



# international association for hydrogen energy

Clean and Abundant Energy for Sustainability

E-Newsletter

Winter 2012

Volume 4 Issue 1

The **objective** of the IAHE is to advance the day when hydrogen energy will become the principal means by which the world will achieve its long-sought goal of abundant clean energy for mankind. Toward this end, the IAHE stimulates the exchange of information in the hydrogen energy field through its publications and sponsorship of international workshops, short courses, symposia, and conferences. In addition, the IAHE endeavors to inform the general public of the important role of hydrogen energy in the planning of an inexhaustible and clean energy system.

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The world's hydrogen and fuel cell community will come together in Toronto, Canada from June 3-7, 2012 for the World Hydrogen Energy Conference 2012 (WHEC2012). The event will be celebrating its 19th edition and will take place at the Sheraton Centre Toronto. For more Information click here <http://www.whec2012.com/>

### CONTACT US:

IAHE

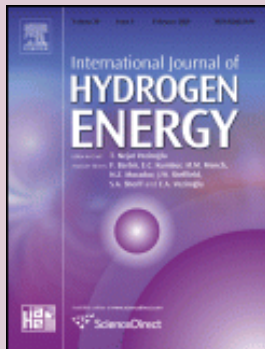
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Any questions on the E-Newsletter or IAHE?

Email: [Matthew Mench](mailto:Matthew.Mench@iahe.org)

# INTERNATIONAL JOURNAL OF HYDROGEN ENERGY HIGHLIGHTS

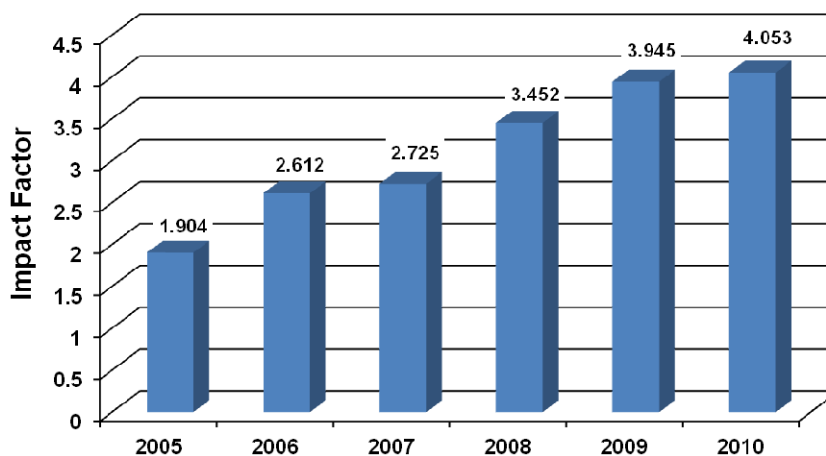
## *Highlights from Articles Published in the IJHE*



The *International Journal of Hydrogen Energy* provides scientists and engineers throughout the world with a central vehicle for the exchange and dissemination of basic ideas in the field of hydrogen energy. The emphasis is placed on original research, both analytical and experimental, which is of permanent interest to engineers and scientists, covering all aspects of hydrogen energy, including production, storage, transmission, utilization, as well as the economical, environmental and international aspects. When outstanding new advances are made, or when new areas have been developed to a definitive stage, special review articles will be considered. As a service to readers, an international bibliography of recent publications in hydrogen energy is published quarterly.

The IJHE was evaluated by Journal Citation Reports (Published by Thomson Reuters) for its 2010 Impact Factor and the results were outstanding! The 2010 IJHE Impact Factor (IMF) of 4.053, a 113% increase over the 2005 IMF. Impressively, the 5-year IMF for the IJHE is 4.407, indicating IJHE articles have a lasting impact. The entire IJHE staff thanks the authors for their excellent contributions, and the reviewers for their tremendous help to continue the tradition of high-quality articles in the IJHE.

