17th conference in series of the European Fuel Cell Forum in Lucerne

4th EUROPEAN PEFC AND H₂ FORUM 2013

2 July – 5 July 2013

Kultur- und Kongresszentrum Luzern (KKL) Lucerne/Switzerland
Chaired by Prof. Dr. Deborah Jones

International FUEL CELL and HYDROGEN Conference with Exhibition and Demonstration including PEFC, HT PEFC, AFC, DAFC
<table>
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<th><strong>Schedule of Events</strong></th>
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<tr>
<td><strong>Motto 2013:</strong> The Future with Fuel Cells &amp; Hydrogen: From Materials Advances to Deployment</td>
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<tr>
<td><strong>Tuesday, 2 July 2013</strong></td>
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<td><strong>Wednesday – 3 July 2013</strong></td>
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<td><strong>Thursday – 4 July 2013</strong></td>
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<td><strong>Friday – 5 July 2013</strong></td>
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The sole purpose of the European Fuel Cell Forum is the promotion of fuel cell and hydrogen technologies through conference, literature and media. It is an enabling, high level exchange platform providing scientific sessions, exhibition, tutorial as well as international project meeting support and recreational networking events at a very charming and inspirational location.

Every summer, the European Fuel Cell Forum transforms Lucerne, the Heart of Switzerland, into the capital of fuel cells and hydrogen. More than 5,000 stakeholders are invited to participate in this international event, with attendants from about 30 countries from 5 continents. More than 190 oral contributions and posters will be presented in 24 partially parallel sessions during 3 intensive and stimulating days. Besides the high level scientific content, emphasised through selected keynotes, also the international program targets, status and future calls of Europe and USA will be outlined. The comprehensive State-of-the-Art overview is completed by presentations of worldwide strategic deployment projects. Two dedicated poster sessions are held, while the posters are accessible to the audience for 2½ days. 220 participants from 32 countries attended in 2011 and more than 400 from 34 countries in 2012.

Following the International Advisory Board, this year’s event focuses on low temperature fuel cells, electrolysis and hydrogen only. Though the high temperature fuel cells are not included this year, based on the strongly increased contributions on the called topics, 250 to 300 participants are expected, opening many opportunities of top level technical exchange and networking.

The European Fuel Cell Forum was initiated in 1994 and has now a tradition of 19 years. Already the 1st EUROPEAN SOFC FORUM 1994 attracted highly qualified and international speakers and audience. Over the years a high quality conference series has been established, alternating the conference focus between high temperature fuel cells in even years and low temperature fuel cells and hydrogen in odd years. This track record of conferences with high technical level builds the base for this years’ edition, the 4th EUROPEAN PEFC AND H₂ FORUM 2013. It is open to all low temperature fuel cells including HT PEFC and electrolyser and the related hydrogen technologies. Many fruitful contacts and promising solutions have been initiated around this event thanks to a careful organisation and watchful eye on scientific quality by dedicated advisors. Different from many commercial conferences, this event is organised by fuel cell technologists. For many years’ active members of the European fuel cell and hydrogen community, they take fully care of the community’s interest. The stakeholders’ needs will remain the focus for the organisation of future events.

Our dedicated goal is to continue to grow the European Fuel Cell Forum as one of the most prominent meeting places for the comprehensive exchange of scientific and technical information as well as for networking towards future breakthroughs. Together with the conference chair, Prof. Dr. Deborah Jones from the Université de Montpellier 2, we would like to offer you a sound scientific program and invite you to enjoy the unforgettable side activities in very pleasant surroundings. Finally we thank all the authors, exhibitors and suppliers. Together with the numerous participants, they are the base to perform together a striking 4th EUROPEAN PEFC AND H₂ FORUM 2013.

