

Volume 39

Issue 35

3 December 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**

includes SPECIAL SECTION

5th International Conference on Hydrogen Safety (ICHS 2013)

Guest Editors: Marco Carcassi, Jennifer Wen, Geoff Chamberlain, Sergey Dorofeev

**Proceedings of the International Conference on
Hydrogen Production (ICH2P-2014)**

Guest Editors: Tatsumi Ishihara, Shintaro Ida, Hidehisa Hagiwara,
Takaaki Sakai, Masahiro Kishida

Available online at www.sciencedirect.com

ScienceDirect



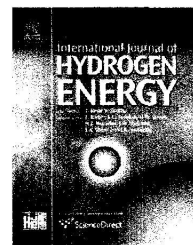


ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

International Journal of Hydrogen Energy 39 (2014) v–xi



www.elsevier.com/locate/ijhydene

Contents

Regular Articles

Electrolysis / Electrolyzers

- D. SCAMMAN, H. BUSTAMANTE, S. HALLETT and M. NEWBOROUGH 19855 Off-grid solar-hydrogen generation by passive electrolysis
- L. AN, T.S. ZHAO, Z.H. CHAI, P. TAN and L. ZENG 19869 Mathematical modeling of an anion-exchange membrane water electrolyzer for hydrogen production

Solar Hydrogen

- H. LI and X. CUI 19877 A hydrothermal route for constructing reduced graphene oxide/TiO₂ nanocomposites: Enhanced photocatalytic activity for hydrogen evolution
- G. RAMOS-SANCHEZ, M. ALBORNOZ, Y.-H. YU, Z. CHENG, V. VASIRAJU, S. VADDIRAJU, F. EL MELLOUHI and P.B. BALBUENA 19887 Organic molecule-functionalized Zn₃P₂ nanowires for photochemical H₂ production: DFT and experimental analyses

Bio Hydrogen

- A.R. LARA-VÁZQUEZ, A. SÁNCHEZ and I. VALDEZ-VAZQUEZ 19899 Hydration treatments increase the biodegradability of native wheat straw for hydrogen production by a microbial consortium
- S.A. CHATTANATHAN, S. ADHIKARI, M. McVEY and O. FASINA 19905 Hydrogen production from biogas reforming and the effect of H₂S on CH₄ conversion
- R. SUN, D. XING, J. JIA, Q. LIU, A. ZHOU, S. BAI and N. REN 19912 Optimization of high-solid waste activated sludge concentration for hydrogen production in microbial electrolysis cells and microbial community diversity analysis
- N. NASR, M. GUPTA, E. ELBESHISHY, H. HAFEZ, M.H. EL NAGGAR and G. NAKHLA 19921 Biohydrogen production from pretreated corn cobs
- D. AN, Q. LI, X. WANG, H. YANG and L. GUO 19928 Characterization on hydrogen production performance of a newly isolated *Clostridium beijerinckii* YA001 using xylose
- N. YUNUS, J.M. JAHIM, N. ANUAR, S.R.S. ABDULLAH and N.T. KOFLI 19937 Batch fermentative hydrogen production utilising *sago* (*Metroxylon* sp.) starch processing effluent by enriched *sago* sludge consortia
- M. GONG, W. ZHU, H.W. ZHANG, Q. MA, Y. SU and Y.J. FAN 19947 Influence of NaOH and Ni catalysts on hydrogen production from the supercritical water gasification of dewatered sewage sludge
- R. XIAO, S. ZHANG, S. PENG, D. SHEN and K. LIU 19955 Use of heavy fraction of bio-oil as fuel for hydrogen production in iron-based chemical looping process

Methanol Hydrogen

- P. RIBEIRINHA, M. BOAVENTURA, J.C.B. LOPES, J.M. SOUSA and A. MENDES 19970 Study of different designs of methanol steam reformers: Experiment and modeling

Catalysts / Electrocatalysts

- Y. FAN, X. LI, X. HE, C. ZENG, G. FAN, Q. LIU and D. TANG 19982 Effective hydrolysis of ammonia borane catalyzed by ruthenium nanoparticles immobilized on graphitic carbon nitride

Methane Hydrogen

- S. LU, L. CHEN, C. DU, X. SUN, X. LI and J. YAN 19990 Experimental study of hydrogen production from reforming of methane and ammonia assisted by Laval nozzle arc discharge

