



Strasbourg (France)

E-MRS 2005 Spring Meeting  
May 31 – June 3, 2005

## **SYMPOSIUM L**

### **Hydrogen and Fuel Cells**

Symposium Organizers :

**Louis Schlapbach**, CEO EMPA, Duebendorf, Switzerland

**Armin Reller**, University of Augsburg, Germany

**Guenther Scherer**, PSI, Villigen, Switzerland

**Andreas Züttel**, University of Fribourg, Switzerland

# E-MRS 2005 Spring Meeting

## SYMPOSIUM L

Tuesday, May 31, 2005  
Mardi 31 mai 2005

Morning  
Matin

### Session I : Hydrogen production and Materials Interaction

Session chair : **L. Schlapbach**

- L-I.01** 9:00 STABILITY IN WATER OF PHOTOELECTRODE MATERIALS OF TUNGSTEN OXIDE (WO<sub>3</sub>)  
A. Duta, A. Enesca, Centre for Sustainable Energy, Transilvania University of Basov, Romania and R. van der Kroel, J. Schoonman, Delft University of Technology, The Netherlands
- L-I.02** 9:20 PREPARATION AND CHARACTERIZATION OF PALLADIUM BASED MEMBRANES INVOLVING CHEMICAL AND ELECTROCHEMICAL DEPOSITION  
A. Petica, L. Anicai, Laboratory of Non-Conventional Engineering, ICPE-Advanced Research, Splaiul Unirii 313, sector 3, 030138 Bucharest, Romania
- L-I.03** 9:40 ONE-STEP ETCH-THROUGH POROUS SILICON MEMBRANE WITH AN OPEN CAVITY AND TUNING THE PORE SIZE  
P.Y.Y. Kan and T.G. Finstad, Dept of Physics, University of Oslo, PO Box 1048, Blindern, Oslo 0316, Norway
- 10:00 **BREAK**

### Session II : Complex hybrid

Session chair : **A. Züttel**

- L-II.01** 10:30 -Invited- RECENT ADVANCES ON Li- AND Mg-BASED COMPLEX HYDRIDES FOR SOLID-STATE HYDROGEN STORAGE  
**Yuko Nakamori** and Shin-ichi Orimo, Institute for Materials Research (IMR), Tohoku University, Japan
- L-II.02** 11:00 INSIGHT OF THE TRUE CATALYST IN TITANIUM-DOPED ALANATE AS A HYDROGEN STORAGE MATERIAL  
Shu Zhang, Nobuhiro Kuriyama, Tetsu Kiyobayashi, National Institute of Advanced Industrial Science and Technology, 1-8-31 Midorigaoka, Ikeda, Osaka 563-8577, Japan
- L-II.03** 11:20 DEHYDROGENATION KINETICS OF Ti DOPED NaAlH<sub>4</sub>: DEPENDENCY ON THE PREPARATION METHOD  
M. Onkawa, H.T. Takeshita, Materials Science and Engineering, Kansai University, 3-3-35 Yamate-cho, Suita, Osaka 564-0073, Japan, T. Kiyobayashi and N. Kuriyama, AIST, Kansai-Center, 1-8-31 Midorigaoka, Ikeda, Osaka 563-8577, Japan
- L-II.04** 11:40 STRUCTURE, STABILITY AND REVERSABILITY OF COMPLEX HYDRIDES  
A. Züttel(a,b), T. Matsunaga(a), F. Buchter(a), P. Wenger(a), R. Gremaud(b), A. Borgschulte(b), Ph. Mauron(b), B. Dam(b), R. Griessen(b), (a)University of Fribourg, Physics Department, Institute for Renewable Energy Switzerland (IFRES), Péroles, 1700 Fribourg, Switzerland, (b)Vrije Universiteit, Faculty of Sciences, Division of Physics and Astronomy, De Boelelaan 1081, 1081 HV Amsterdam, The Netherlands
- L-II.05** 12:00 -Invited- NEW OPTICAL METHOD FOR THE SEARCH OF NOVEL METAL HYDRIDE MATERIALS  
**A. Borgschulte**, R. Gremaud, R.J. Westerwaal, J.H. Rector, H. Schreuders, B. Dam, A. Züttel, R. Griessen, VU Amsterdam, FEW, Condensed Matter Physics, De Boelelaan 1081, 1081 HV Amsterdam, The Netherlands
- 12:30 **LUNCH**