Kind regards and looking forward to seeing you in Lucerne
Olivier Bucheli & Michael Spirig

European Fuel Cell Forum
Obgardihalde 2, CH-6043 Luzern-Adligenswil/Switzerland
Tel. +41 44 586 56 44, Fax +41 43 508 06 22 – forum@efcf.com, www.efcf.com
4th EUROPEAN FUEL CELL FORUM 2013
Chaired by: Prof. Dr. Deborah Jones
CNRS Montpellier, France

The motto of the 2013 conference:
The Future with Fuel Cells & Hydrogen: From Materials Advances to Deployment

ALL low temperature FUEL CELL technologies – PEFC, DMFC, AFC, PAFC, including HYDROGEN production and handling – will be presented at the 4th EUROPEAN PEFC AND H₂ FORUM 2013. The topics will range from materials to cells, stacks and systems, and FC&H demonstrations. The conference is chaired by Deborah Jones of the French National Scientific Research Centre, CNRS, in Montpellier.

The 4th EUROPEAN PEFC AND H₂ FORUM 2013 will address scientific and technical challenges and hardware-related issues, identify product ideas and market niches, and establish links between research and industry. It aims at a fruitful dialogue between science, engineering, industry and market. Business opportunities will be identified for manufacturers, suppliers and investors during scientific sessions and at the exhibition. This is a Europe-led event with strong stakeholder participation from all continents.

The technical programme of the 4th EUROPEAN PEFC AND H₂ FORUM 2013 has been developed by an International Scientific Committee, which exercises full independence in all technical matters. All papers presented orally or as posters will be collated in the Electronic Proceedings to be distributed to all participants at the time of registration, and later sold to libraries, research institutions and universities. Selected papers will be invited to contribute to a Special Issue of the journal Fuel Cells.

Conference language is English

Chaired by: Prof. Dr. Deborah Jones

Prof. Dr. Deborah J. Jones is Director of Research at the French National Scientific Research Centre CNRS and heads the laboratory for “Aggregates, Interfaces and Materials for Energy” at the Institute for Molecular Chemistry and Materials at Montpellier University, France.

Her interests have included ion and electron transfer and transport in insertion and intercalation materials, and proton conduction properties in solids ranging from soft matter to high temperature proton conducting ceramics. Working on membrane materials for proton exchange membrane fuel cells since the mid 1990’s she has actively participated in and coordinated European collaborative research at all levels. She initiated the European Coordination Action CARISMA on Membrane Electrode Assemblies, and the international conference series of this name on Progress in materials for medium and high temperature polymer electrolyte fuel cells held biennially since 2008.

Deborah Jones has co-authored more than 180 peer-reviewed journal articles and ten review articles, inventor on ten patents. She has been an invited speaker at Gordon Conferences in 2004, 2009 and 2010, at the International Fuel Cell Workshop (Kofu, 2003, 2009), and at the ACS Polymer Division conference on Advances in Fuel Cell Materials in 2007, 2009, 2011 and 2013 and plenary lecturer at the Grove Scientific Advances in Fuel Cells conference (2010). Deborah Jones is Chair of the Electrochemical Energy Conversion and Storage Division of the International Society of Electrochemistry.
The Tutorial will provide the basic concepts required to address the general but also more specialized fuel cell literature. Fuel cell technology is interdisciplinary par excellence, and requires knowledge in electrochemistry, materials science, mechanical and electrical engineering, catalysis, corrosion, thermal management, systems engineering etc. The course will cover these different aspects as broadly as possible, illustrated by many examples. All fuel cell families will be addressed. Applications and examples will carry a stronger flavor of the two most popular types, PEFC (G. G. Scherer) and SOFC (J. Van herle), given the expertise of both lecturers in their respective specialties.

The Tutorial will be addressed to newcomers as well as those who have been working in the area of fuel cells for some time. Participants will gain, or revisit, current understanding of the operation and key challenges of fuel cell technology, where considerable progress in recent years has been achieved and new insights gathered. The requirements for market introduction will be discussed.

The Tutorial lecture topics are fuel cell operating principles, thermodynamics, kinetics, efficiencies, central notions such as electrolyte ionic conductivity, electrode overpotential, triple phase boundary, Nernst equation, fuel reforming, cell and stack architectures and design, fuels (both fossil and renewable) for different fuel cells including their treatment, all fuel cell families (SOFC, MCFC, PAFC, PEFC/DMFC, AFC).