Storage

- U. ULMER, K. ASANO, T. BERGFELDT, V.S.K. CHAKRAVADHANULA, R. DITTMAYER, H. ENOKI, C. KÜBEL, Y. NAKAMURA, A. POHL and M. FICHTNER 20000 Effect of oxygen on the microstructure and hydrogen storage properties of V–Ti–Cr–Fe quaternary solid solutions
- H. KANG and S.Y. KIM 20009 Thermal design analysis of a 1 L cryogenic liquid hydrogen tank for an unmanned aerial vehicle
- Y. HAN, Y. MENG, H. ZHU, Z. JIANG, Y. LEI, B. SUO, Y. LIN and Z. WEN 20017 First-principles predictions of potential hydrogen storage materials: Novel sandwich-type ethylene dimetallocene complexes
- W. WEGNER, T. JAROŃ and W. GROCHALA 20024 Polymorphism and hydrogen discharge from holmium borohydride, $\text{Ho}(\text{BH}_4)_3$, and $\text{KHo}(\text{BH}_4)_4$
- L. HU, B. ZHENG, Z. LAI and K.-W. HUANG 20031 Room temperature hydrogen generation from hydrolysis of ammonia–borane over an efficient NiAgPd/C catalyst
- C.-Y. TAN and W.-T. TSAI 20038 Effects of TiCl_3 -decorated MWCNTs addition on the dehydrogenation behavior and stability of LiAlH_4
- D. PUKAZHSELVAN, G. CAPURSO, A. MADDALENA, S. LO RUSSO and D.P. FAGG 20045 Hydrogen storage characteristics of magnesium impregnated on the porous channels of activated charcoal scaffold

Hydrogen Isotypes

- E.A. HODILLE, L.B. BEGRAMBEKOV, J.Y. PASCAL, O. SAIDI, J.M. LAYET, B. PÉGOURIÉ and C. GRISOLIA 20054 Hydrogen trapping in carbon film: From laboratories studies to tokamak applications
- X.S. ZHOU, Q. LIU, L. ZHANG, S.M. PENG, X.G. LONG, W. DING, G.J. CHENG, W.D. WANG, J.H. LIANG and Y.Q. FU 20062 Effects of tritium content on lattice parameter, ^3He retention, and structural evolution during aging of titanium tritide

Purification / Membranes / Separation

- A. SHIGAROV, V. KIRILLOV and I. LANDGRAF 20072 Computational study of Pd-membrane CH_4 steam reformer with fixed catalyst bed: Searching for a way to increase membrane efficiency
- C.D. FISCHER and O.A. IRIBARREN 20094 Hydrogen recovery from the purge stream of a cyclohexane production process using a mass exchange heuristic

PE Fuel Cells

- D.G. LI, J.D. WANG and D.R. CHEN 20105 Influence of pH value on the structure and electronic property of the passive film on 316L SS in the simulated cathodic environment of proton exchange membrane fuel cell (PEMFC)
- G. MOUSA, J. DEVAAL and F. GOLNARAGHI 20116 Diagnosis of hydrogen crossover and emission in proton exchange membrane fuel cells
- E.H. REDDY, S. JAYANTI and D.S. MONDER 20127 Thermal management of high temperature polymer electrolyte membrane fuel cell stacks in the power range of 1–10 kWe
- D.K. KIM, J.H. SEO, S. KIM, M.K. LEE, K.Y. NAM, H.H. SONG and M.S. KIM 20139 Efficiency improvement of a PEMFC system by applying a turbocharger

DM / DE Fuel Cells

- C.S. SHARMA, A.S.K. SINHA and R.N. SINGH 20151 Use of graphene-supported manganite nano-composites for methanol electrooxidation

Fuel Cells – General

- D. KASHYAP, P.K. DWIVEDI, J.K. PANDEY, Y.H. KIM, G.M. KIM, A. SHARMA and S. GOEL 20159 Application of electrochemical impedance spectroscopy in bio-fuel cell characterization: A review
- S. XU, Z. LI, Y. JI, S. WANG, X. YIN and Y. WANG 20171 A novel cathode catalyst for aluminum-air fuel cells: Activity and durability of polytetraphenylporphyrin iron (II) absorbed on carbon black
- C. ORUC and S. GULER 20183 Effect of Au, Ag and Cu thin films' thickness on the electrical parameters of metal-porous silicon direct hydrogen fuel cell
- L. WANG, Q. LUO, W. ZHANG and J. YANG 20190 Transition metal atom embedded graphene for capturing CO: A first-principles study