Tuesday, May 31, 2005  
Mardi 31 mai 2005

Afternoon  
Après-midi

**Session III : Hydrogen adsorption**  
**Session chair : A. Züttel**

- L-III.01** 14:00 -Invited- PHYSISORPTION OF HYDROGEN IN MICROPOROUS MATERIALS  
**Barbara Panella** and Michael Hirscher, Max-Planck-Institut für Metallforschung, Heisenbergstr.3, 70569 Stuttgart, Germany
- L-III.02** 14:30 HYDROGEN STORAGE IN PRISTINE AND MODIFIED CARBON NANOTUBES FROM DIFFERENT ORIGINS  
M. Pérez-Mendoza(a), C. Vallés(a), A.M. Benito(a), W.K. Maser(a), M.T. Martínez(a), T. Belin(b), F. Epron(b), (a)Instituto de Carboquímica (CSIC), C/ Miguel Luesma Castán 4, 50018 Zaragoza, Spain, (b)Laboratoire de Catalyse en Chimie Organique, 40 Avenue du Recteur Pineau, 86022 Poitiers cedex, France
- L-III.03** 14:50 RELATION BETWEEN THE REVERSIBLE HYDROGEN CAPACITY OF ACTIVATED CARBONS AND THEIR POROUS NANOTEXTURE  
E. Frackowiak(a), K. Jurewicz(a), M. Friebe(a,b), K. Kierzek(c), J. Machnikowski(c), C. Vix-Guterl(d), F. Béguin(b), (a)Poznan University of Technology, ul. Piotrowo 3, 60-965 Poznan, Poland, (b)CRMD, CNRS-University, 1b rue de la Férollerie, 45071 Orléans, France, (c)Wroclaw University of Technology, Gdanska7/9, 50-344 Wroclaw, Poland, (d)ICSI, CNRS, 15 rue Jean Starcky, 68057 Mulhouse, France
- 15:10 **BREAK**
- L-III.04** 15:30 EXPERIMENTAL AND THEORETICAL STUDY OF H<sub>2</sub> STORAGE IN NANOSTRUCTURED CARBON MATERIALS  
R. Gadiou, A. Didion, C. Vix-Guterl, ICSI, 15 Rue Jean Starcky BP 2488, 68057 Mulhouse cedex, France, R.J.-M. Pellenq, T. Roussel, C. Bichara, CRMCN, Campus de Luminy, 13288 Marseille cedex 09, France
- L-III.05** 15:50 MECHANISM OF ELECTROCHEMICAL HYDROGEN STORAGE IN NANOPOROUS CARBONS  
F. Béguin(a), K. Jurewicz(b), M. Friebe(a,b), J. Dentzer(c), C. Vix-Guterl(c), E. Frackowiak(b), (a)CRMD, CNRS-University, 1b rue de la Férollerie, 45071 Orléans, France, (b)Poznan University of Technology, ul. Piotrowo 3, 60-965 Poznan, Poland, (c)ICSI, CNRS, 15 rue Jean Starcky, 68057 Mulhouse, France
- L-III.06** 16:10 POROUS Si NANOSTRUCTURES AS HYDROGEN RESERVOIRS  
V. Lysenko and D. Barbier, Materials Physics Laboratory (LPM), CNRS UMR-5511, INSA de Lyon, 7 av. Jean Capelle, Bat. Blaise Pascal, 69621 Villeurbanne, France, F. Geobaldo, P. Rivolo and E. Garrone, Department of Material Science and Chemical Engineering, Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy, C. Turpin, Electrical Engineering and Industrial Electronics Laboratory, LEEI, CNRS UMR-5828, INP de Toulouse, 2 rue Camichel, BP 7122, 31071 Toulouse, France
- 16:30 **POSTER SESSION**  
Poster L/P01 – LP06