The Tutorial is an excellent Kick-Start to the 4th EUROPEAN PEFC AND H₂ FORUM 2013 Tuesday, 2 July 2013, from 09:30 to 17:00

Tutorial Schedule:
09:30  Registration, welcome refreshments
10:00  Session 1: Operating principles, fundamental aspects, fuel cell types
12:00  Business lunch
13:00  Session 2: Fuels for fuel cells, fuel processing and system aspects
14:30  Coffee break
15:00  Session 3: Applications, State-of-the-Art, challenges and specificities per fc type
17:00  End of Tutorial

The Tutorial language is English.

Each participant will receive complete documentation of the Tutorial lectures. Tutorial registration fee for all participants is CHF 500.–. Please register online at www.efcf.com
Coffee Break – Ground Floor in the Exhibition
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>11:00</td>
<td>P2: Major Regional and Company Developments (A02)</td>
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<td>11:00</td>
<td>Fukuoka Hydrogen Strategy – Hy-Life Project (A0201)</td>
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<tr>
<td></td>
<td>Shogo Watanabe, Takeshi Kodama, Kazunari Sasaki</td>
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<td>New Industries and Technologies Promotion Division; Fukuoka/Japan</td>
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<tr>
<td>11:30</td>
<td>FCV Overview, Status and Future (A0202)</td>
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<td>Jörg Wind</td>
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<td>Daimler AG; Kirchheim/Teck-Nabern/Germany</td>
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<td>12:00</td>
<td>On the Way to Hydrogen Infrastructure all over Baden-Württemberg (A0203)</td>
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<td>Franz Loogen, Manuel C. Schaloske</td>
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<td>e-mobil BW GmbH; Stuttgart/Germany</td>
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<td>12:30</td>
<td>Lunch – 2nd Floor on the Terrace</td>
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<td>Coffee – Ground Floor in the Exhibition &amp; 2nd Floor in the Poster Session</td>
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**Wednesday, July 3, 2013**
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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair:</th>
<th>Details</th>
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<tr>
<td>14:30</td>
<td>Fuel Cell Membrane Synthesis, Structure and Morphology* (A04)</td>
<td>4A Auditorium</td>
<td>Chair: Brian Benicewicz, Michael Eikerling</td>
<td>Thomas A. Zawodzinski Jr., Che-Nan Sun, Michael Bright, Jihua Chen, Hossein Ghassemi, Vito DiNoto, Tomoko Fujiwara, Uni of Tennessee, Dep. of Chemical and Biomolecular Engineering; Knoxville/USA</td>
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<tr>
<td>14:30</td>
<td>Keynote: Interrelating Physical, Thermodynamic, Structural and Functional Properties of Proton Conducting Membranes (A0401)</td>
<td>4A Auditorium</td>
<td></td>
<td>Thomas A. Zawodzinski Jr., Che-Nan Sun, Michael Bright, Jihua Chen, Hossein Ghassemi, Vito DiNoto, Tomoko Fujiwara, Uni of Tennessee, Dep. of Chemical and Biomolecular Engineering; Knoxville/USA</td>
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<td>15:00</td>
<td>Radiation Grafted Membrasteranes Providing Low Cost, High Performance and Durability (A0403)</td>
<td>4A Auditorium</td>
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<td>Lukas Bonorand, Pia Reichel, Jürg Thut, Lorenz Gubler, Paul Scherrer Inst., Electrochemistry Lab.; Villigen ex PSI/Switzerland</td>
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<td>15:15</td>
<td>Nafion Membranes with a Porous Surface (A0404)</td>
