



FINAL PROGRAMME
HYPOTHESIS VIII, 1 April 2009, Hotel Corinthia, Lisbon

9.20

Opening Session - Opala Room

T. Ponce de Leão, LNEG President, Portugal
G. Spazzafumo, Series Coordinator, Italy
C. M. Rangel, Chair HYPOTHESIS VIII, Portugal

9.40

Plenary Lecture 21st Century's Energy: Hydrogen Energy Systems, N.Veziroglu, USA Opala Room

Chairpersons C. M. Rangel, G. Spazzafumo

10.20

Coffee break

Parallel Sessions

Opala Room

HW (Hydrogen from Water)

Chairperson M. Anderson, USA

10.40 Neural Network Based Predictive Models for PEM-Electrolyzer Performance, S. Becker, Australia

11.00 Hydrogen Production through Steam Electrolysis, Q. Cai, U.K

11.20 Material Characterization on Solid Oxide Electrolyzers Cells, D. Wiedenmann, Switzerland

11.40 Renewable Energy for Hydrogen Production and Sustainable Urban Mobility, N. Briguglio, Italy

12.00 Building Hydrogen Economy based on Sand and Water, F. Shahrokhi, USA

12.20

13.00

Lunch

Parallel Sessions

Opala Room

NIP1 (National/International Projects)

Chairperson R. Fernandes, Portugal

14.20 Evaluation of Integrated Hydrogen Systems. IEA Task 18, M. Argumosa, Spain

14.40 Optimal Hydrogen Infrastructure Network (H2INET) Design for the Netherlands: The Transition and Beyond, N. Konda, UK

15.00 The Use of Hydrogen to Store Energy in Islands: The Porto Santo Island H2RES System, R. Martins, Portugal

15.20 LUCIS: A Learning Experience to Improve Lifetime and Operating Strategies in Low Power PEM Fuel Cells, R. Barbosa, Portugal

16.00

Coffee break

Parallel Sessions

Opala Room

PEMFC (PEMFC Performance Analysis)

Chairperson C. Sequeira, Portugal

16.20 Hydrogen PEMFC Stack Performance Analysis: a Data-driven Approach, V. Lopes, Portugal

16.40 A Simple Model of an Intermediate Temperature Hydrogen Fuel cell, O. Shamardina, Russia

17.00 Quantification of in situ Temperature Measurements on a Single Cell PBI-based PEM Fuel Cell, S. Talat Ali, Denmark

17.20 A Direct Methanol Fuel Cell Working with Low Methanol Crossover and High Methanol Concentrations, V. Oliveira, Portugal

17.40 Performance Analysis of a 5 kW PEMFC with a Natural Gas Reformer, J. De M. Furtado, Brazil

18.00

18.20

Poster Session I and Welcome Cocktail

Esmeralda Room

H&FP1 (Hydrogen and Fuel Processing)

Chairpersons J.T de Azevedo, Cancela de Abreu, Portugal

Modeling and Design of a Bioethanol Steam Reforming Unit, D. A. Cassiano, Brazil

Theoretical Modeling Approach for the Biogas Steam Reforming Reaction, M. A. Goula, Greece

Promotion of HT-WGS Fe₃O₄/MoO₃ based Catalysts, J. Dufour, Spain

Experimental Investigation and Numerical Simulation of CO to CO₂ Conversion and Hydrogen Production from Water Gas Shift Reaction, G. Cau, Italy

Small Stationary Reformers for H₂ Production from Hydrocarbons, E. Caló, Italy

DME and Bio-ethanol Reforming for MCFC Applications, V. Chiodo, Italy

Esmeralda Room

FCS (Fuel Cell Systems)

Chairperson M. J. Lázaro, Spain

Simulations with HOGA Software and General Description of a Real Hydrogen Isolated Hybrid Renewable Plant, I. Aso, Spain

Design and Development of a 7kW PEMFC Stack for UPS Application, G. Squadrito, Italy