International Journal of Hydrogen Energy



## **MOST HIGHLY CITED IJHE ARTICLES (Last 5 Years)**

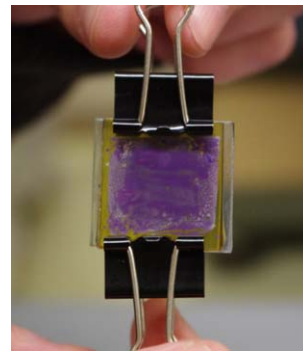
1. **Metal hydride materials for solid hydrogen storage: A review** Vol. 32, No. 9, pp. 1121-1140, Sakintuna, B., Lamari-Darkrim, F., Hirscher, M. (2007).
2. **Continuous dark fermentative hydrogen production by mesophilic microflora: Principles and progress** Vol. 32, No. 2, pp. 172-184, Hawkes, F.R., et al. (2007).
3. **Towards the hydrogen economy?** Vol. 32, No. 12, pp. 1625-1637, Marbán, G. and Valdés-Solís, T. (2007).
4. **A review of numerical modeling of solid oxide fuel cells** Vol. 32, No. 7, pp. 761-786, Kakaç, S., Pramuanjaroenkij, A., and Zhou, X.Y. (2007).
5. **Progress in high-temperature electrolysis for hydrogen production using planar SOFC technology** Vol. 32, No. 4, pp. 440-450, Herring, J.S., O'Brien, J.E., Stoots, C.M., Hawkes, G.L., Hartvigsen, J.J., and Shahnam, M. (2007).

## **TOP IJHE DOWNLOADS (Nov. 2011 -Jan 2012)**

1. **Hydrogen production by methane decomposition: A review** February 2010 Hazzim F. Abbas | W.M.A. Wan Daud
2. **The hydrogen-fueled internal combustion engine: a technical review** August 2006 C.M. White | R.R. Steeper | A.E. Lutz
3. **Re-envisioning the role of hydrogen in a sustainable energy economy** January 2012 John Andrews | Bahman Shabani
4. **Research progress in LiBH<sub>4</sub> for hydrogen storage: A review** November 2011 C. Li | P. Peng | D.W. Zhou | L. Wan
5. **Progress of electrochemical capacitor electrode materials: A review** June 2009 Y. Zhang | H. Feng | X. Wu | L. Wang | A. Zhang | T. Xia | H. Dong | X. Li | L. Zhang

# NEWS FROM IAHE AFFILIATES

## NEWS FROM STUDENT CHAPTERS



### Members of the IAHE Student Chapter at Oakland University in Michigan

The International Association of Hydrogen Energy (IAHE) at [Oakland University](#) student chapter has successfully hosted a two hour workshop on building your own solar cell in Nov, 2011. The workshop has attracted more than 30 participants including 6 faculty members and 25 engineering students. The workshop started with a 30 minute overview of the current outlook of solar energy and solar cells given by [Rich Schuster](#), President of IAHE OU student chapter. The presentation was followed by the students working in groups to build a Nanocrystalline Dye-Sensitized Solar Cell. The workshop was finished by comparing the output of the cells, with the best cells producing 66mW. The workshop was sponsored by the School of Engineering and Computer Science at Oakland University. In addition to public events such as the solar cell workshop, the IAHE OU student chapter works on hydrogen power systems, and is currently working on a solar electrolyzer and a fuel cell powered golf cart. If anybody is interested in IAHE at OU, contact the faculty advisor Dr. Wang at [wang@oakland.edu](mailto:wang@oakland.edu)

## CALL FOR NEW STUDENT CHAPTERS

The IAHE is continuing its call for the development of student chapters all over the world. To begin a chapter at your school, a faculty leader and interested students are needed. In total, over 26 student chapters in 9 countries are officially recognized by the IAHE. The activities for the chapter members can include participation in the hydrogen design competition, research seminars for graduate students, job fairs, social activities, and various other related activities chosen by the students. To become a student member (registration is free), please register online at:

<http://www.iahe.org/Studentmembership.asp>

### IAHE Affiliates

The IAHE has organizational affiliate organizations worldwide. To see a complete listing, please go to: [www.iahe.org](http://www.iahe.org)

The IAHE also seeks to further develop and promote hydrogen-based organizations worldwide. For more information on collaboration opportunities, please contact Matthew Mench at [mmench@utk.edu](mailto:mmench@utk.edu)

# NEWS FROM IAHE AFFILIATES



## *Introduction to the Young Scientist and Student Division*

The "Young Scientists Division" of the IAHE shares the same mission as the IAHE in striving to advance Hydrogen Energy as the principal means to achieve the goal of an abundant and clean energy for the mankind. Through the Student Chapters and the Young Scientists Division, we seek to help develop and promote young researchers' involvement and training in educational and professional activities. To stimulate the exchange of information in Hydrogen Energy field, the Young Scientists Division organizes international conferences, workshops, short courses and researcher exchange programs, and will work to promote activities to inform the general public of the important role of Hydrogen Energy in the planning of an inexhaustible and clean energy system. Over 800 members of students and young professionals under the age of 35 are now members, from all areas of the globe.

The WHEC2012 is hosting the **Mini Symposium of Young Scientists** to dedicate space to young researchers. Two special sessions will take place on June 3rd and June 7th, 2012, where scientists under 35 years old will have the opportunity to present their PhD work, research activities, and projects. See (<http://www.whec2012.com/conference/mini-symposium-for-young-scientists/>).

### *A note from the Chair of the YSD of the IAHE, Paola Artuso:*

As chair of the Young Scientists Division of the International Association of Hydrogen Energy, I am very happy to welcome all new members. This first official meeting of the Young Scientists Division followed a meeting in November 2010 in Rome, when senior and junior members coming from South Africa, India, United Kingdom and Italy, were joined to elect the division's officers:

Chair: [Paola Artuso](#)

Vice-Chair: Bernard Jan Bladergroen

Treasurer and Secretary: Annalisa D'orazio

I would underline that the membership is open to both junior and senior members (both under and over 35 years old) in order to encourage cooperation between the experienced and new researchers to the hydrogen related fields.

I am delighted to announce that the **Young Division Group** is already on LinkedIn and we invite you to join us (see <http://www.linkedin.com/>).



Paola Artuso, Chair  
Young Scientists Division  
CIRPS-Sapienza,  
University of Rome  
[youngdivision.iahe@idrogenolazio.it](mailto:youngdivision.iahe@idrogenolazio.it)

Know of a hydrogen-related meeting you would like to advertise?

Send a short description and web links to:  
[mmench@utk.edu](mailto:mmench@utk.edu)

Please reference "IAHE Newsletter" in the subject line of the email

## **The Bookshelf—Polymer Electrolyte Fuel Cell Degradation**



For full market implementation of PEM fuel cells to become a reality, two main limiting technical issues must be overcome: cost and durability. This cutting-edge volume directly addresses the state-of-the-art advances in durability within every fuel cell stack component. Designed to be relevant to the professional community in addition to researchers, this book will serve as a valuable reference featuring topics covered nowhere else and a one-stop-shop to create a solid platform for understanding this important area of development. Chapters are written by leading researchers from academia and industry to cover state-of-the-art understanding of degradation in all porous materials, electrodes, and bipolar plates. Coverage also includes chapters on durability testing protocols and computational modeling aspects of durability. For information, click [here](#) or find at any online retailer.

Edited by by [M. M. Mench](#), [E. C. Kumbur](#) & [T. Nejat Veziroglu](#), Elsevier, 2012.

# MEETINGS, ACTIVITIES, AND WORKSHOPS

## *News of Meetings, Activities and Workshops*

### **The 4th World Hydrogen Technologies Conference (WHTC)**

The World Hydrogen Technologies Conference takes place every two years on a different continent, under the auspices of the IAHE. The 4th World Hydrogen Technologies Conference took place from Sept. 14th-16th in Glasgow, Scotland. Participants and events included representatives of academia, government, and industry. The major theme of the event was "Renewables to Hydrogen", exploring the opportunities to create a clean, sustainable Hydrogen Economy from the many forms of available renewable energy. This is particularly relevant to Scotland and the UK, given the substantial wind, wave and tidal resources available. Wind power in particular was a major topic of discussion since, at times, over supply with no storage capacity has resulted in excess costs passed on to the taxpayer, a storyline which was widely reported. See a BBC report on the need for storage capacity coupled with renewable in Scotland at: <http://www.bbc.co.uk/news/uk-scotland-13253876>