<td>4A Auditorium</td>
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<td>Dirk Henkensmeier, Quoc Khanh Dang, Jong Hyun Jang, Hyoun-Juhn Kim, Korea Inst. of Science and Technology, Fuel Cell Research Center/UST; Seoul/Korea</td>
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<td>15:30</td>
<td>Keynote: Elucidating Structure/Function Relations in PEMs with Multiscale Simulations (A0405)</td>
<td>4A Auditorium</td>
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<td>Stephen J. Paddison, Uni of Tennessee, Dep. of Chemical and Biomolecular Engineering; Knoxville/U.S.A.</td>
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<tr>
<td>14:30</td>
<td>Stack and Systems Integration, Early Market Implementation (B04)</td>
<td>4B Club Room 6–8</td>
<td>Chair: Herbert Wancura, Jörg Wind</td>
<td>Joseph Kailo, Philipp Rathke, Thomas Stephan, Johannes Schirmer German Aerospace Center (DLR e.V.); Stuttgart/Germany</td>
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<td>14:30</td>
<td>Antares DLR H₂ – Fuel Cell Testing under Aeronautical Conditions (B0401)</td>
<td>4B Club Room 6–8</td>
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<td>Josef Kailo, Philipp Rathke, Thomas Stephan, Johannes Schirmer German Aerospace Center (DLR e.V.); Stuttgart/Germany</td>
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<tr>
<td>14:45</td>
<td>Development of a lightweight 200W Direct Methanol Fuel Cell System for UAV Applications and Flight Demonstration (B0402)</td>
<td>4B Club Room 6–8</td>
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<td>Hyunchul Ju, Kyungmun Kang, Sunghyun Park/Inha Uni, School of Mechanical Engineering; Incheon/Republic of Korea</td>
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<td>15:00</td>
<td>A 50kW PEMFC Pilot Plant operated with Industry Grade Hydrogen – System Design and Site Integration (B0403)</td>
<td>4B Club Room 6–8</td>
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<td>Timo Keränen, Henri Kariamäki, Kai Nikiforov, Samu Kukkonen, Jaana Viitakangas, Heidi Uusalo, Jari Ihonen, VTT Technical Research Centre of Finland; VTT/Finland</td>
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<td>15:15</td>
<td>FITUP – Fuel Cell Field Test Demonstration of Economic and Environmental Viability for Portable Generators, Backup and UPS Power System Applications (B0404)</td>
<td>4B Club Room 6–8</td>
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<td>Ulrike Trachte, Peter Sollberger, Beat Wellig, Lucerne School of Engineering and Architecture, CC Thermal Energy Systems &amp; Process Engineering; Horw/Switzerland</td>
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<td>15:30</td>
<td>Early Market Implementation of LPG based Auxiliary Power Units for Application in Recreational Vehicles (B0405)</td>
<td>4B Club Room 6–8</td>
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<td>Martin O’Connell (1), Martin Wichert (1), Helmut Pennemann (1), Gunther Kolb (1), Sven Butscheck (2), Reinhard Frank (2), Andreas Schiegl (2), (1) Inst. für Mikrotechnik Mainz GmbH; Mainz/Germany; (2) Truma Geräteotechnik GmbH; Putzbrunn/Germany</td>
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<td>15:45</td>
<td>Monarch Fuel Cell Cycle – Part Way of Hydrogen Mobility (B0406)</td>
<td>4B Club Room 6–8</td>
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<td>Joerg D. Weigl, Zizi Wang, Imran Othman, National Uni of Singapore and e mobility Ltd; Singapore/Singapore (1) Inst. für Mikrotechnik Mainz GmbH; Mainz/Germany; (2) Truma Geräteotechnik GmbH; Putzbrunn/Germany</td>
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16:00 Coffee Break – Ground Floor in the Exhibition
### Afternoon, Wednesday, July 3, 2013

