



### 2006 Student Achievement Award of the Industrial Electrolysis and Electrochemical Engineering Division



**VIJAY ANAND SETHURAMAN** obtained his bachelor's degree in chemical and electrochemical engineering from the Central Electrochemical Research Institute

(Madurai Kamaraj University), India in 2000. He then joined Enercon India Limited and worked as a corrosion engineer before starting graduate studies in the fall of 2001. Currently, he is a PhD student in the department of chemical engineering at the University of South Carolina working under the guidance of John W. Weidner. Since

June 2005, as part of his doctoral research, Vijay is an engineering intern at UTC Fuel Cells working under the supervision of Lesia V. Protsailo. He expects to graduate in August 2006.

Vijay's doctoral work at USC was on the mechanisms and kinetics of carbon monoxide (CO) and hydrogen sulfide (H<sub>2</sub>S) poisoning on PEMFC electrodes. He used electrochemical techniques to study adsorption, desorption, and oxidation kinetics of CO; and an understanding of which was later used to study sulfur induced irreversible poisoning effect of H<sub>2</sub>S. His ongoing research at UTC Fuel Cells focuses on the effect of humidity on the durability of PEMFCs operating at elevated temperatures. ■



### The H. H. Dow Memorial Student Award of the Industrial Electrolysis and Electrochemical Engineering Division



**NIKHIL JALANI** obtained his undergraduate degree in chemical engineering from the University Institute of Chemical Technology (UICT), Mumbai, India, with distinction, in June 2001. He then joined

Department of Chemical Engineering at Worcester Polytechnic Institute, MA, in 2001; and he was awarded the prestigious Institutional Fellowship for the academic year 2001-2002. He received his masters degree in May 2003 and continued working on his PhD under the guidance of Ravindra Datta.

As a research assistant at WPI, his research focus has been development and characterization of higher temperature nanostructured membrane electrode assemblies (NMEAs) for developing hydrogen based fuel cells. The research work included synthesizing nanocomposite membranes using sol gel and solvent cast procedures for the in situ growth of inorganic additives such as zirconia, silica, and titania within the pores of proton-exchange membranes (PEMs). The research objectives for his project were to develop chemically and

mechanically stable membranes for PEM fuel cells. Also, there was a focus on synthesizing Pt/ Pt-Ru catalyst for PEM and DMFC using decal and thin film catalyst methods.

The research work at WPI included using electrochemical characterization techniques including impedance spectroscopy, cyclic voltammetry, along with water uptake (utilizing a tapered element oscillating microbalance), optoelectronic holography (for determining thermo mechanical properties) to characterize NMEAs. He has also developed molecular solvent sorption and proton transport models for PEMs based on thermodynamics, to understand the physicochemical phenomena occurring in NMEAs. The combined experimental and modeling effort was focused on providing new fundamental insights and approaches to evaluate and eventually design better MEAs.

Jalani also won the Best Graduate Student Poster competition in North American Membrane Society 2005 annual meeting at Providence, RI. As a teaching assistant at WPI, he conducted unit operations laboratory experiments, which included distillation; and packed and fluidized beds for senior students. ■

## Student Awards

The **H. H. DOW MEMORIAL STUDENT AWARD OF THE INDUSTRIAL ELECTROLYSIS AND ELECTROCHEMICAL ENGINEERING DIVISION** was established in 1990 to recognize promising young engineers and scientists in the fields of electrochemical engineering and applied electrochemistry. The award consists of a scroll and a prize of \$1,000 for education expenses. The next award will be presented at the 211<sup>th</sup> ECS Meeting in Chicago, Illinois, May 6-11, 2007.

Nominations and supporting documents should be sent to Gautam Pillay, South Dakota School of Mines and Technology, 501 E. St. Joseph St., Rapid City, SD 57701, USA; tel: 605.394.2493, fax: 605.394.5360, e-mail: gautam.pillay@sdsmt.edu. **Materials are due by September 15, 2006.**

The **STUDENT ACHIEVEMENT AWARDS OF THE INDUSTRIAL ELECTROLYSIS AND ELECTROCHEMICAL ENGINEERING DIVISION** were established in 1989 to recognize promising young engineers and scientists in the field of electrochemical engineering; and to encourage the recipients to initiate careers in this field. The award consists of a scroll and a prize of \$1,000. The next award will be presented at the 211<sup>th</sup> ECS Meeting in Chicago, Illinois, May 6-11, 2007.

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## Call for Nominations

*For details on each award—including a list of requirements for award nominees, and in some cases, a downloadable application form—please go to the ECS website ([www.electrochem.org](http://www.electrochem.org)) and click on the "Awards" link. Awards are grouped in the following sub-categories: Society Awards, ECS Division Awards, Student Awards, and ECS Section Awards. Please see the individual award call for information about where nomination materials should be sent; or contact ECS headquarters.*

## Awarded Student Membership Available

ECS Divisions are offering Awarded Student Memberships to qualified full-time students. To be eligible, students must be in their final two years of an undergraduate program or be enrolled in a graduate program in science, engineering, or education (with a science or engineering degree). Postdoctoral

students are not eligible. Awarded memberships are renewable for up to four years; applicants must reapply each year. Memberships include subscriptions to the *Journal of The Electrochemical Society* online, *Electrochemical and Solid-State Letters* online, and *Interface* online. To apply for an Awarded Student

Membership, use the application form below or refer to the ECS website at [www.electrochem.org/awards/student/student\\_awards.htm#a](http://www.electrochem.org/awards/student/student_awards.htm#a).

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#### Personal Information

Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_  
Home Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Email: \_\_\_\_\_

#### School Information

School: \_\_\_\_\_  
(please include Division and Department)  
Address: \_\_\_\_\_  
Undergraduate Year (U) or Graduate Year (G) - circle one:    U3    U4    G1    G2    G3    G4    G5  
Major Subject: \_\_\_\_\_ Grade Point Average: \_\_\_\_\_ out of possible: \_\_\_\_\_  
Have you ever won this award before?    YES    NO    If yes, how many times? \_\_\_\_\_

#### Divisions (please select only one):

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- Fullerenes, Nanotubes, and Carbon Materials
- High Temperature Materials
- Industrial Electrolysis & Electrochemical Engineering
- Luminescence & Display Materials
- Organic & Biological Electrochemistry
- Physical and Analytical Electrochemistry
- Sensor

#### Signatures

Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Faculty member attesting to eligibility of full time student:  
Faculty Member: \_\_\_\_\_ Dept.: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Send to: The Electrochemical Society, 65 South Main Street, Bldg. D, Pennington, NJ 08534-2839 USA

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