**Speakers at the 4th WHTC described the need for grid level energy storage in Scotland. The picture above is of the 24 megawatt (MW) Ardrossan Wind Farm in North Ayrshire, Scotland.**

### **H2 RELATED MEETINGS**

#### **2012 Fuel Cell Seminar and Exposition**

Nov. 5-8, 2012  
Uncasville, Connecticut,  
USA

<http://www.fuelcellseminar.com/>



#### **The 221st meeting of the Electrochemical Society**

May 6-10, 2012  
Seattle, Washington, USA

<http://www.electrochem.org/meetings/biannual/221/221.htm>

#### **2012 Electrochemical Energy Storage and Conversion Forum**

April 19-20, 2012 Knoxville, Tn, USA.

<https://utconferences.outreach.utk.edu/ei/getdemo.ei?id=238&s=4CK0Z3UD1&bulk=y>

### **OTHER H2 MEETINGS**

#### **The International Conference on Hydrogen Production**

June 21-24, 2012  
Seoul, Republic of Korea

<http://www.bitlifesciences.com/wcbe2011/>

#### **Fuel Cells 2012 Science & Technology**

April 11-12, 2012  
Berlin, Germany

<http://www.fuelcelladvances.com/>

#### **2012 Gordon Research Conference: Fuel Cells**

Aug. 5-10, 2012  
Smithfield, RI

<http://www.grc.org/programs.aspx?year=2012&program=fuelcells>

For information on other conferences and events, please see [www.iahe.org](http://www.iahe.org)

Know of a hydrogen-related meeting you would like to advertise?

Send a short description and web links to:  
[mmench@utk.edu](mailto:mmench@utk.edu)

Please reference "IAHE Newsletter" in the subject line of the email

# IAHE INITIATIVES



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## Call for IAHE Fellow Nominations

In 2009, the IAHE created the prestigious level of IAHE membership, the IAHE Fellow. The IAHE is presently seeking nominations for Fellow-Level Member status. To be eligible, the member should be an IAHE member, and have had significant and sustained overall impact in the promotion of hydrogen technology. The impact can be in technology development, education, promotion of hydrogen technology, public awareness, or in other significant aspects. Successful nominations will receive special public recognition in the International Journal of Hydrogen Energy, at the 2012 World Hydrogen Energy Conference, online, and at IAHE sponsored meetings. Fellows will also enjoy reduced-rate IAHE sponsored meeting registration, become a lifetime member of the Board of Fellows of the IAHE and be entitled to various other special privileges commensurate with Fellow status. To nominate a potential IAHE Fellow (self-nominations are welcome), please send a nomination packet including a nomination letter, Curriculum Vitae and two letters of recommendation **by no later than March 31, 2012** to Matthew M. Mench at [mmench@utk.edu](mailto:mmench@utk.edu). Nomination materials can also be submitted via hard-copy to:

IAHE Fellows Nomination  
c/o Matthew M. Mench  
1512 Middle Drive  
234 Dougherty Engineering Bldg.  
University of Tennessee  
Knoxville, TN 37996-2210

There are lots of ways to become involved in the IAHE. We need experts to review articles, professional and student members, and participants at IAHE activities.

If you would like to become involved, you can join online or email:

**Email: [Matthew Mench](mailto:Matthew.Mench@utk.edu)**

Nominations will be forwarded to and considered by the IAHE Board of Directors, and the applicants will be notified of the results. New IAHE fellows will be announced at the 19<sup>th</sup> World Hydrogen Energy Conference June 3-7, Toronto Canada (<http://www.whec2012.com/>).

# IAHE AWARDS



## PAST IAHE AWARD WINNERS

**Jules Verne Award**  
2010 - C. E.  
(Sandy) Thomas,  
U.S.A.

**Rudolph A. Erren  
Award**  
2010 - *Hydrogen  
Network of  
North Rhine  
Westphalia* - Dr.  
Andreas Ziolek,  
Germany

**Sir William Grove  
Award**  
2010 - *Mazda  
Motor Corpora-  
tion, Japan*

**Akira Mitsui  
Award**  
2008 - Debabrata  
Das, India

**Konstantin Tsiolk-  
ovsky Award**  
2008 - Aeroviron-  
ment Inc., USA

For a complete list  
of past IAHE  
Awardees, please  
see the IAHE web  
page at  
[www.iahe.org](http://www.iahe.org)

## ***NEWEST IAHE AWARD WINNERS ANNOUNCED***

The winners of several prestigious IAHE awards are announced for 2012, as shown below. A formal presentation of the awards will take place at the 19th WHEC Banquet.

**IAHE Jules Verne Award** for Superior Service (a general area of involvement). Jules Verne, of course, predicted the hydrogen energy idea in his 1874 novel *The Mysterious Island*.

### ***2012 winners: Tom Sullivan and Alexander "Sandy" K. Stuart***

**Tom Sullivan** is a successful entrepreneur who founded SunHydro, the world's first chain of privately funded fueling stations that provide hydrogen to fuel cell cars. Sullivan also is the owner of Proton OnSite, the world's leading supplier of on-site gas generators utilizing proton exchange membrane (PEM) technology.

**Alexander "Sandy" K. Stuart** and his father shared an underlying long term vision of a major role for hydrogen in the global energy economy. The Electrolyser Corporation Limited was accordingly formed in 1948 to supply hydrogen systems to world markets. The company became a major supplier in this special field, eventually with some 1500 systems installed in over 100 countries and territories. A. K. Stuart also served as Chairman of two World Hydrogen Energy Conferences in 1984 and 2002.

**IAHE Rudolph A. Erren Award** for Leadership in Thermochemical Area (involvement with heat engines and combustion, thermochemical production, facets of hydrogen transmission, distribution and storage, e.g., metal hydrides). Rudolph Erren was the noted dynamic German developer of hydrogen fueled motor vehicles, demonstrated in fleet service in the 1930s.

### ***2012 winner: Ravinder Kumar Malhotra***

**Dr. Malhotra** is the President, Hydrogen Association of India (HAI) and Director, R&D Centre, Indian Oil Corporation Ltd.

**IAHE Sir William Grove Award** for Leadership in Electrochemical Area (involvement with fuel cells and electrolyzers, and other electrochemical means relating to hydrogen processing). Sir William Grove was the inventor of the fuel cell in England in 1839, producing electricity and water from hydrogen and oxygen.

### ***2012 winners:***

- 1) **Dieter Zetsche**, Chairman of Daimler AG and Head of Mercedes-Benz Cars since 2006. Awarded "Entrepreneur of the year" in 2008 from the German media.
- 2) **FCCJ: Fuel Cell Commercialization Conference of Japan**. The R&D of stationary fuel cell systems including FCV started in 2000 as a major national project of Japan. NEDO conducted this project as the project managing organization.
- 3) **Hydrogenics Corporation** has over 60 years of experience designing, manufacturing, building and installing industrial and commercial hydrogen systems around the globe.
- 4) **Shanghai Automotive Industry Corporation Group (SAIC)** is one of the top three automotive corporations in China and is mainly engaged in manufacturing, sales, research and development, and investment in passenger cars, commercial vehicles and components. SAIC has been leading the development of China's hydrogen fuel cell vehicle technology trends.



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## *Contacts and Information*

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**David Levin**

President, Biohydrogen Division

**Greg Naterer**

President, Nuclear Hydrogen Division

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### **ON THE WEB**

#### **International Association for Hydrogen Energy (IAHE)**

**<http://www.iahe.org>**

**5794 SW 40 St. #303**

**Miami, FL 33155, USA**

#### **International Journal of Hydrogen Energy (IJHE)**

**The Official Journal of the IAHE**

**<http://www.elsevier.com/locate/he>**

**Any questions on the Newsletter or IAHE?**

**Email: [mmench@utk.edu](mailto:mmench@utk.edu)**