#### 16:30 Advanced Fuel Cell Catalysts* (A05)
Chair: Andreas Friedrich, Antonino Arico

**Keynote: Catalysts and MEAs from South Africa – The world’s platinum nation moves up the value chain (A0501)**
Olaf Conrad, Pieter Levecque, Shiro Tanaka, Sharon Blair, HySA/Catalysis Competence Centre, Centre for Catalysis Research, Dep. of Chemical Engineering, Uni of Cape Town; Rondebosch/South Africa

**16:30 Advanced Hybrid Nanostructures of Single-crystal Pt Nanowires on Ni-coated MWCNTs as High Performance Electrocatalysts for the Oxygen Reduction Reaction (A0503)**
Shangfeng Du (1), Xiangyin Lu (1), Sairam K Malladi (2), Robert Steinberger-Wilckens (1), (1) School of Chemical Engineering, Uni of Birmingham; Birmingham/UK; (2) Kavli Inst. of Nanoscience, Delft Uni of Technology; Delft/The Netherlands

**16:30 Initial attempts towards the synthesis of Pt-Cr Alloys as Cathode Catalysts for Proton Exchange Membrane Fuel Cells (A0504)**
Gaurav Gupta (1,2), Surbhi Sharma (2), Paula M. Mendes (1), (1) Nanotechnology and Surface Chemistry, School of Chemical Engineering, Uni of Birmingham; Birmingham/UK; (2) Center for Hydrogen and Fuel Cell Research, School of Chemical Engineering, Uni of Birmingham; Birmingham/UK

**16:30 Oxygen Reduction Reaction Activity of Pt/MetalB\textsubscript{2} (0001) (A0505)**
Eishiro Toyoda, Ryosuke Jinnouchi, Tetsu Ohsuna, Tatsuya Hatanaka, Shigeki Otani, Yoshiake Kido, Yu Morimoto, Toyota Central R&D Labs., Inc.; Aichi/Japan

**16:45 Ionic Pt Doped CeO\textsubscript{2} Thin Film Catalysts for PEMFC (A0506)**
Vladimir Matolin, Roman Fiala, Iva Matolinova, Charles Uni in Prague; Praha/Czech Republic

#### 16:30 Fuel Processing, Stack and Systems Integration (B05)
Chair: Agata Godula-Jopek, Franz Loogan

**16:30 Status and Challenges in Developing an IRMFC Internal Reforming Methanol Fuel Cell (B0501)**
Michael Steffen, Eunjin Ahn, George Bandlamudi, Frank Fluschi, Christian Hesske, Tobias Meijer; Peter Beckhaus, Angelika Heinzl, Zentrum für BrennstoffzellenTechnik GmbH; Duisburg/Germany

**16:45 Coupled Operation of a Diesel Steam Reformer and a PEMC (B0502)**
Philipp Engelhardt (1), Marius Maximini (1), Frank Beckmann (2), Martin Brenner (3), (1) OWI Oel-Waerme-Inst. GmbH; Herzogenrath/Germany; (2) Inhouse Engineering GmbH; Berlin/Germany; (3) Behr GmbH & Co. KG; Stuttgart/Germany

**17:00 Pre-reforming of Hydrocarbons as Fuel Processing Technology for Fuel Cells (B0503)**
Nils Kleinohl (1), John Bagild Hansen (2), Pedro Nehther (3), Hassan Modarresi (2), Angar Bauschulet (1), Jörg vom Schloss (1), Klaus Lucka (1), (1) OEL-WAERME-Inst. GmbH; Herzogenrath/Germany; (2) HALDOR TOPSØE A/S; Lyngby/Denmark; (3) ThyssenKrupp Marine Systems AG/Hovaldtsverke-Deutsche Werft GmbH; Kiel/Germany

**17:15 HT PEMFC System Containing Large Area Cells (B0504)**
George Bandlamudi, Sina Souzani, Christian Hesske, Peter Beckhaus, Angelika Heinzl, ZBT GmbH; Duisburg/Germany

**17:30 Playing on Full HT-PEM Benefits -A Novel, Highly Integrated Micro-CHP-System (B0505)**
Hans-Peter Schmid, WS Reformer GmbH; Rennigen/Germany

### 16:30 Swiss Surprise
Registered participants meet between KKL and railway station
Morning Thursday, July 4, 2013

6A Auditorium  
Chair: Stephen Paddison, Isotta Cerri

09:00 High Temperature PEM Fuel Cell Membranes* (A06)
Brian C. Benicewicz, Max Molleol, Guoqing Qian, Xiaoming Chen, Uni of South Carolina; Columbia/USA

09:00 Keynote: Next Generation PBI Membranes (A0601)
Hiroyoshi Kawakami, Dep. of Applied Chemistry, Tokyo Metropolitan Uni; Tokyo/Japan

09:30 Proton Conductive Properties of Sulfonated Polyimide Nanofiber for Fuel Cells (A0603)
Hiroyoshi Kawakami, Dep. of Applied Chemistry, Tokyo Metropolitan Uni; Tokyo/Japan

09:45 Modification of Sulfonic Polyimides by Charge-transfer Complex Formation and Evaluation of its Proton Conductivity (A0604)
Liana Christiani (1), Masamichi Nishihara (2,3), Aleksandar Staykov (2), Kazunari Sasaki (1,2,3), (1) Faculty of Engineering, Kyushu Uni; Fukuoka/Japan; (2) International Inst. for Carbon-Neutral Energy Research (WPI-I2CNER); (3) Next-Generation Fuel Cell Research Center (NEXT-FC), Kyushu Uni

10:00 Zirconium Phosphate Reinforced Aquivion Membranes (A0605)
Mario Casciola (1), Paula Cojocaru (2), Anna Donnadio (1), Stefano Giancola (1), Luca Merlo (2), Yannig Nedellec (3), Monica Pica (1), Surya Subianto (3), (1) Chemistry Dep., Perugia Uni; Perugia/Italy; (2) Solvay Speciality Polymers; Bollate MI/Italy; (3) Inst. Charles Gerhardt, Equipe AIME; Montpellier/France

10:15 Synthesis and Properties of Sulfonated Poly(phenylene) Prepared by Superacid-catalyzed Reaction (A0606)
Soon-Ho Lee, Young-Don Lim, Ho-Hyoun Jang, Sang-Young Lee, Whan-Gi Kim, Konkuk Uni, Dep. of Applied Chemistry, Chungbuk/Korea

10:30 Coffee Break – Ground Floor in the Exhibition

6B Club Room 6–8  
Chair: Thomas Zawodzinski, Georgios Tzotridis

09:00 Fuel Cell Modelling (B06)

09:00 Collective Proton Motion at Interfaces with Densely Packed Protogenic Surface Groups (B0601)
Michael Eikerling, Swati Vartak, Ata Roudgar, Anatoly Golovnev, Dep. of Chemistry, Simon Fraser Uni; Burnaby/Canada

09:15 A Molecular Dynamics Study for Diffusivity of Proton and Water in Polymer Electrolyte Membrane (B0602)
Takuya Mabuchi (1), Takashi Tokumasu (2), (1) Graduate School of Engineering, Tohoku Uni; Miyagi/Japan; (2) Inst. of Fluid Science, Tohoku Uni; Miyagi/Japan

09:45 Mean-field Models in PEM Nanopores (B0603)
Peter Berg, Bjørn Eirik Benjaminsen, Dep. of Physics, NTNU; Trondheim/Norway

10:00 DMFC: Polarization Curves, Impedance Spectra and How to Make Use of Methanol Crossover (B0604)
A. A. Kulikovsky, Research Centre Juelich; Juelich/Germany

10:15 Modeling of PEM Fuel Cell’s Internal Temperature Distribution with Steady-state on Long Time Operation (B0606)
Y.S. Chen, J. H. Chen, Engineering, National Chung Cheng Uni, Advanced Inst. of Manufacturing for High-tech Innovations and Dep. of Mechanical; Chiayi/Taiwan
### Thursday, July 4, 2013

