boston University



Luminescence and Display Materials Division

Chair

Anant Setlur, GE Global Research Center

Vice-Chair

Madis Raukas, Osram Sylvania

Secretary/Treasurer

Mikhail Brik, University of Tartu

Members-at-Large

Holly Comanzo, GE Global Research Center

Uwe Happek, University of Georgia

Charles Hunt, University of California, Davos

Marco Kirm, University of Tartu

David Lockwood, National Research Council – Canada

Alok Srivastava, GE Global Research Center



websites of note

by Zoltan Nagy

The Aluminum Smelting Process: How the Hall-Heroult Process Works

A detailed description of the high-temperature molten-salt electrolysis process. Aluminum properties. Discovery and extraction - a brief history. Process basics. Detailed description of a cell and its basic functioning. How an aluminum smelter is made, Process thermodynamics - enthalpy, free energy, cell voltage. The voltage drop in the electrolyte. Some important figures. Bath chemistry. Electrolyte properties. Current efficiency. Cell thermal balance. Anode effect. Influence of magnetic fields.

- <http://www.aluminum-production.com/>

Electrochemical Reactions - Electrolytic Cells

Fairly detailed discussion of general electrochemistry, minus kinetics. Voltaic cells. Predicting spontaneous redox reactions from the sign of E° . Standard-state reduction half-cell potentials. The Nernst equation. Faraday's law. The electrolysis of aqueous and high-temperature molten NaCl. Electrolysis of water.

- Department of Chemistry, Purdue University
- <http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch20/electro.php>
- <http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch20/faraday.php>

Electrochemical Processing of Refractory Metals in High-Temperature Molten-Salts

The refractory metals comprise the elements Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W. They are also known as the transition elements and are found in the periodic table in Groups 4, 5, and 6. Electrochemical processing is used extensively in the primary extraction of these metals (electrowinning), the purification and recycling (electrorefining), and the formation of coatings (electroplating). Electrolysis in fused salts as well as other nonaqueous media has enormous potential for materials processing. First, because of the special attributes of nonaqueous electrolytes, electrochemical processing in these media has an important role to play in the generation of advanced materials with specialized chemistries or tailored microstructures (electrosynthesis). Second, as environmental quality standards rise beyond the capabilities of classical metals extraction technologies to comply, electrochemical processing may prove to be the only acceptable route from ore-to-metal.

- D. R. Sadoway, (MIT)
- <http://web.mit.edu/dsadoway/Desktop/dsadoway/www/58.pdf>

About the Author

ZOLTAN NAGY is a semi-retired electrochemist. After 15 years in a variety of electrochemical industrial research, he spent 30 years at Argonne National Laboratory carrying out research on electrode kinetics and surface electrochemistry. Presently he is at the Chemistry Department of the University of North Carolina at Chapel Hill. He welcomes suggestions for entries; send them to nagy@email.unc.edu.

ECS Co-sponsored Conferences for 2014

In addition to the regular ECS biannual meetings, ECS, its Divisions, and Sections co-sponsor meetings and symposia of interest to the technical audience ECS serves. The following is a list of the co-sponsored meetings for 2014. Please visit the ECS website for a list of all co-sponsored meetings.

- **China Semiconductor Technology International Conference 2014 (CSTIC 2014)**, March 16-17, 2014 – Shanghai, China
- **14th Topical Meeting of the International Society of Electrochemistry**, March 29-April 1, 2014 — Nanjing, China
- **15th Topical Meeting of the International Society of Electrochemistry**, April 27-30, 2014 — Niagara Falls, Canada
- **Shechtman International Symposium on Sustainable Mining, Minerals, Metal and Materials Processing**, June 28-July 4, 2014 — Cancun, Mexico
- **65th Annual Meeting of the International Society of Electrochemistry**, August 31-September 5, 2014 — Lausanne, Switzerland
- **Fifth International Conference on Electrophoretic Deposition: Fundamentals and Applications (EPD-2014)**, October 5-10, 2014 — Hernstein, Austria

To learn more about what an ECS co-sponsorship could do for your conference, including information on publishing proceeding volumes for co-sponsored meetings, or to request an ECS co-sponsorship of your technical event, please contact ecs@electrochem.org.

In the **NEXT** issue of **INTERFACE**

- The spring 2014 issue will focus on the topic of ionic liquids. Guest edited by **Frank Endres** and **Andreas Bund**, the featured articles include: “Simulation of the Interface Electrode/Ionic Liquid,” by **Maxim Fedorov**; “Electrochemical Interfaces with Ionic Liquids,” by **Natalia Borissenko**, **Rob Atkin**, and **Bernd Roling**; “Electrodeposition in Ionic Liquids,” by **Adriana Ispas**; and “Vacuum Electrochemistry in Ionic Liquids,” by **Stefan Krischok** and **Oliver Hoefft**.
- See a preview of the **225th ECS meeting in Orlando, Florida**, May 11-16, 2014. Learn more about the exciting symposia planned for the meeting, including sessions on energy-related materials and devices; ubiquitous sensing,

energy harvesting, and the “Internet of Things;” solar fuels and photocatalysts; carbon nanostructures; and many more. You also get an advance look at the Short Courses being offered at the meeting, along with other special activities and events. Want an even earlier look? Visit <http://www.electrochem.org/meetings/biannual/225/> now.

- Confused about **Open Access**? Want to know the Society’s plans for meeting the mandates of the U.S. and UK? Need to understand Creative Commons licenses? You’ll find answers in a comprehensive article on the subject in the spring issue.
- **TECH HIGHLIGHTS** continues to provide readers with free access to some of the most interesting papers published in the ECS journals, including articles from the Society’s newest journals: *ECS Journal of Solid State Science and Technology*, *ECS Electrochemistry Letters*, and *ECS Solid State Letters*.
- Don’t miss the next edition of **WEBSITES OF NOTE**, *Interface*’s regular look at interesting websites.