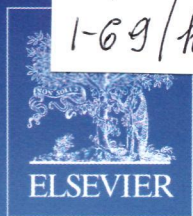


NU  
1-69/he



Volume 39

Issue 20

3 July 2014

ISSN 0360-3199

# International Journal of **HYDROGEN ENERGY**

Editor-in-Chief:

**Emre A. Veziroğlu**

Senior Associate Editor:

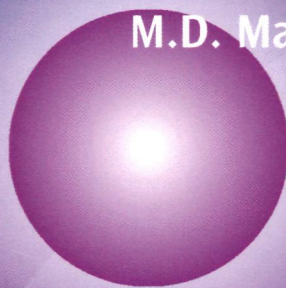
**J.W. Sheffield**

Associate Editors:

**S.I. Allakhverdiev, A. Basile,  
M.B. Gorenssek, E.C. Kumbur  
and N.Z. Muradov**

Assistant Editors:

**F. Chen, S.L. Garrison, J. Gong,  
M.D. Mat and D.P. Mishra**



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

**ScienceDirect**

**Regular Articles****Hydrogen Economy**

- J. ANDRÉ, S. AURAY, D. DE WOLF, M.-M. MEMMAH and A. SIMONNET 10323 Time development of new hydrogen transmission pipeline networks for France

**Electrolysis/Electrolyzers**

- C. RUAN, K. XIE, L. YANG, B. DING and Y. WU 10338 Efficient carbon dioxide electrolysis in a symmetric solid oxide electrolyzer based on nanocatalyst-loaded chromate electrodes
- K. CHEN, N. AI and S.P. JIANG 10349 Performance and structural stability of  $Gd_{0.2}Ce_{0.8}O_{1.9}$  infiltrated  $La_{0.8}Sr_{0.2}MnO_3$  nano-structured oxygen electrodes of solid oxide electrolysis cells
- Y. LUO, Y. SHI, W. LI, M. NI and N. CAI 10359 Elementary reaction modeling and experimental characterization of solid oxide fuel-assisted steam electrolysis cells

**Electrodes**

- B. WANG, L. ZHAO, C. CAI and S. WANG 10374 Effects of surface coating with polyaniline on electrochemical properties of La–Mg–Ni-based electrode alloys

**Chemical/Thermochemical Hydrogen**

- A. EDRISI, Z. MANSOORI, B. DABIR and A. SHAHNAZARI 10380 Hydrogen, nitrogen and carbon dioxide production through chemical looping using iron-based oxygen carrier – A Green plant for  $H_2$  and  $N_2$  production
- T. WU, F. XU, L.-X. SUN, Z. CAO, H.-L. CHU, Y.-J. SUN, L. WANG, P.-H. CHEN, J. CHEN, Y. PANG, Y.-J. ZOU, S.-J. QIU, C.-L. XIANG and H.-Z. ZHANG 10392 Al– $Li_3AlH_6$ : A novel composite with high activity for hydrogen generation

**Ammonia Decomposition**

- D. VARISLI and E.E. ELVERISLI 10399 Synthesizing hydrogen from ammonia over Ru incorporated  $SiO_2$  type nanocomposite catalysts

**Bio Hydrogen**

- C. YAN, H. HAI, C. GUO, W. LI, S. HUANG and H. CHEN 10409 Hydrogen production by steam reforming of dimethyl ether and CO-PrOx in a metal foam micro-reactor
- S.K. AINALA, E. SEOL, B.S. SEKAR and S. PARK 10417 Improvement of carbon monoxide-dependent hydrogen production activity in *Citrobacter amalonaticus* Y19 by over-expressing the CO-sensing transcriptional activator, CooA

*Contents continued on inside back cover*

Indexed/Abstracted in: *Chemical Abstracts (Online)*, *Chemical Engineering and Biotechnology Abstracts (Online)*, *Chimica*, *Compendex*, *Currents Abstracts*, *Current Contents*, *EnCompassLit*, *Energy & Power Source*, *Engineering Index*, *Environment Complete*, *Environment Index*, *International Building Services Abstracts*, *Inspec*, *PubMed*, *Referativnyi Zhurnal*, *Russian Academy of Sciences Bibliographies*, *Science Citation Index Expanded*, *TEMA-Technology and Management*, *Web of Science*. Also covered in the abstract and citation database SCOPUS®. Full text available on ScienceDirect®.

