

Volume 38

Issue 13

1 May 2013

ISSN 0360-3199



ELSEVIER

International Journal of **HYDROGEN ENERGY**

Editor-in-Chief:

Emre A. Veziroğlu

Senior Associate Editor:

J.W. Sheffield

Associate Editors:

**A. Basile, M.B. Goresek,
E.C. Kumbur, M.M. Mench,
and N.Z. Muradov**

Assistant Editors:

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

includes SPECIAL SECTION

**5th Iranian Fuel Cell Seminar,
15-16 February 2012, Tarbiat Modares
University, Tehran, Iran**

Guest Editors: Hussein Gharibi, Niloufar Bahrami Panah and Sohaila Javadian Farzaneh

Available online at www.sciencedirect.com

SciVerse ScienceDirect

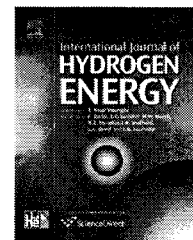




ELSEVIER

Available online at www.sciencedirect.com

SciVerse ScienceDirect



International Journal of Hydrogen Energy 38 (2013) v–vii

www.elsevier.com/locate/ijhydene

Contents

Regular Articles

Hydrogen Economy Implementation

- P. AGNOLUCCI and W. MCDOWALL 5181 Designing future hydrogen infrastructure: Insights from analysis at different spatial scales
- C.H. ZHENG, N.W. KIM, Y.I. PARK, W.S. LIM, S.W. CHA and G.Q. XU 5192 The effect of battery temperature on total fuel consumption of fuel cell hybrid vehicles
- B. PROPFE, D. KREYENBERG, J. WIND and S. SCHMID 5201 Market penetration analysis of electric vehicles in the German passenger car market towards 2030

Solar Hydrogen

- Y. LIN, Z. JIANG, C. ZHU, X. HU, H. ZHU, X. ZHANG, J. FAN and S.H. LIN 5209 The optical absorption and hydrogen production by water splitting of (Si,Fe)-codoped anatase TiO₂ photocatalyst

Bio Hydrogen

- H.J. ALVES, C. BLEY JUNIOR, R.R. NIKLEVICZ, E.P. FRIGO, M.S. FRIGO and C.H. COIMBRA-ARAÚJO 5215 Overview of hydrogen production technologies from biogas and the applications in fuel cells
- T.-Y. MUN, J.-W. KIM and J.-S. KIM 5226 Air gasification of dried sewage sludge in a two-stage gasifier: Part 1. The effects and reusability of additives on the removal of tar and hydrogen production
- T.-Y. MUN and J.-S. KIM 5235 Air gasification of dried sewage sludge in a two-stage gasifier. Part 2: Calcined dolomite as a bed material and effect of moisture content of dried sewage sludge for the hydrogen production and tar removal
- M.M. KHAN, J. LEE and M.H. CHO 5243 Electrochemically active biofilm mediated bio-hydrogen production catalyzed by positively charged gold nanoparticles

Catalysts/Electrocatalysts

- Q. ZHAO, Z. YU, W. YUAN and J. LI 5251 Metal-C₇ oxygen-evolving catalysts generated in situ in a mild H₂O/CO₂ environment
- N.-S. PAI, P.-S. CHANG and S.-K. YEN 5259 Platinum/vivianite bifunction catalysts for DMFC

Methane Hydrogen

- W.-H. CHEN, H.-J. LIOU and C.I. HUNG 5270 Kinetics development and numerical simulation of methane thermocatalytic decomposition at the early stage and steady state

Origin of Hydrocarbons

- A. BORETTI and S. CASTELLETTO 5285 Novel hypotheses for the genesis of hydrocarbon fuels from carbon and hydrogen

Storage

- P.K. SELVAM, P. MUTHUKUMAR, M. LINDER, R. MERTZ and R. KULENOVIC 5288 Measurement of thermochemical properties of some metal hydrides – Titanium (Ti), misch metal (Mm) and lanthanum (La) based alloys

- Y. LIU, J. ZOU, X. ZENG, X. WU, H. TIAN, W. DING, J. WANG and A. WALTER 5302 Study on hydrogen storage properties of Mg nanoparticles confined in carbon aerogels
- Z.G. ZHANG, H. WANG, J.W. LIU and M. ZHU 5309 Synthesis and hydrogen storage characteristics of Mg–B–H compounds by a gas–solid reaction
- K. IWASE and K. MORI 5316 Crystal structure and hydrogen storage property of Nd₂Ni₇ superlattice alloy

Portable Hydrogen

- F. YUAN, X. CHEN, Q. GU, Z. TANG and X. YU 5322 Synthesis of ammine dual-metal (V, Mg) borohydrides with enhanced dehydrogenation properties
- Z.-H. LU, J. LI, A. ZHU, Q. YAO, W. HUANG, R. ZHOU, R. ZHOU and X. CHEN 5330 Catalytic hydrolysis of ammonia borane via magnetically recyclable copper iron nanoparticles for chemical hydrogen storage

Purification

- S. ZHOU, X. ZOU, F. SUN, H. REN, J. LIU, F. ZHANG, N. ZHAO and G. ZHU 5338 Development of hydrogen-selective CAU-1 MOF membranes for hydrogen purification by ‘dual-metal-source’ approach

PE Fuel Cells

- R.C. NETO, J.C. TEIXEIRA and J.L.T. AZEVEDO 5348 Thermal and electrical experimental characterisation of a 1 kW PEM fuel cell stack
- B.E. McNEALY and J.L. HERTZ 5357 Numerical modeling of a non-flooding hybrid polymer electrolyte fuel cell

Fuel Cells - General

- X. XU, W. ZHOU, F. LIANG and Z. ZHU 5367 Optimization of a direct carbon fuel cell for operation below 700 °C
- X. ZHU, D. DING, Y. LI, Z. LÜ, W. SU and L. ZHEN 5375 Development of La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-δ} cathode with an improved stability via La_{0.8}Sr_{0.2}MnO₃-film impregnation
- U. KARRA, E. TROOP, M. CURTIS, K. SCHEIBLE, C. TENAGLIER, N. PATEL and B. LI 5383 Performance of plug flow microbial fuel cell (PF-MFC) and complete mixing microbial fuel cell (CM-MFC) for wastewater treatment and power generation

Power Plants

- D. WANG, S. CHEN, C. XU and W. XIANG 5389 Energy and exergy analysis of a new hydrogen-fueled power plant based on calcium looping process

Combustion

- M. EMADI, D. KARKOW, A. MELENDEZ and A. RATNER 5401 Parameter variations and the effects of hydrogen: An experimental investigation in a lean premixed low swirl combustor

News & Views

- D. DAS 5410 International Conference on Algal Biorefinery: A potential source of food, feed, biochemicals, biofuels and biofertilizers (ICAB 2013)

Special Section Papers

5th Iranian Fuel Cell Seminar, 15-16 February 2012, Tarbiat Modares University, Tehran, Iran

Guest Editors: Hussein Gharibi, Niloufar Bahrami Panah and Sohaila Javadian Farzaneh

- H. GHARIBI 5418 Foreword by the Guest Editor
- M. ZHIANI, J. JALILI, B. REZAEI and M.M. TAGHIABADI 5419 Methanol electrooxidation on synthesized PtRu nanocatalyst supported on acetylene black in half cell and in direct methanol fuel cell
- B. HABIBI and E. DADASHPOUR 5425 Carbon-ceramic supported bimetallic Pt–Ni nanoparticles as an electrocatalyst for electrooxidation of methanol and ethanol in acidic media

- M. ZHIANI, H. ROSTAMI, S. MAJIDI and K. KARAMI 5435 Bis (dibenzylidene acetone) palladium (0) catalyst for glycerol oxidation in half cell and in alkaline direct glycerol fuel cell
- E. HABIBI and H. RAZMI 5442 Kinetics of direct ethanol fuel cell based on Pt-PoPD nano particle anode catalyst
- M.G. HOSSEINI and M. ABDOLMALEKI 5449 Synthesis and characterization of porous nanostructured Ni/PdNi electrode towards electrooxidation of borohydride
- R. OJANI, J.-B. RAOOF, Y. AHMADY-KHANGHAH and S. SAFSHEKAN 5457 Copper-poly (2-aminodiphenylamine) composite as catalyst for electrocatalytic oxidation of formaldehyde in alkaline media
- B. HABIBI 5464 Aluminum supported palladium nanoparticles: Preparation, characterization and application for formic acid electrooxidation
- P. SALARIZADEH, M. JAVANBAKHT, M. ABDOLLAHI and L. NAJI 5473 Preparation, characterization and properties of proton exchange nanocomposite membranes based on poly(vinyl alcohol) and poly(sulfonic acid)-grafted silica nanoparticles
- M. GHASEMI, W.R. WAN DAUD, M. ISMAIL, M. RAHIMNEJAD, A.F. ISMAIL, J.X. LEONG, M. MISKAN and K. BEN LIEW 5480 Effect of pre-treatment and biofouling of proton exchange membrane on microbial fuel cell performance
- H. HEIDARY and M.J. KERMANI 5485 Performance enhancement of fuel cells using bipolar plate duct indentations