PT-Ru Electrocatalysts Supported on Carbon Xerogels for Direct Methanol Fuel Cells, C. Allegre, Spain

Integration of an Anaerobic Digester and a Solid Oxide Fuel Cell - Sizing Issues, E. Agante, UK

Esmeralda Room

COMB (Combustion)

Chairperson G. Karim, Canada

Experimental Studies on Hydrogen Release and Jet-fire From Low Pressure Pipelines, M. Carcassi, Italy

Basic Tuning of Hydrogen Powered Car and Artificial Intelligent Prediction of Hydrogen Engine Characteristics, Tien Ho, Australia

The Autoignition in Air of Binary Fuel Mixtures Containing Hydrogen, G. Karim, Canada

Reactivity of H₂/air Mixtures Over Hot Metal Surfaces, S. Marengo, Italy

An Experimental Study of a Direct Injection Compression Ignition Hydrogen Engine, J. M. Gomes Antunes, UK

Catalytic Combustion of Lean Hydrogen-methane Mixtures, I. Wierzbna, Canada

HYPOTHESIS VIII, 2 April 2009, Hotel Corinthia, Lisbon

9.00	Plenary Session - Opala Room Plenary Lecture From Metallic to Complex Hydrides , A. Zuttel, Switzerland Chairperson N. Veziroglu, USA	
9.40	Poster session II	
10.20	Coffee break	
	Parallel Sessions	
	Opala Room STO1 (Storage) Chairperson A. Zuttel, Switzerland	Esmeralda Room H&FP2 (Hydrogen and Fuel Processing) Chairperson J. Dufour, Spain
10.40	Study of the Different Zr_xNi_y Phases of AB_2 Materials, A. Visintin, Argentina	Hydrogen Production via Methane Decomposition on Raney-type Catalysts, J. L. Figueiredo, Portugal
11.00	The Effect of C (graphite) Addition on the H_2 Sorption Performances of the Mg-Ni System, C. Milanese, Italy	Structured Reactors as Alternative to Pellets Catalyst for Propane Oxidative Steam Reforming, A. Vita, Italy
11.20	Two-step Processing for Hydrogen Storage Fe Ti Alloys: Influence on Reaction Temperature, J.B. Correia, Portugal	Development of a Numerical Model for Natural Gas Steam Reforming and Coupling with a Furnace Model, C. Ventura, Portugal
11.40	Hydrogen Adsorption over Zeolite-like MOF Materials Modified by Ion Exchange, J.A. Botas, Spain	Hydrogen Production from Dimethyl Ether by the Steam Reforming over Copper Alumina Catalysts Prepared by the Sol-gel Method, K. Takeishi, Japan
12.00	Microscopic Origin of Hydrogen Physisorption and Chemisorption on MOF-5. Shape of the Physisorption Sites, J. Cabria, Spain	The Sotacarbo Coal Gasification Experimental Plant for a CO_2 -free Hydrogen Production, F. Ferrara, Italy
12.20	In situ Monitoring of Hydrogen Storage in Pd Thin Film Systems, R. Delmelle, Belgium	Methane Decomposition using Ni-based Catalyst for Hydrogen Production in a Fluidized Reactor, I. Suelves, Spain
12.40	Hydrogen Storage in Mg-Li Alloys Prepared by Mechanical Alloying, J. G. Cabañas Moreno, Mexico	Development of Distributed Highly-efficient Hydrogen Production System based on Membrane Reformer with CO_2 Capture, Y. Shirasaki, Japan
13.00	Lunch	
	Parallel Sessions	
	Opala Room NIP2 (National/International Projects) Chairperson N. Formiga, Portugal	Esmeralda Room HB (Hydrogen Bio-production) Chairperson A. Pinto, Portugal
14.20	Modelling of Hydrogen-based Energy Transmission and Storage Systems: HyLink System at Totara Valley, P. Sudol, N. Zealand	Optimisation of Hydrogen Production by CO_2 and Biomass in a Solar Reactor, Giovanni Pino, Italy
14.40	Hydrogen Delivery Pathways for Australia, A. Pigneri, N. Zealand	An Operational Strategy to Produce Bio-hydrogen: the Use of Digestate for Process Control, A. Schievano, Italy
15.00	The Preparation of a Portuguese Roadmap, R. Fernandes, Portugal	Continuous Hydrogen Production by <i>R.capsulatus</i> on Acetate in Panel Photobioreactors, I. Eroğlu, Turkey
15.20	The Clean Development Mechanism (CDM) at the World Sugar Sector and its Application Potential in Mexico, J. C. Alarcón, Mexico	Combined Bio-hydrogen- and Methane-Production by Dark Fermentation at Mesophilic Conditions, R. Brunstermann Germany
15.40		Bio-hydrogen Production from Glycerol by a Strain of <i>Enterobacter aerogenes</i> , P. Marques, Portugal
16.00	Coffee break	
	Parallel Sessions	
	Opala Room STO2 (Storage) Chairperson A. Visintin, Argentina	Esmeralda Room LTFC (Low Temperature FC - Catalysis) Chairperson J. L. Figueiredo, Portugal
16.20	Electronic Density of States Induced by a H atom in Mischmetal Bearing Alloys, J. L. Gervasoni, Argentina	Influence of Carbon Nanofiber Properties as Electrocatalyst Support on the Electrochemical Performance for PEM Fuel Cells, D. Sebastian, Spain
16.40	Anomalous Heat Generation During Hydro-genation of Carbon Hydride, T. Mizuno, Japan	Pt Incorporated Hollow Core Mesoporous Shell Carbon Nanocomposite Catalyst for Proton Exchange Membrane Fuel Cells, I. Eroglu, Turkey
17.00	Molecular Beam Monitoring Hydrogen Desorption from Materials, R. Lobo, Portugal	Carbon Supported Pt-based Ternary Catalysts for Oxygen Reduction in PEM Fuel Cells, S. Güneş, Turkey
17.20	Characterization of Waste Magnesium Chip: as a Hydrogen Storage Material, A. Kantürk, Turkey	New Fuel Cell Tubular Architecture and the Effect of Electrokinetic Flows, L. Bambace, Brazil
17.40		Fe and Co-N/C Oxygen Electrodes Prepared from Heat Treatment of Metal Amine Complexes for Alkaline Fuel Cells, P. D. Brito, Portugal

HYPOTHESIS VIII, 3 April 2009, Hotel Corinthia, Lisbon

Plenary Session - Opala Room

9.00 **Plenary Lecture Spanish Hydrogen & Fuel Cell Technology Platform**, J. Brey, Spain
Chairperson I. Eroglu, Turkey

Parallel Sessions

	Opala Room	Esmeralda Room
9.40	HCH1 (Hydrogen from Chemical Hydrides)	H&FP3 (Hydrogen and Fuel Processing)
10.20	Chairperson R. Lobo, Portugal	Chairperson A. Pigneri, New Zealand
09.40	Hydrogen Desorption of LiBH_4 , NaBH_4 and KBH_4 , M. Biemann, Switzerland	Methane Decomposition over Ordered Mesoporous Carbons: a Promising Route for Hydrogen Production, D. P. Serrano, Spain
10.00	Vibrational and Optical Spectroscopy of LiBH_4 , R. Gremaud, Switzerland	Life Cycle Assessment of Hydrogen Produced From Methane Decomposition, J. Dufour, Spain
10.20	NaOH Free Hydrolysis of Sodium Borohydride for Hydrogen Production, A. Pinto, Portugal	Hydrogen Use in an Urban District: Energy and Environmental Comparisons, M. Vellini, Italy
10.40	Development of a Compact Hydrogen Generator from Sodium Borohydride, S. Galli, Italy	ZECOMIX: Performance of Alternative Lay-outs, G. Galeno, Italy
11.00		

Coffee break

Parallel Sessions

	Opala Room	Esmeralda Room
	HCH2 (Hydrogen from Chemical Hydrides)	H&MA (Hydrogen & Mobility Applications)
	Chairperson S. Galli, Italy	Chairperson J. Brey, Spain
11.20	On the Monitoring of the Electrosynthesis of Sodium Borohydride, D. F. Santos, Portugal	Supersonic Hydrogen Tube Vehicle: Speed and Energy Comparisons with Road, Rail, Air and Maglev Transport, A. Miller, USA
11.40	Effect of Alloys Modified by Sodium Borohydride Alkaline Solutions on the Kinetics of Hydrogen Evolution Reaction at $\text{Mm}(\text{Ni}_{3.6}\text{Co}_{0.7}\text{Mn}_{0.4}\text{Al}_{0.3})_{1.15}$ Hydride Electrodes, C. Sequeira, Portugal	Low Carbon Public Transit, P. B. Scott, USA
12.00	Hydrogen Production from Methanol -Water Mixtures of Sodium Borohydride, C. M. Rangel, Portugal	Evaluating Performance and Emissions of Propulsion Systems for Bus Using PAMVEC, S. Almeida, Brazil
12.20	Synthesis of Trimethyl Borate (TMB): as a Starting Material in Production of Sodium Borohydride (NaBH_4) Hydrogen Storage Medium, M. Sarı Yılmaz, Turkey	Hybrid Plug-in Fuel Cell Vehicles Market Penetration Scenarios, C. Silva, Portugal
12.40		

Closing Session

Chairpersons C. M. Rangel, Portugal; N. Veziroglu, USA



Poster Session I, 1 April

NIP (National/International Projects)

- Environmental Impact Assessment of the Penetration of Hydrogen Technologies in Portugal's Road Transport, M. A. Travassos, Portugal
- Modeling and Simulation of the Development in Venezuela of the Hydroelectricity/Hydrogen Energy System, F. Posso, Venezuela
- Analysis of Renewable Hydrogen Production: Case of Algeria, R. Boudries, Algeria

HW (Hydrogen from Water)

- Study of Catalysts for Water Photocatalysis to Increase the Hydrogen Production, A. Nicolini, Italy
- Oxide Electrode Materials for Alkaline Water Electrolysis, A. V. Girão, Portugal
- Electrocatalytic Performances of Fe-P and Modified Fe-P Deposited Materials as Hydrogen Electrodes in Alkaline Water Electrolysis, C. Sequeira, Portugal

HCH (Hydrogen from Chemical Hydrides)

- Hydrogen Storage in non Polar Organic Polymeric Solutions (nPOPS) under Pressure, M. Ferreira, Portugal

LTFC (Low Temperature Fuel Cells (Catalysts))

- Influence of the Support on the Preparation and Performance of Pt Electrocatalysts: Comparison of Catalyst Supported on Different Carbon Materials, L. Calvillo, Spain
- Tubular Anodes with Hidden Catalyst Concept and its Hydrogen Transport in Electrode Base Material, F. Carvalho, Brazil
- Development of a Mischmetal-Based Hydrogen Storage Electrode Alloy as a Fuel Cell Anode Catalyst, Y. Chen, Portugal

PEMFC (PEMFC Performance Analysis)

- Feasibility of a PAFC Cogeneration System Applied to a Brazilian Hospital, S. de Almeida, Brazil
- MEA Degradation and Failure Modes in PEM Fuel Cells, R. A. Silva, Portugal
- Irreversible Degradation Mechanisms in PEM Fuel Cells, R. A. Silva, Portugal
- High Temperature Proton Exchange Membrane Fuel Cells, D. Ergun, Turkey
- Dynamic Behaviour of a PEMFC Fed with Different Fuelling Conditions, A. Perna, Italy
- A Dynamic Model for a PEM FC Power System, M. Minutillo, Italy
- Water Management in PEMFC, D. Falcão, Portugal
- Analysis of a Twin-Screw Supercharger Applied in Fuel Cell Hybrid Electric Vehicles, S. de Almeida, Brazil

FCS (Fuel Cell Systems)

- Innovative Applications of Hydrogen Fuel Cells, F. Shahrokhi, U.S.A
- A Micro Car Fuelled by Pure Hydrogen, G. Galeno, Italy
- Energy Recovery Analysis of a CHP System on a PEM fuel Cell, E. Galloni, Italy
- On the Use of Ultracapacitors within Stand-alone Energy Systems, J. Martins, Portugal
- Hydrogen Energy Power for a Stand-alone Weekend-home Application, C.M. Rangel, Portugal

COMB (Combustion)

- Two Stage Modeling to Estimate Ignition Timing for Tuning of Hydrogen Car, Tien Ho, Australia
- Dynamics of Transient Flammable Hydrogen Plumes Rising from Open Cylindrical Vessels, S. Fardisi, Canada

Poster Session II, 2 April

HB (Hydrogen Bio-Production)

- Microbial Hydrogen Generation of Hydrogen from Waste Glycerol, E. Wicher, Poland
- Biohydrogen Production from the Cyanobacteria *Anabaena* sp. and its Mutants, A. Marques, Portugal
- Solar Hydrogen Project, B. Tamburic, UK

H&FP (Hydrogen and Fuel Processing)

- Application of Hydrogen in Isomerization of Normal Heptane to Multi Branched Isomers as a Promising Substitute for Conventional Gasoline, M. Sohrabi, Iran
- Thermodynamic Analysis of Glycerol Steam Reforming, M. L. Dieuzeide, Argentina
- Hydrogen Production from Methanol Catalytic Reforming, R. Neto, Portugal
- Coal Gasification in the Sotacarbo Coal-to-hydrogen Laboratory-Scale Experimental Plant, A. Pettinau, Italy
- Modeling of a Plate-type Micro Reformer for Methanol Steam Reforming in Portable Fuel Cell Systems, M. Chang, Taiwan
- Hydrogen Production by Ethanol Reforming over Ni/La₂O₃-ZrO₂ Catalysts, E. Assaf, Brazil
- Study of Water-gas-shift Reaction over Cu-Zn-supported Catalysts, E. Assaf, Brazil
- Ni/CeO₂/Al₂O₃ Catalysts to Carbon Dioxide Reforming of Methane Reaction, E. Assaf, Brazil
- Dynamic Modeling and Controllability Analysis of an Ethanol Reformer for Fuel Cell Application, V. Garcia, Spain

- Catalysts for Oxidative Reforming of Methane, T. Silva, Brazil
- Hydrogen Production: Effect of High Temperature Calcination on Dry Reforming, A. Fakeeha, Saudi Arabia
- Experimental study on Unsteady Hydrogen Permeation a Pd Membrane, Wei-Hsin Chen, Taiwan
- Effect of La and Ce Addition in the Precursors Ni/Mg/Al on Ethanol Steam Reforming Reaction, A. Lucrédio, Brazil
- A comparison of Fluidized Bed and Rotary Reactors for Hydrogen Production by Methane Decomposition, J. Pinilla, Spain

STO (Storage)

- A computational Study of the Hydrogen Embrittlement Phenomena in an Iron Nickel Based Alloy, S. Simonetti, Argentina
- Correlation Between the Milling Time and Hydrogen Storage Properties of ZrCrFe Ternary Alloy, A. Jain, India
- Synthesis of Nano-crystalline Zr-M (M=Fe, Cu) Bilayer Films and their Thermodynamics of Hydrogen Uptake by Resistance Measurement, S. Agarwal, India
- Evaluation of the Volume of Solution of Hydrogen in a Mischmetal Bearing Alloy, J. Gervasoni, Argentina
- A General Method for Assessing the rs Jellium Parameter of Rare Earth based Alloys, J. Gervasoni, Argentina
- Dynamic Characteristics of LaNi_{4.3}Al_{0.7} and its Possible Application to Compress Hydrogen, C. Sobrinho, Portugal
- Mg-Ni based Material for Hydrogen Storage Optimized for an Industrial Tank Prototype, A. Colella, Italy