ISSN 0360-3199



ELSEVIER



0360-3199(20140703)39:20;1-2

- B.H. Jo, J.Y.H. KIM, J.H. SEO and H.J. CHA 10426 Oxygen-dependent enhancement of hydrogen production by engineering bacterial hemoglobin in *Escherichia coli*
- S. GAO, S. HUANG, Q. DUAN, J. HOU, D. JIANG, Q. LIANG and J. ZHAO 10434 Iron-iron hydrogenase active subunit covalently linking to organic chromophore for light-driven hydrogen evolution
- Steam Reforming**
- S.J. HAN, Y. BANG, J. YOO, S. PARK, K.H. KANG, J.H. CHOI, J.H. SONG and I.K. SONG 10445 Hydrogen production by steam reforming of ethanol over P123-assisted mesoporous Ni-Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> xerogel catalysts
- F. LIU, L. ZHAO, H. WANG, X. BAI and Y. LIU 10454 Study on the preparation of Ni-La-Ce oxide catalyst for steam reforming of ethanol
- Catalysts/Electrocatalysts**
- X. YU, P. XU, T. HUA, A. HAN, X. LIU, H. WU and P. DU 10467 Multi-walled carbon nanotubes supported porous nickel oxide as noble metal-free electrocatalysts for efficient water oxidation
- N. SAHINER and A.O. YASAR 10476 Monodispersed p(2-VP) and p(2-VP-co-4-VP) particle preparation and their use as template for metal nanoparticle and as catalyst for H<sub>2</sub> production from NaBH<sub>4</sub> and NH<sub>3</sub>BH<sub>3</sub> hydrolysis
- Y. ULLAL and A.C. HEGDE 10485 Electrodeposition and electro-catalytic study of nanocrystalline Ni-Fe alloy
- K. KIM, J. SON and J.-I. HAN 10493 Metal sulfides as anode catalysts in direct alkaline sulfide fuel cell
- Gasification**
- A. HELMI, F. GALLUCCI and M. VAN SINT ANNALAND 10498 Resource scarcity in palladium membrane applications for carbon capture in integrated gasification combined cycle units
- C.-C. CORMOS 10507 Economic implications of pre- and post-combustion calcium looping configurations applied to gasification power plants
- Absorption/Desorption**
- E.M. BORZONE, M.V. BLANCO, G.O. MEYER and A. BARUJ 10517 Cycling performance and hydriding kinetics of LaNi<sub>5</sub> and LaNi<sub>4.73</sub>Sn<sub>0.27</sub> alloys in the presence of CO
- A. EL-KHARBACHI, J. CHÊNE, S. GARCIA-ARGOTE, L. MARCHETTI, F. MARTIN, F. MISERQUE, D. VREL, M. REDOLFI, V. MALARD, C. GRISOLIA and B. ROUSSEAU 10525 Tritium absorption/desorption in ITER-like tungsten particles
- Storage**
- K.L. LIM, Y. LIU, Q.-A. ZHANG and S.L.I. CHAN 10537 Effects of partial substitutions of cerium and aluminum on the hydrogenation properties of La<sub>(0.65-x)</sub>Ce<sub>x</sub>Ca<sub>1.03</sub>Mg<sub>1.32</sub>Ni<sub>(9-y)</sub>Al<sub>y</sub> alloy
- H. KIM, K. SAKAKI, I. SAITA, H. ENOKI, K. NOGUCHI, A. MACHIDA, T. WATANUKI and Y. NAKAMURA 10546 Reduction and unusual recovery in the reversible hydrogen storage capacity of V<sub>1-x</sub>Ti<sub>x</sub> during hydrogen cycling
- Y. LIU, H. WANG, A.K. PRASAD and S.G. ADVANI 10552 Role of heat pipes in improving the hydrogen charging rate in a metal hydride storage tank
- G. PETITPAS, P. BÉNARD, L.E. KLEBANOFF, J. XIAO and S. ACEVES 10564 A comparative analysis of the cryo-compression and cryo-adsorption hydrogen storage methods
- R.A. VARIN, R. PARVIZ, M. POLANSKI and Z.S. WRONSKI 10585 The effect of milling energy input and molar ratio on the dehydrogenation and thermal conductivity of the (LiNH<sub>2</sub> + nMgH<sub>2</sub>) (n = 0.5, 0.7, 0.9, 1.0, 1.5 and 2.0) nanocomposites
- H. KWON, J. KIM, S.-W. CHO, J.-H. YOO, K.-M. ROH and W. KIM 10600 The effect of Sc addition on the hydrogen storage capacity of Ti<sub>0.32</sub>Cr<sub>0.43</sub>V<sub>0.25</sub> alloy