**Session IV : Metal Hydrides**  
**Session chair : L. Schlapbach**

- L-IV.01** 14:00 -Invited- MODELLING OF HYDRIDE-FORMING MATERIALS CHARACTERISTICS  
**P.H.L. Notten**(a,b), A.V. Ledovskikh(b), D. Danilov(c), E. Verbitski(a) and W. Rey(c), (a)Philips Research Laboratories, Prof. Holstlaan 4, 5656 AA Eindhoven, The Netherlands, (b)Eindhoven University of Technology, Den Dolech 2, 5600 MB Eindhoven, The Netherlands, (c)Eurandom, Den Dolech 2, 5612 AZ Eindhoven, The Netherlands
- L-IV.02** 14:30 LOW TEMPERATURE HYDROGEN DESORPTION FROM AGED MAGNESIUM HYDRIDE  
**J.F. Fernández**, F. Leardini, J. Bodega and C. Sánchez. Dpto. Física de Materiales, Facultad de Ciencias, Universidad Autonoma de Madrid, 28049 Madrid, Spain
- L-IV.03** 14:50 BENEFITS OF CARBON ADDITION ON HYDROGEN SORPTION PROPERTIES OF Mg-Ni THIN FILMS GROWN BY PULSED LASER DEPOSITION  
Xavier Darok, Aline Rougier, Luc Aymard and Jean-Marie Tarascon, Laboratoire de Réactivité et de Chimie des Solides, CNRS UMR-6007, Université de Picardie Jules Verne, 80039 Amiens Cedex, France
- L-IV.04** 15:10 HYDROGEN STORAGE IN NANOSIZED Mg-Ni(Fe) ALLOYS  
P. Palade, **G. Principi**, A. Maddalena, S. Sartori, INFN and Setore Materiali, DIM, Università di Padova, via Marzolo 9, 35131 Padova, Italy; S. Lo Russo, INFN and Dipartimento di Fisica, Università di Padova, via Marzolo 8, 35131 Padova, Italy; G. Shinteie, V. Kuncser, G. Filoti, Solid State Magnetism Department, National Institute for Materials Physics, Atomistilor st.105 bis, Ro- 77125 Bucharest Magurele, Romania
- 15:30 **BREAK**
- L-IV.05** 15:50 INSTABILITIES IN MAGNESIUM HYDRIDES INDUCED BY LATTICE STRAINS  
**R. Checchetto**, N. Bazzanella, A. Miotello, Dipartimento di Fisica, Università di Trento, 38050 Povo (TN), Italy, **C. Maurizio**, OGG, c/o ESRF, GILDA CRG, 38043 Grenoble, France, **P. Mengucci**, Dipartimento di Fisica, Università Politecnica delle Marche, 60131 Ancona, Italy
- L-IV.06** 16:10 LOCAL STRUCTURE OF Nb in Nb-DOPED MG FILMS UPON HYDROGEN ABSORPTION AND DESORPTION PROCESSES  
**C. Maurizio**(a), **R. Checchetto**(b), **N. Bazzanella**(b), **A. Miotello**(b) and **F. D'Acapito**(a), (a)INFN-GILDA beamline, European Synchrotron Radiation Facility-ESRF, 6 rue J. Horowitz, 38043 Grenoble, France, (b)Dipartimento di Fisica dell'Università di Trento, via Sommarive 14, 38050 Povo (TN), Italy
- L-IV.07** 16:30 INFLUENCE OF PRESSURE ON THE CONVERSION OF MG INTO MGH<sub>2</sub> PERFORMED BY BALL MILLING UNDER HYDROGEN ATMOSPHERE  
**S. Doppiu**, **M. Heinrich**, **B. Gebel**, **Q. Gutfleisch**, IFW Dresden, Institut für Metallische Werkstoffe, Helmholtzstr. 20, 01069 Dresden, Germany
- L-IV.08** 16:50 KINETICS OF HYDROGEN LOADING AND RELEASE IN YTRIUM METAL DURING ITS ELECTROCHEMICAL POLARIZATION  
**V. Parkhutik**, **E. Matveyeva**, **E. Rayon**, R&D Centre MTM, Technical University of Valencia, Spain, **N. Bordel**, **R. Pereiro**, University of Oviedo, Spain, **J.M. Albella**, Institute of Materials Science of Madrid, Spain and **H. Fujii**, University of Hiroshima, Japan
- L-IV.09** 17:10 -Invited- HIGH DESORPTION PRESSURE METAL HYDRIDE FOR HIGH PRESSURE MH TANK  
**T. Matsunaga**, **T. Shinozawa**, **H. Suzuki**, **D. Mori**, Higashifuji Technical Center, Toyota Motor Corporation, 1200 Mishuku, Susono, Shizoka 410-1193, Japan
- 17:40 **POSTER SESSION**  
Poster L/P07 – LP10
- 19:00 **AWARD CEREMONY**  
The symposium organizers and the candidates to the graduate student award are requested to attend.