Refueling

- A. ELGOWAINY, K. REDDI, E. SUTHERLAND and F. JOSECK 20197 Tube-trailer consolidation strategy for reducing hydrogen refueling station costs

Combustion

- K. DHARAMSHI and A.K. AGARWAL 20207 Parametric study of a laser ignited hydrogen-air mixture in a constant volume combustion chamber
- H. CARLSSON, R. YU and X.-S. BAI 20216 Direct numerical simulation of lean premixed CH₄/air and H₂/air flames at high Karlovitz numbers
- A. SCHÖNBORN, P. SAYAD and J. KLINGMANN 20233 Influence of precessing vortex core on flame flashback in swirling hydrogen flames
- Y.-C. LIN, P. JANSOHN and K. BOULOUCOS 20242 Turbulent flame speed for hydrogen-rich fuel gases at gas turbine relevant conditions
- T. GARCÍA-ARMINGOL and J. BALLESTER 20255 Influence of fuel composition on chemiluminescence emission in premixed flames of CH₄/CO₂/H₂/CO blends

Environmental Impact / Emissions

- R. SOLTANI, M.A. ROSEN and I. DINCER 20266 Assessment of CO₂ capture options from various points in steam methane reforming for hydrogen production
- M. DEB, A. MAJUMDER, R. BANERJEE, G.R.K. SASTRY and P.K. BOSE 20276 A Taguchi-fuzzy based multi-objective optimization study on the soot-NO_x-BTHE characteristics of an existing CI engine under dual fuel operation with hydrogen

Safety / Sensors

- D.-T. PHAN and G.-S. CHUNG 20294 Reliability of hydrogen sensing based on bimetallic Ni-Pd/graphene composites
- Y. WU, D. HE, S. LI, X. LIU, S. WANG and L. JIANG 20305 Microstructure change and deuterium permeation behavior of the yttrium oxide coating prepared by MOCVD
- P.-C. CHOU, H.-I. CHEN, I.-P. LIU, C.-C. CHEN, J.-K. LIU, C.-J. LAI and W.-C. LIU 20313 Hydrogen sensing characteristics of Pd/SiO₂-nanoparticles (NPs)/AlGaN metal-oxide-semiconductor (MOS) diodes
- G. PETITPAS and S.M. ACEVES 20319 The isentropic expansion energy of compressed and cryogenic hydrogen

Special Section: 5th International Conference on Hydrogen Safety (ICHS 2013)

Guest Editors: Marco Carcassi, Jennifer Wen, Geoff Chamberlain, Sergey Dorofeev

- M.N. CARCASSI 20324 Preface

Release and Dispersion

- D. HEDLEY, S.J. HAWKSWORTH,
W. RATTIGAN, R. BRETNALL and J. ALLEN 20325 Large scale passive ventilation trials of hydrogen
- A.J. RUGGLES and I.W. EKOTO 20331 Experimental investigation of nozzle aspect ratio effects on underexpanded hydrogen jet release characteristics
- Y. TAMURA, M. TAKEUCHI and K. SATO 20339 Effectiveness of a blower in reducing the hazard of hydrogen leaking from a hydrogen-fueled vehicle
- N. SHISHEHGARAN and M. PARASCHIVOIU 20350 CFD based simulation of hydrogen release through elliptical orifices

Risk Management

- S.C. WEINER 20357 Advancing the hydrogen safety knowledge base
- A. AL-SHANINI, A. AHMAD and F. KHAN 20362 Accident modelling and safety measure design of a hydrogen station
- C. JÄKEL, S. KELM, E.-A. REINECKE,
K. VERFONDERN and H.-J. ALLELEIN 20371 Validation strategy for CFD models describing safety-relevant scenarios including LH₂/GH₂ release and the use of passive auto-catalytic recombiners