*Contents continued from inside back cover*

- Q. HU, H. WANG, Q. WU, X. YE, A. ZHOU, 10606 Two-dimensional  $\text{Sc}_2\text{C}$ : A reversible and high-capacity hydrogen storage material predicted by first-principles calculations  
D. SUN, L. WANG, B. LIU and J. HE
- PE Fuel Cells**
- C. CADET, S. JEMEÏ, F. DRUART and 10613 Diagnostic tools for PEMFCs: from conception to implementation  
D. HISSEL
- D. BEZMALINOVIĆ, S. STRAHL, V. RODA 10627 Water transport study in a high temperature proton exchange membrane fuel cell stack  
and A. HUSAR
- N. BIZON 10641 Improving the PEMFC energy efficiency by optimizing the fueling rates based on extremum seeking algorithm
- E.E. KAHVECI and I. TAYMAZ 10655 Experimental investigation on water and heat management in a PEM fuel cell using response surface methodology
- J. KIM and Y. TAK 10664 Implementation of discrete wavelet transform-based discrimination and state-of-health diagnosis for a polymer electrolyte membrane fuel cell
- J. PARK and K. MIN 10683 Dynamic modeling of a high-temperature proton exchange membrane fuel cell with a fuel processor
- M. SHAHRAEENI and M. HOORFAR 10697 Pore-network modeling of liquid water flow in gas diffusion layers of proton exchange membrane fuel cells
- SO Fuel Cells**
- Q. ZHOU, Y. SHI, T. WEI, Z. LI, D. AN, 10710 Novel  $\text{YBaCo}_{3.2}\text{Ga}_{0.8}\text{O}_{7.48}$  as a cathode material and performance optimization for IT-SOFCs  
J. HU, W. ZHAO, W. ZHANG, Z. JI and J. WANG
- Fuel Cells - General**
- H. HU, Q. LIN, Z. ZHU, X. LIU and 10718 Time-dependent performance change of single layer fuel cell with  
B. ZHU  $\text{Li}_{0.4}\text{Mg}_{0.3}\text{Zn}_{0.3}\text{O}/\text{Ce}_{0.8}\text{Sm}_{0.2}\text{O}_{2-\delta}$  composite
- A. MEHDINIA, E. ZIAEI and A. JABBARI 10724 Facile microwave-assisted synthesized reduced graphene oxide/tin oxide nanocomposite and using as anode material of microbial fuel cell to improve power generation
- Aerospace Applications**
- D. CECERE, E. GIACOMAZZI and 10731 A review on hydrogen industrial aerospace applications  
A. INGENITO
- N.N. SMIRNOV, V.B. BETELIN, 10748 Hydrogen fuel rocket engines simulation using LOGOS code  
R.M. SHAGALIEV, V.F. NIKITIN,  
I.M. BELYAKOV, Y.N. DERYUGUIN,  
S.V. AKSENOV and D.A. KORCHAZHKIN
- Transportation**
- B.L. CASOLARI, M.A. ELLINGTON, 10757 Model study of a fuel cell range extender for a neighborhood electric vehicle (NEV)  
J.M. OROS, P. SCHUTTINGER,  
C.J. RADLEY, K.A. KILEY and  
L.E. KLEBANOFF
- Combustion**
- V. MOLKOV, V. SHENTSOV, S. BRENNAN 10788 Hydrogen non-premixed combustion in enclosure with one vent and sustained release: Numerical experiments  
and D. MAKAROV