**CONFERENCE RECEPTION**

Thursday, June 2, 2005  
Jeudi 2 juin 2005

Morning  
Matin

## Session V : PEFC

Session chairs : A. Reller

- L-V.01** 9:00 -Invited- TRENDS IN MEMBRANE ELECTRODE DEVELOPMENT FOR PEFC  
**L. Gubler** et al., PSI, Villigen, Switzerland
- L-V.02** 9:30 THE ORIGIN OF THE OVERPOTENTIAL FOR OXYGEN REDUCTION AT A FUEL CELL CATHODE  
**J. Rossmeisl**, **A. Logadottir**, **T. Bligaard**, **L. Lindqvist**, **J.K. Nørskov**, Center for Atomic-scale Materials Physics, Department of Physics, Technical University of Denmark, 2800 Kgs.-Lyngby, Denmark, **J.R. Kichin**, Department of Chemical Engineering, University of Delaware, Newark DE 19716,USA, **H. Jónsson**, Faculty of Science, VR-II, University of Iceland, 107 Reykjavik, Iceland
- L-V.03** 9:45 OBTAINMENT OF FREE NOBEL METAL CATALYZERS USING COLS PLASMA TECHNIQUES  
**N. Tricás**, **J. Herranz** and **S. Borrós**, Institut Químic de Sarrià, Av. Sarrià 390, 08017 Barcelona, Spain
- L-V.04** 10:00 CARBON NANOTUBES SUPPORTED CATALYSTS FOR DMFC  
**B. Rohland**(a), **Mihaela-C. Bunescu**(b), **B. Ruffmann**(a), **Marlies Pietrzak**(a), **Marion Wienecke**(b), **S. Möller**(a), (a)HIAT gGmbH, Hagenower Straße 73, 19061 Schwerin, Germany, (b)Hochschule Wismar, Institut für Oberflächen- und Dünnschichttechnik, Philipp-Müller-Str., 23952 Wismar, Germany
- L-V.05** 10:15 PLATINUM NANOPARTICLES DISPERSED IN A CARBON MATRIX FOR FUEL CELL CATALYSTS  
**A. Reiner**, **F. Hajbolouri**, **A. Wokaun**, **G.G. Scherer**, Paul Scherrer Institut, Electrochemistry Laboratory, 5232 Villigen, Switzerland
- 10:30 **BREAK**
- L-V.06** 11:00 NEW HYBRID NANOPOROUS SOL-GEL MATERIALS FOR HIGH TEMPERATURE PEMFC  
**K. Vallé**(a), **F. Pereira**(a), **Ph. Belleville**(a) and **C. Sanchez**(b), (a)CEA/Le Ripault, BP16, 37260 Monts, France, (b)LCMC, UPMC Paris VI, 75000 Paris, France
- L-V.07** 11:15 MODELING AND SIMULATION FOR STUDYING ION-CONDUCTIVITY OF CHITOSAN MEMBRANES FOR BUILDING ELECTROLYTES OF FUEL CELL  
**Ernesto López-Chávez**, **José Manuel Martínez-Magadán**, **Raúl Oviedo-Roa**, **Javier Guzmán-Pantoja**, **Joel Ramírez-Salgado**, **Jesús Marín-Cruz**, Programa de Ingeniería Molecular, Instituto Mexicano del Petróleo, Eje Central Lázaro Cárdenas 152, México D.F. 07730, México
- L-V.08** 11:30 BIPOLAR MINIATURISED PROTON EXCHANGE FUEL CELL FULL INTEGRATED IN A MICROMACHINED SILICON SURFACE  
**G. Darrigo**, **C. Spinella**, CNR-IMM, Stradale Primosole 50, 95121 Catania, Italy, **G. Arena**, **S. Lorenti**, ST-Microelectronics, Stradale Primosole 50, 95121 Catania, Italy

