

Division News

New officers for the 2002-2004 term have been elected for the following Divisions:



Battery

Chairman

George E. Blomgren

Vice-Chairman

Daniel A. Scherson

Secretary

Brian Barnett

Treasurer

K. M. Abraham

Members-at-Large

E. Plichta

R. Bugga

J. Weidner

W. Van Schalkwijk



Corrosion

Chairman

Gerald Frankel

Vice-Chairman

Robert Kelly

Secretary/Treasurer

Patrik Schmuki

Members-at-Large

Alison Davenport

Shinji Fujimoto

Doug Hansen

R. Scott Lillard

Barbara Shaw



Sensor

Chairman

Cindy Bruckner Lea

Vice-Chairman

Gary Hunter

Secretary/Treasurer

R. Mukundan



the society for solid-state
and electrochemical science
and technology



New Staff at ECS

Bridget Bruin joined the ECS staff in April 2002 as a Customer Service Representative. Prior to coming to ECS, she had been employed for a year and a half with a national staffing agency. She

served six years in the United States Air Force as an Aircraft Mechanic. She was able to travel all over the world in support of Operation Desert Thunder and other significant military operations. She received several medals for achievement and good conduct.

Bridget and her husband Rodney, who is a Staff Sergeant in the United States Air Force, have a six-year old daughter, Jacinda, and they enjoy spending time together as much as they can. While not at ECS, Bridget enjoys doing things with her family such as going to the park, fishing, and reading to her daughter; and she also enjoys sewing and crafts.

In addition to working with ECS members and other constituents, Bridget will be part of the staff at some of ECS's biannual meetings. Please join ECS in welcoming Bridget to the staff. ■

Contributing Member News

The Electrochemical Society's Centennial year was a very exciting year for the Contributing Membership program. Most notably, membership benefits were upgraded and the Leadership Circle Award was created to recognize members of five years or more. (For more information about the Leadership Circle Award, please see Society News and Meeting Highlights). In addition, two new companies have joined the ranks of contributing membership, bringing the total number to 65. **MATSUSHITA BATTERY INDUSTRIAL CO., LTD.**, Osaka, Japan; and **MINE SAFETY APPLIANCES**, Sparks, MD have become Sustaining Members of The Electrochemical Society through the Contributing Membership program.

MATSUSHITA ELECTRIC was founded in 1918, when founder Konosuke Matsushita, at the age of 23 years, started a small workshop with only two employees (his wife and brother-in-law) to make and market an improved attachment plug, which he designed. (Konosuke Matsushita passed away in 1989 at the age of 94.)

The Matsushita group of companies is the most comprehensive worldwide manufacturer of electric and electronic products ranging from electronic components to consumer electronics, home appliances, factory automation equipment, information and communications equipment, and housing-related products.

With 27 operating companies, and serving customers of five continents, **MINE SAFETY APPLIANCES (MSA)** is the world's largest company dedicated to producing a complete range of equipment and systems for workers, and plant protection ranging from respirators to thermal imaging cameras. MSA serves a variety of industries including firefighting, industrial manufacturing, industrial hygiene, chemical, pharmaceutical, steel, construction, hazardous materials, abatement operations, mining, oil refining, nuclear, utilities, shipbuilding, agriculture, pulp and paper, homeland security, and home improvement retailing. For more information, please visit their website at www.msanet.com.

For more information about the ECS Contributing Membership program, please visit our website at www.electrochem.org/membership/contributing.htm, or contact **TROY M. MILLER** at 609.737.1902, ext. 126 or by e-mail at troy.miller@electrochem.org. ■

In Memoriam

H. V. K. UDUPA (1921-2002),
member since 1948, Organic
and Biological Electrochemistry.

Physical Electrochemistry Division Requests Support of Its Members

One of the main goals of the Physical Electrochemistry Division (PED) is to encourage the participation of its members and students at the semi-annual ECS conferences. PED therefore attempts to provide financial assistance to selected invited speakers and graduate students to attend these meetings. The Division believes it is particularly important for students to be able to present their results at the ECS conferences, as this enables them to meet their future peers, to learn more about their chosen field, and most importantly, it encourages them and other students to remain in and seek employment in electrochemistry.

Over the last few years, the Division has been able to give out small grants of several hundred dollars to three or four graduate students (sometimes fewer) per conference. This has been limited primarily by the income PED receives from the sales of proceedings volumes. However, because of a lack of interest on the part of authors in contributing to the volumes, and an ever-declining base of

library book purchasing, it may become even more difficult for PED to support student travel.

In order to support these important Divisional activities, PED recently agreed to institute annual Divisional dues of \$5.00 per member. If all PED members paid their dues, the Division would have sufficient funds to assist up to ten students per year to attend the meetings. The Divisional dues are collected together with the Society dues on a renewal form that is now being mailed. The Division is requesting the support of its members and asks that they check the appropriate box and pay these Divisional dues, along with the Society dues. If PED members have already paid their Society dues, but have overlooked the PED dues, they can still submit the \$5.00 payment to ECS, indicating that it is for the purpose of paying the PED dues. ■

Submitted by Viola Birss, Vice-Chair, PED.

Correction

On page PS-15 of the fall 2002 issue of *Interface*, the biography of Dr. Sigeru Torii, 2002 ECS Fellow, should have read as follows, "Dr. Sigeru Torii received his MS (1959) and PhD (1964) degrees in industrial chemistry at Kyoto University after taking his BS (1956) in chemistry at Kyoto Technical University."



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STM Inventor to Address ECS Paris Meeting on *Nanotechnology: The Path to Handling Complexity?*

IBM Fellow and Nobel Laureate Gerd K. Binnig will deliver the plenary lecture at the ECS meeting in Paris this coming spring (April 27-May 3, 2003). Dr. Binnig received the Nobel Prize in Physics in 1986 for the development of the scanning tunneling microscope (STM), which he invented together with Heinrich Rohrer. The scanning tunneling microscope and the atomic force microscope, which was invented later, made it possible to image and study structures and processes on the atomic scale. These instruments, which serve as tools for investigations of phenomena of the smallest dimensions, play a key role in nanoscience and nanotechnology.

The latest in Dr. Binnig's efforts in nanoscience involves IBM's "Millipede" project. IBM scientists have demonstrated a data storage density of a trillion bits per square inch, 20 times higher than the densest storage now available. This density is enough to store 25 million printed textbook pages on the surface size of a postage stamp.

Millipede uses thousands of nano-sharp tips to punch indentations representing individual bits into a thin plastic film. The technology is re-writeable and can be operated at lower power. Binnig said, "Since a nanometer-scale tip can address individual atoms, we anticipate further improvements far beyond even this fantastic terabit milestone. While current storage technologies may be approaching their fundamental limits, this nanomechanical approach is potentially valid for a thousand-fold increase in data storage density."

Another research field for Binnig involves the theory of "Fractal Darwinism," which he developed to describe complex systems. In a recent paper,¹ Dr. Binnig and his co-authors said, "Thinking is a complex procedure, which is necessary in order to deal with a complex world. Machines that are able to handle this complexity can be regarded as intelligent tools that support our thinking capabilities. The need for such intelligent tools will grow as new forms of complexity evolve, for example, those of our increasingly global networked information society." In order for those machines to think "intelligently,"

they should think the way humans do, which requires new software approaches and novel hardware. The latter might be based on nanotechnology, while the former might use a combined approach of the current modeling in artificial intelligence and a new approach the authors call affective, or self-organizing, computing.

Dr. Binnig studied physics at the Johann Wolfgang Goethe University in Frankfurt, where he completed his PhD in 1978

with a dissertation on superconductivity. Binnig was born and grew up in Frankfurt, Germany. In his autobiography for the Nobel Prize, he said, "Already as a child of about 10 years of age, I had decided to become a physicist, without actually knowing what it involved." When he began studying the subject, he began to wonder if he had made the right choice; however, once he began doing physics, he knew he had found the "right way of learning." He did his diploma work in W. Martienssen's

group, under E. Hoenig's guidance. Binnig said he had always been a great admirer of Martienssen, "especially of his ability to grasp and state the essence of the scientific context of the problem."

Since 1978, Dr. Binnig has been a research staff member of the IBM Zurich Research Laboratory, interrupted by a sabbatical at the IBM Almaden Research Center in San Jose (1985-86) and a guest professorship at Stanford University (1985-88). From 1987 to 1995, he headed an IBM physics group at the University of Munich, from which he received an honorary professorship in 1987.

The Society is fortunate and proud to have Gerd Binnig as its plenary lecturer in Paris and hopes many will take advantage of the opportunity to hear him speak this coming April. ■

“ *While current storage technologies may be approaching their fundamental limits, their nanomechanical approach is potentially valid for a thousand-fold increase in data storage density.* ”

1. G. Binnig, M. Baatz, J. Klenk, and G. Schmidt, *Europhysics News*, **33**, 2 (2002).