Ignition

- M. ASAHARA, A. YOKOYAMA, A.K. HAYASHI,
E. YAMADA and N. TSUBOI 20378 Numerical simulation of auto-ignition induced by high-pressure hydrogen release with detailed reaction model: Fluid dynamic effect by diaphragm shape and boundary layer
- W. RUDY, A. DABKOWSKI and
A. TEODORCZYK 20388 Experimental and numerical study on spontaneous ignition of hydrogen and hydrogen-methane jets in air
- J. GRUNE, K. SEMPET, M. KUZNETSOV and
T. JORDAN 20396 Experimental investigation of flame and pressure dynamics after spontaneous ignition in tube geometry
- A.F. AVERILL, J.M. INGRAM, P. BATTERSBY,
P.G. HOLBORN and P.F. NOLAN 20404 Ignition of hydrogen/air mixtures by glancing mechanical impact

Safety H2 Infrastructure

- K. SUN, X. PAN, Z. LI and J. MA 20411 Risk analysis on mobile hydrogen refueling stations in Shanghai
- M. AZUMA, K. OIMATSU, S. OYAMA,
S. KAMIYA, K. IGASHIRA, T. TAKEMURA and
Y. TAKAI 20420 Safety design of compressed hydrogen trailers with composite cylinders

Regulations Codes and Standard (RCS)

- J.O. KELLER, M. GRESHO, A. HARRIS and
A.V. TCHOUVELEV 20426 What is an explosion?
- C. SAN MARCHI, B.P. SOMERDAY and
K.A. NIBUR 20434 Development of methods for evaluating hydrogen compatibility and suitability

FC/Electrolysis Safety

- S.A. GRIGORIEV, K.A. DZHUS,
D.G. BESSARABOV and P. MILLET 20440 Failure of PEM water electrolysis cells: Case study involving anode dissolution and membrane thinning

Confined Spaces

- C.R. BAUWENS and S.B. DOROFEEV 20447 CFD modeling and consequence analysis of an accidental hydrogen release in a large scale facility
- M. SCHIAVETTI, A. MARANGON and
M. CARCASSI 20455 Experimental study of vented hydrogen deflagration with ignition inside and outside the vented volume
- X. ROCOURT, S. AWAMAT, I. SOCHET and
S. JALLAIS 20462 Vented hydrogen-air deflagration in a small enclosed volume
- J.J. KEENAN, D.V. MAKAROV and
V.V. MOLKOV 20467 Rayleigh-Taylor instability: Modelling and effect on coherent deflagrations

Sensors

- T. HÜBERT, L. BOON-BRETT, V. PALMISANO and M.A. BADER 20474 Developments in gas sensor technology for hydrogen safety
- W.J. BUTTNER, R. BURGESS, C. RIVKIN, M.B. POST, L. BOON-BRETT, V. PALMISANO and P. MORETTO 20484 An assessment on the quantification of hydrogen releases through oxygen displacement using oxygen sensors
- V. PALMISANO, L. BOON-BRETT, C. BONATO, F. HASKAMP, W.J. BUTTNER, M.B. POST, R. BURGESS and C. RIVKIN 20491 Evaluation of selectivity of commercial hydrogen sensors
- M.T. BOUDJIET, V. CUISSET, C. PELLET, J. BERTRAND and I. DUFOR 20497 Preliminary results of the feasibility of hydrogen detection by the use of uncoated silicon microcantilever-based sensors

Vented Deflagrations

- B.P. XU and J.X. WEN 20503 The effect of tube internal geometry on the propensity to spontaneous ignition in pressurized hydrogen release
- C.R. BAUWENS and S.B. DOROFEEV 20509 Effect of initial turbulence on vented explosion overpressures from lean hydrogen–air deflagrations

Storage Safety

- B.J. LOWESMITH, G. HANKINSON and S. CHYNOWETH 20516 Safety issues of the liquefaction, storage and transportation of liquid hydrogen: An analysis of incidents and HAZIDS
- G.W. MAIR, M. HOFFMANN, F. SCHERER, A. SCHOPPA and M. SZCZEPANIAK 20522 Slow burst testing of samples as a method for quantification of composite cylinder degradation
- B. ACOSTA, P. MORETTO, N. DE MIGUEL, R. ORTIZ, F. HASKAMP and C. BONATO 20531 JRC reference data from experiments of on-board hydrogen tanks fast filling

Premixed Combustion

- I.C. TOLIAS, A.G. VENETSANOS, N. MARKATOS and C.T. KIRANOUDIS 20538 CFD modeling of hydrogen deflagration in a tunnel

Fires

- J.E. HALL, P. HOOKER and D. WILLOUGHBY 20547 Ignited releases of liquid hydrogen: Safety considerations of thermal and overpressure effects
- A. KESSLER, A. SCHREIBER, C. WASSMER, L. DEIMLING, S. KNAPP, V. WEISER, K. SACHSENHEIMER, G. LANGER and N. EISENREICH 20554 Ignition of hydrogen jet fires from high pressure storage
- C.J. WANG, J.X. WEN, Z.B. CHEN and S. DEMBELE 20560 Predicting radiative characteristics of hydrogen and hydrogen/methane jet fires using FireFOAM
- I.W. EKOTO, A.J. RUGGLES, L.W. CREITZ and J.X. LI 20570 Updated jet flame radiation modeling with buoyancy corrections

H2 Effects on Material

- L. ZHANG, Z. LI, J. ZHENG, Y. ZHAO, P. XU, C. ZHOU, C. ZHOU and X. CHEN 20578 Dependence of hydrogen embrittlement on hydrogen in the surface layer in type 304 stainless steel
- L.A. HUGHES, B.P. SOMERDAY, D.K. BALCH and C. SAN MARCHI 20585 Hydrogen compatibility of austenitic stainless steel tubing and orbital tube welds

Special Section: Proceedings of the International Conference on Hydrogen Production (ICH2P-2014)

Guest Editors: Tatsumi Ishihara, Shintaro Ida, Hidehisa Hagiwara, Takaaki Sakai, Masahiro Kishida

- T. ISHIHARA, S. IDA 20591 ICH2P-2014 Preface

Hydrogen Production

- I. DINCER and G.F. NATERER 20592 Overview of hydrogen production research in the Clean Energy Research Laboratory (CERL) at UOIT
- G.T. YEH, Y.L. KAO, S.Y. YANG, M.H. REI, Y.Y. YAN and P.C. LEE 20614 Low cost compact onsite hydrogen generation
- G. KUMAR, J.-H. PARK, M.-S. KIM, D.-H. KIM and S.-H. KIM 20625 Hydrogen fermentation of different galactose–glucose compositions during various hydraulic retention times (HRTs)
- S. FUKADA, R. SHIMOSHIRAISHI and K. KATAYAMA 20632 Enhancement of hydrogen production rates in reformation process of methane using permeable Ni tube and chemical heat pump
- K. SAGATA, Y. KANEDA, H. YAMAURA, S. KOBAYASHI and H. YAHIRO 20639 Influence of coexisting Al₂O₃ on the activity of copper catalyst for water–gas-shift reaction
- T. KAWADA, H. YAMASHITA, Q. ZHENG and M. MACHIDA 20646 Hydrothermal synthesis of CuV₂O₆ supported on mesoporous SiO₂ as SO₃ decomposition catalysts for solar thermochemical hydrogen production
- M.T. BALTA, I. DINCER and A. HEPBASLI 20652 Performance assessment of solar-driven integrated Mg–Cl cycle for hydrogen production
- Y. CHENG, P.K. SHEN and S.P. JIANG 20662 NiO_x nanoparticles supported on polyethylenimine functionalized CNTs as efficient electrocatalysts for supercapacitor and oxygen evolution reaction
- S. JOTHI, T.N. CROFT and S.G.R. BROWN 20671 Influence of grain boundary misorientation on hydrogen embrittlement in bi-crystal nickel
- J.Y.Z. CHIOU, C.L. LAI, S.-W. YU, H.-H. HUANG, C.-L. CHUANG and C.-B. WANG 20689 Effect of Co, Fe and Rh addition on coke deposition over Ni/Ce_{0.5}Zr_{0.5}O₂ catalysts for steam reforming of ethanol
- S.-W. YU, H.-H. HUANG, C.-W. TANG and C.-B. WANG 20700 The effect of accessible oxygen over Co₃O₄–CeO₂ catalysts on the steam reforming of ethanol
- H.-H. HUANG, S.-W. YU, C.-L. CHUANG and C.-B. WANG 20712 Application of boron-modified nickel catalysts on the steam reforming of ethanol
- J. JI, T.H. PHAM, X. DUAN, G. QIAN, P. LI, X. ZHOU and D. CHEN 20722 Morphology dependence of catalytic properties of Ni nanoparticles at the tips of carbon nanofibers for ammonia decomposition to generate hydrogen
- K. NAGAOKA, T. EBOSHI, N. ABE, S.-I. MIYAHARA, K. HONDA and K. SATO 20731 Influence of basic dopants on the activity of Ru/Pr₆O₁₁ for hydrogen production by ammonia decomposition