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<tr>
<th>Time</th>
<th>Auditorium</th>
<th>Room 6–8</th>
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<tbody>
<tr>
<td>11:00</td>
<td>7A PEM and Alkaline Electrolysis* (A07)</td>
<td>7B Novel Supports and non-Platinum Fuel Cell Catalysts (B07)</td>
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<tr>
<td>11:00</td>
<td>Keynote: Water Electrolysis for Hydrogen Production – Paving the Way to Renewables (A0701)</td>
<td>Alternative Electrocatalyst Support for PEFCs: SnO₂-supported Carbon-free Electrocatalysts (B0701)</td>
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<td>Marcelo Carmo, David L. Fritz, Jürgen Mergel, Detlef Stolten, Research Center Juelich, IEK-3: Inst. of Electrochemical Process Engineering; Jülich/Germany</td>
<td>Kazunari Sasaki (1,2,3,4), Kohei Kanda (1), Yuma Takabatake (1), Yuta Tsukatsune (1), Kazuhiko Higashi (1), Fumio Takasaki (1), Zhuyan Noda (2), Akari Hayashi (2,3,4), (1)Faculty of Engineering, Kyushu Uni; (2) Next-Generation Fuel Cell Research Center (Next-FC), Kyushu Uni; (3) NISSAN ARC, LTD.; (4) International Inst. for Carbon-Neutral Energy Research (I2CNER), Kyushu Uni; Fukuoka/Japan</td>
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<td>11:30</td>
<td>Titanium Coatings Deposited by Thermal Spraying for Bipolar Plates of PEM Electrolysers (A0703)</td>
<td>Bare and Doped Ti-oxides as supports and Promoters for Electro-catalysts in Low Temperature Direct Methanol and Polymer Electrolyte Fuel Cells (B0702)</td>
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<td>11:45</td>
<td>Membrane Development for Alkaline Water Electrolysis (A0704)</td>
<td>Durable Catalyst Supports for HTPEM Fuel Cell Electrodes (B0703)</td>
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<td>Michal Gorbar, Ulrich F. Vogt, Alexander Bonk, Andreas Züttel, EMPA, Hydrogen &amp; Energy; Dübendorf/Switzerland</td>
<td>Markus Perchthaler – Elcomax GmbH; Munich/Germany</td>
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<td>12:00</td>
<td>High Temperature and Pressure Alkaline Electrolysis (A0705)</td>
<td>Group 4 and 5 Metal Oxide-based Compounds as New Non-platinum Cathode for PEFC (B0704)</td>
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<td>Frank Allebrod, Christodoulos Chatzichristodoulou, Mogens Mogensen, Danmarks Tekniske Uni, Inst. for Energy Conversion and Storage; Roskilde/Denmark</td>
<td>Akimitsu Ishihara (1), Koichi Matsuzawa (1), Shigenori Mitsushima (1), Ken-ichiro Ota (1), Masashi Matsumoto (2), Hitode Imai (2), (1) Yokohama National Uni; Yokohama/Japan; (2) NISSAN ARC, LTD.; Yokosuka/Japan</td>
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<td>Jan Vaes, Ruben Daneels, Dimitri Van Dingenen, Hydrogenics Europe NV; Oelel/Belgium</td>
<td>Stephen Lyth, Jianfeng Liu, Kazunari Sasaki Kyushu Uni, International Inst. for Carbon-Neutral Energy Research (I2CNER), Fukuoka/Japan</td>
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<td>12:30</td>
<td>Lunch – 2nd Floor on the Terrace</td>
<td>Graphene Oxide as a Support Material for HT-PEFCs (B0706)</td>
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<td>Coffee – Ground Floor in the Exhibition</td>
<td>Amrit Chandan (1), Christopher Harding (1), Pritpal Singh (1), Shangfeng Du (1), Neil V Rees (1), Andrew Ingram (1), Robert Steinberger-Wilckens (1), Valerie Self (2), John Richmond (2), (1) Centre for Hydrogen and Fuel Cells, Uni of Birmingham; Birmingham/UK; (2) TATA Motors European Technical Centre, Coventry/UK</td>
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<th>8A</th>
<th>Club Room 3–5</th>
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<tr>
<td>13:15</td>
<td>Poster Session II (covering all Oral Session Topics)</td>
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Chair: Deborah Jones
### Thursday, July 4, 2013

#### Afternoon

**Auditorium**

<table>
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<tr>
<td>14:30</td>
<td>Renewable Hydrogen (A09)</td>
</tr>
<tr>
<td>14:30</td>
<td>Improving Photocurrent Onset Potential in Ultrathin Hematite Films Using a Combination of Nbt0.5-, SiOx-, and Ga2O3-Underlayers and a Ga2O3 Overlayer (A0901) Ludmilla Steier, Takashi Hisatomi, Kevin Sivula, Michael Grätzel, Inst. of Chemical Sciences and Engineering, EPFL; Lausanne/Switzerland</td>
</tr>
<tr>
<td>14:45</td>
<td>Photocatalytic water splitting with modified LaTiO2N (A0902)</td>
</tr>
<tr>
<td></td>
<td>(1) Simone Pokrant, (1) Alexandra Mägli, (1) Matthias Trottmann, (1) Leyre Sagarna, (1) Eugenio Otal, (2) Takashi Hisatomi, (2) Ludmilla Steier, (2) Michael Grätzel, (1) Anke Weidenkaff, (1) EMPA, Laboratory of Solid State Chemistry and Catalysis; Dubendorf/Switzerland; (2) