



Volume 38

Issue 7

7 March 2013

ISSN 0360-3199

International Journal of **HYDROGEN ENERGY**

Editor-in-Chief: **Emre A. Veziroğlu**

Associate Editors: **A. Basile, M.B. Gorensek,
E.C. Kumbur, M.M. Mench,
N.Z. Muradov and J.W. Sheffield**

Assistant Editors: **J. Gong, M.D. Mat and D.P. Mishra**



Available online at www.sciencedirect.com

SciVerse ScienceDirect

Regular Articles**Hydrogen Economy**

- L. ZHOU, Z. LIAO, J. WANG, B. JIANG, Y. YANG and D. HUI 2937 Optimal design of sustainable hydrogen networks

Electrolysis/Electrolyzers

- E. RIBOT-LLOBET, J.-Y. NAM, J.C. TOKASH, A. GUIASOLA and B.E. LOGAN 2951 Assessment of four different cathode materials at different initial pHs using unbuffered catholytes in microbial electrolysis cells
- F. PETIPAS, Q. FU, A. BRISSE and C. BOUALLOU 2957 Transient operation of a solid oxide electrolysis cell

Chemical Hydrogen

- Y. ZHANG, X. XIAO, Y. CAO, Y. CAI and J. WANG 2965 NH₃/Ir(100): Electronic structure and dehydrogenation

- L.Z. OUYANG, J.M. HUANG, H. WANG, Y.J. WEN, Q.A. ZHANG, D.L. SUN and M. ZHU 2973 Excellent hydrolysis performances of Mg₃RE hydrides

Solar Hydrogen

- C. FÀBREGA, T. ANDREU, A. TARANCÓN, C. FLOX, A. MORATA, L. CALVO-BARRIO and J.R. MORANTE 2979 Optimization of surface charge transfer processes on rutile TiO₂ nanorods photoanodes for water splitting

Bio Hydrogen

- L.R.V. DE SÁ, M.C. CAMMAROTA, T.C. DE OLIVEIRA, E.M.M. OLIVEIRA, A. MATOS and V.S. FERREIRA-LEITÃO 2986 Pentoses, hexoses and glycerin as substrates for biohydrogen production: An approach for Brazilian biofuel integration

- K. SYBIRNA, P. EZANNO, C. BAFFERT, C. LÉGER and H. BOTTIN 2998 Arginine¹⁷¹ of *Chlamydomonas reinhardtii* [Fe–Fe] hydrogenase HydA1 plays a crucial role in electron transfer to its catalytic center

Steam Reforming/Dry Reforming

- K. OSHIMA, T. SHINAGAWA, M. HARAGUCHI and Y. SEKINE 3003 Low temperature hydrogen production by catalytic steam reforming of methane in an electric field

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



0360-3199(20130307)38:7;1-Y

- R. ZANGANEH, M. REZAEI and A. ZAMANIYAN 3012 Dry reforming of methane to synthesis gas on NiO–MgO nanocrystalline solid solution catalysts

Storage

- M. SULIC, M. CAI and S. KUMAR 3019 Controlled degradation of highly compacted sodium alanate pellets
- S.-I. TOWATA, T. NORITAKE, A. ITOH, M. AOKI and K. MIWA 3024 Effect of partial niobium and iron substitution on short-term cycle durability of hydrogen storage Ti–Cr–V alloys
- V. KNOTEK and D. VOJTEČH 3030 Electrochemical hydriding of Mg–Ni–Mm (Mm = mischmetal) alloys as an effective method for hydrogen storage
- D. SEN, R. THAPA and K.K. CHATTOPADHYAY 3041 Small Pd cluster adsorbed double vacancy defect graphene sheet for hydrogen storage: A first-principles study

SO Fuel Cells

- L.-L. PÄDE, S.T. SCHRÖDER, M. MÜNSTER, C. BIRKL, S. ROPENUS, P.E. MORTHORST, E. OBÉ, E. KÖTTER, A. HUBER, A. COSTA and P. KROFF 3050 Policy schemes, operational strategies and system integration of residential co-generation fuel cells
- Y. HU, Y. BOUFFANais, L. ALMAR, A. MORATA, A. TARANCON and G. DEZANNEAU 3064 $\text{La}_{2-x}\text{Sr}_x\text{CoO}_{4-\delta}$ ($x = 0.9, 1.0, 1.1$) Ruddlesden-Popper-type layered cobaltites as cathode materials for IT-SOFC application
- A.A. REDDY, D.U. TULYAGANOV, M.J. PASCUAL, V.V. KHARTON, E.V. TSIPIS, V.A. KOLOTYGIN and J.M.F. FERREIRA 3073 Diopside–Ba disilicate glass–ceramic sealants for SOFCs: Enhanced adhesion and thermal stability by Sr for Ca substitution

Membranes/Separation

- V. GIL, J. GURAUŠKIS, C. KJØLSETH, K. WIIK and M.-A. EINARSrud 3087 Hydrogen permeation in asymmetric $\text{La}_{28-x}\text{W}_{4+x}\text{O}_{54+3x/2}$ membranes
- T.-H. WENG, H.-H. TSENG, G.-L. ZHUANG and M.-Y. WEY 3092 Development of CMS/ Al_2O_3 -supported PPO composite membrane for hydrogen separation
- J. CARPIO, I. IGLESIAS, M. VERA, A.L. SÁNCHEZ and A. LIÑÁN 3105 Critical radius for hot-jet ignition of hydrogen–air mixtures

Combustion