Photocatalytic Hydrogen Production

- X. ZHANG, D. CHANDRA, M. KAJITA, H. TAKAHASHI, L. DONG, A. SHOJI, K. SAITO, T. YUI and M. YAGI 20736 Facile and simple fabrication of an efficient nanoporous WO₃ photoanode for visible-light-driven water splitting
- T.A.H. RATLAMWALA and I. DINCER 20744 Experimental study of a hybrid photocatalytic hydrogen production reactor for Cu–Cl cycle
- C.-J. CHANG, Z. LEE and C.-F. WANG 20754 Photocatalytic hydrogen production by stainless steel@ZnS core–shell wire mesh photocatalyst from saltwater
- D.-T. NGUYEN, E.-C. SHIN, D.-C. CHO, K.-W. CHAE and J.-S. LEE 20764 Photoelectrochemical performance of ZnO thin film anodes prepared by solution method
- Y. AMAO, S. TAKAHARA and Y. SAKAI 20771 Visible-light induced hydrogen and formic acid production from biomass and carbon dioxide with enzymatic and artificial photosynthesis system

Fuel Cells

- Y.-W. JU, J. HYODO, A. INOISHI, S. IDA and T. ISHIHARA 20777 Ce(Mn,Fe)O₂ dense film deposited on LaGaO₃ electrolyte for dense anode of solid oxide fuel cells
- A. SUBARDI, M.-H. CHENG and Y.-P. FU 20783 Chemical bulk diffusion and electrochemical properties of SmBa_{0.6}Sr_{0.4}Co₂O_{5+δ} cathode for intermediate solid oxide fuel cells

- A. JUN, T.-H. LIM, J. SHIN and G. KIM 20791 Electrochemical properties of B-site Ni doped layered perovskite cathodes for IT-SOFCs
- M.Z. KHAN, R.-H. SONG, S.-B. LEE, J.-W. LEE, T.-H. LIM and S.-J. PARK 20799 Effect of GDC interlayer on the degradation of solid oxide fuel cell cathode during accelerated current load cycling
- O. GWON, S. YOO, J. SHIN and G. KIM 20806 Optimization of $\text{La}_{1-x}\text{Sr}_x\text{CoO}_{3-\delta}$ perovskite cathodes for intermediate temperature solid oxide fuel cells through the analysis of crystal structure and electrical properties
- C. KIM, J. KIM, J. SHIN and G. KIM 20812 Effects of composite cathode on electrochemical and redox properties for intermediate-temperature solid oxide fuel cells
- J. HONG, H.-J. KIM, S.-Y. PARK, J.-H. LEE, S.-B. PARK, J.-H. LEE, B.-K. KIM, H.-J. JE, J.Y. KIM and K.J. YOON 20819 Electrochemical performance and long-term durability of a 200 W-class solid oxide regenerative fuel cell stack
- Y. OKUYAMA, K. OKUYAMA, Y. MIZUTANI, T. SAKAI, Y.S. LEE and H. MATSUMOTO 20829 Proton transport properties of $\text{La}_{0.9}\text{Sr}_{0.1}\text{Yb}_{0.8}\text{In}_{0.2}\text{O}_{3-\delta}$ and its application to proton ceramic fuel cell
- T. CORRALES-SÁNCHEZ, J. AMPURDANÉS and A. URAKAWA 20837 MoS_2 -based materials as alternative cathode catalyst for PEM electrolysis
- D. KLOTZ, A. LEONIDE, A. WEBER and E. IVERS-TIFFÉE 20844 Electrochemical model for SOFC and SOEC mode predicting performance and efficiency
- J. DRUCE, H. TÉLLEZ, N. SIMRICK, T. ISHIHARA and J. KILNER 20850 Surface composition of solid oxide electrode structures by laterally resolved low energy ion scattering (LEIS)
- H. TÉLLEZ, J. DRUCE, Y.-W. JU, J. KILNER and T. ISHIHARA 20856 Surface chemistry evolution in $\text{LnBaCo}_2\text{O}_{5+\delta}$ double perovskites for oxygen electrodes