## Session VI : SOFC

Session chair : A. Reller

- L-VI.01** 11:45 -Invited- MATERIALS DEVELOPMENT FOR SOLID OXIDE FUEL CELLS: PROGRESS AND CHALLENGES  
**E. Ivers-Tiffée**, University Karlsruhe, Institute of Materials for Electrical Engineering, 76131 Karlsruhe, Germany
- L-VI.02** 12:15 THE SOLID STATE OXIDES IS ADVANCED MATERIALS FOR FUEL CELL TECHNOLOGIES  
**I.Kh. Abdulkadirova**, Institute of Nuclear Physics Academy of Science Uzbekistan, Ulugbek, 702132 Tashkent, Uzbekistan
- 12:30 **LUNCH**

Thursday, June 2, 2005  
Jeudi 2 juin 2005

Afternoon  
Après-midi

**Session VI : SOFC (continue)**  
**Session chair : A. Reller**

- L-VI.03** 14:00 FABRICATION AND CHARACTERISATION OF MIXED CONDUCTING PEROVSKITES FOR SOFC APPLICATIONS  
Ulrich F. Vogt, Joseph Sfeir and Peter Holtappels, Swiss Federal Laboratories for Materials Testing and Research (EMPA), Ueberlandstr. 129, 8600 Duebendorf, Switzerland
- L-VI.04** 14:15 LSMF PEROVSKITE POWDERS SYNTHESIS BY A DERIVED SOL-GEL PROCESS. INFLUENCE OF THE ORGANIC/INORGANIC RATIO ON STRUCTURAL AND MICROSTRUCTURAL PROPERTIES  
P. Lenormand, M. Nouasse, S. Castillo, F. Ansart, Centre Interuniversitaire de Recherche et d'Ingénierie des MATériaux, Laboratoire de Chimie des Matériaux Inorganiques et Energétiques, UMR N°5085, Université Paul Sabatier, Bât. 2R1, 118 route de Narbonne, 31062 Toulouse Cedex 4, France
- L-VI.05** 14:30 TOWARDS NOVEL MIXED-CONDUCTING PEROVSKITES WITH IMPROVED IONIC AND ELECTRONIC TRANSPORT  
B. Dabrowski, Department of Physics, Northern Illinois University, DeKalb IL, USA
- L-VI.06** 14:45 ENHANCED IONIC CONDUCTIVITY IN CRYSTALLINE  $\text{La}_{0.8}\text{Sr}_{0.2}\text{Ga}_{0.85}\text{Mg}_{0.15}\text{O}_{3-\delta}$ ; FILMS GROWN BY PULSED LASER DEPOSITION  
Chun-Nam Wong, Boscope Mo-Kun Sze and Kin-Hung Wong, Department of Applied Physics and Materials Research Centre, Hong Kong Polytechnic University, Hung Hom, Hong Kong Special Administrative Region, People's Republic of China
- L-VI.07** 15:00 CORRELATION BETWEEN MICROSTRUCTURE AND DEGRADATION OF IONIC CONDUCTIVITY IN  $\text{Y}_2\text{O}_3$  DOPED ZIRCONIA  
B. Butz, P. Kruse, H. Störmer, D. Gerthsen, Laboratory for Electron Microscopy, University of Karlsruhe (TH), 76128 Karlsruhe, Germany, A. Müller, A. Weber, E. Ivers-Tiffée, Institute of Materials for Electrical Engineering, University of Karlsruhe (TH), 76128 Karlsruhe, Germany
- L-VI.08** 15:15 ANALYSIS OF STRUCTURAL STABILITY IN TRANSPORT PROPERTIES OF YTTRIA-ZIRCONIA-ALUMINA NANOPARTICLES  
J. Santoyo-Salazar(a), J. Tartaj-Salvador(b), M.E. Villafuerte-Castrejón(a), G. González-Reyes(a), J.A. Chávez-Carvayar(a), (a)Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Circuito exterior s/n. C.U.A. Postal 70-360. C.P. 04510. México, D.F. México, (b)Instituto de Cerámica y Vidrio, CSIC, Madrid, Spain
- 15:30 **BREAK**
- 16:00 **POSTER SESSION**  
Poster L/P11 – LP22

## POSTER

- L/P01** HYDROGEN DEGRADATION OF STEELS USED IN CHEMICAL AND POWER INDUSTRY  
H.M. Nykyforchyn(a), O.Z. Student(a), H. Matysiak(b), A. Zagórski(b), K.J. Kurzydowski(b), (a)Karpenko Physico-Mechanical Institute of the NAS of Ukraine, 5 Naukova St., 79601 Lviv, Ukraine, (b)Warsaw University of Technology, Faculty of Materials Science and Engineering, 141 Woloska St., 02-507 Warsaw, Poland
- L/P02** ELECTRICAL AND OPTICAL PROPERTIES OF SMART OPTICAL WINDOWS BASED ON Mg-Ni ALLOYS  
V. Parkhutik, Yu. Makushok, E. Matveyeva, R&D Centre MTM, Technical University of Valencia, Spain, P. Notten, Philips Research Laboratories and Eindhoven University of Technology, The Netherlands and T. Richardson, Lawrence Berkeley National Laboratory, USA
- L/P03** METALLIC, OXIDE AND HYDRIDE PALLADIUM THIN FILMS GROWN BY PULSED LASER DEPOSITION: SYNTHESIS AND STRUCTURE  
Xavier Darok, Aline Rougier, Luc Aymard and Jean-Marie Tarascon, Laboratoire de Réactivité et de Chimie des Solides, CNRS UMR-6007, Université de Picardie Jules Verne, 80039 Amiens Cedex, France
- L/P04** EFFECT OF CATALYSTS ON PRODUCTION OF HYDROGEN FROM HYDROLYSIS OF SODIUM BOROHYDRIDE AT ROOM TEMPERATURE  
Cristian Zanchetta, Ashwin Kale, Marco Bonelli, Graziano Guella and Antonio Miotello, Dipartimento di Fisica, Università di Trento, 38050 Povo (Trento) Italy
- L/P05** RELATION BETWEEN MELTING OF LiAlH<sub>4</sub> AND ITS HYDROGEN DESORPTION  
Hiroyuki T. Takeshita, Yasuhiro Kamada, Daiba Waki, Akihiro Taniguchi, Kansai university, Japan, Tetsu Kiyobayashi, National Institute of Advanced Industrial Science and Technology, Japan
- L/P06** PREPARATION AND CHARACTERIZATION OF CARBON NANOFIBER BY SOLVOTHERMAL METHOD  
Beyong-Hwan Ryu, Youngmin Choi, Kijeong Kong, Hyunju Chang and Jeong-O Lee, Nano Materials Research Team., Advanced Materials Div. Korea Research Institute of Chemical Technology, Korea
- L/P07** FORMATION ABILITY AND HYDRIDING PROPERTIES OF THE PEROVSKITE-TYPE HYDRIDES  
Kazutaka Ikeda, Yuji Kogure, Yuko Nakamori and Shin-Ichi Orimo, Institute for Materials Research (IMR), Tohoku University, Japan
- L/P08** HYDROGEN DESORPTION IN NANOSTRUCTURED MgH<sub>2</sub>-Co  
A. Montone, J. Grbovic, Lj. Stamenkovic<sup>1</sup>, A.L. Fiorini, L. Pasquini, E. Bonetti, M. Vittori Antisari, ENEA, Italy
- L/P09** ISOTOPIC EFFECTS IN THE THERMAL DESORPTION SPECTRA OF PALLADIUM HYDRIDE  
F. Leardini, J. Bodega, J.F. Fernandez and C. Sanchez, Dpto. Fisica de Materiales, Universidad Autonoma de Madrid, 28049 Cantoblanco Madrid, Spain
- L/P10** NEW FUNCTIONAL INTERMETALLIC MATERIAL FOR HYDROGEN STORAGE APPLICATIONS  
Sofoklis S. Makridis, Department of Energy Resources Engineering and Management, University of Western Macedonia, Kastorias and Fleming St. 50100, Kozani, Greece, Cristodoulos N. Christodoulou, Frederick Research Center, 24729 Lefkosia, Cyprus, Athanasios K. Stubos, Institute of Nuclear Technology and Radiation Protection, NCSR "Demokritos", Ag. Paraskevi, Athens, 15310, Greece
- L/P11** MICROBIAL FUEL CELL BASED ON ESCHERICHIA COLI WITH NEW CARBON ELECTRODE DESIGN  
Ioan Stamatina(a), Adina Morozan(a), Luminita Stamatina(b), Keith Scott(v), Anca Dumitru(a) (a)University of Bucharest, Faculty of Physics, 3 Nano-SAE Research Centre, MG-11, 077125, Bucharest-Magurele, Romania, (b)Longhin Scarlat Hospital, Microbiology Laboratory, Serban Voda 94, Bucharest, Romania (c)School of Chemical Engineering and Advanced Materials, University of Newcastle upon Tyne NE1 7RU, U.K.
- L/P12** DEVELOPMENT FROM POLYMERS PYROLYSIS OF THE NEW ELECTRODES FOR FUEL CELLS  
Adina Morozan(a), Ioan Stamatina(a), Anca Dumitru(a), Gratiela Stoian(b), Silviu Vulpe(a), Constantin Mirea(c), (a)University of Bucharest, Faculty of Physics, 3Nano-SAE Research Centre, P.O. Box MG-11, 077125 Bucharest-Magurele, Romania, (b)Advanced Research Institute for Electrical Engineering, Splaiul Unirii 313, Bucharest, Romania, (c)National Institute of Forensic Expertise, Bd. Regina Elisabeta 53, Bucharest, Romania
- L/P13** RADIATION GRAFED MEMBRANES FOR POLYMER ELECTROLYTE FUEL CELLS  
S. Alkan-Gürsel, L. Gubler, M. Slski, D. Kramer, A. Wokaun, G.G. Scherer, Paul Scherrer Institut, Electrochemistry Laboratory, 5232 Villigen, Switzerland
- L/P14** COMPOSITES MEMBRANES BASED ON SULPHONATED POLYPYRIDINES DERIVATIVES WITH NANOMETRIC OXIDES PARTICLES FOR DMFC APPLICATIONS  
Adina Morozan(a), Marion Wienecke(b), Anca Dumitru(a), Dan Mihaiescu(c), (a)University of Bucharest, Faculty of Physics, 3Nano-SAE Research Centre, P.O. Box MG-11, 077125 Bucharest-Magurele, Romania, (b)Institute for surface and thin film technology, Hochschule Wismar, PF 1210, 23952 Wismar, Germany, (c)University of Agriculture Sciences and Veterinary Medicine, 59 Marasti, Bucharest, Romania

- L/P15** PREPARATION AND CHARACTERISATION OF PLATINUM ON CARBON SUBSTRATES ELECTROCATALYSTS AS ELECTRODES IN POLYMER ELECTROLYTE FUEL CELLS  
L. Giorgi(b), A. Cemmi(a), G. Papa(a), E. Simonetti(a), L. Pilloni(b), C.P. aoletti(c) and M. Pasquali(c), ENEA, C.R. Casaccia, (a)Hydrogen & Fuel Cells Project, (b)Materials Technologies and Qualification Section, Via Anguillarese 301, 00060 S.Maria di Galeria (Roma), Italy, (c)Dip. ICMMPM, Facoltà di Ingegneria, Rome University, Via del Castro Laurenziano 7, 00161 Roma, Italy
- L/P16** MICROFABRICATION OF CHANNELS IN GLASY CARBON BY A COMBINED LASER AND REACTIVE ION ETCHING PROCESS  
M. Kuhnke, T. Lippert, A. Wokaun, G.G. Scherer, Paul Scherrer Institut, Electrochemistry Laboratory, 5232 Villigen, Switzerland
- L/P17** PROPERTIES OF SOFC UNIT CELL USING SYNTHESIZED LSCF CATHODE BY OXALATE METHOD  
Mi Jai Lee, Sang Sun Park, Ji Woong Moon, Jong Hoo Paik, Sei Ki Kim, Byung Hyun Choi, Korea
- L/P18** ELECTRODE PROPERTIES OF SYNTHESIS (La<sub>0.75</sub>Sr<sub>0.25</sub>)<sub>0.9</sub>Cr<sub>1-x</sub>A<sub>x</sub>O<sub>3</sub>-(A=Mn, Ti, Fe) ANODE FOR SOFC  
Sang Sun Park, Mi Jai Lee, Jong Hoo Paik, Sei Ki Kim, Byung Hyun Choi, Korea
- L/P19** EFFECT OF CATION NON-STOICHIOMETRY AND ALIOVALENT DOPING ON THE TRANSPORT PROPERTIES OF LANTHANUM CUPRATES  
A. Berenov, J. Wei, H. Wood, R. Rudkin and A. Atkinson Department of Materials, Imperial College London, Exhibition Road., London SW7 2AZ, U.K.
- L/P20** SYNTHESIS AND CATALYTIC BEHAVIOR OF NANOCRYSTALLINE Ce-Zr-La-O SYSTEM  
E.V. Frolova, M.I. Ivanovskaya, Research Institute for Physical Chemical Problems, BSU, Leningradskaya str. 14, 220080 Minsk, Belarus; V.V. Kharton, A.A. Yaremchenko, A.A. Valente, University of Aveiro, 3810-193 Aveiro, Portugal
- L/P21** YTTRIA STABILIZED ZIRCONIA –TITANIA OBTAINED BY SOL-GEL AND PHYSICAL METHODS  
V. Pârvulescu, N. Cioatera, S. Somacescu, Institute of Physical Chemistry, Spl. Independentei 202, Bucharest, Romania, A. Lazea, G. Dinescu, M. Dinescu, National Institute for Lasers, Plasma and Radiation Physics, PO Box MG-16, 077125 Magurele Bucharest, Romania
- L/P22** SOLID OXIDE FUEL CELLS COMPONENTS BY SELF-COMBUSTION AND TAPE CASTING TECHNIQUES  
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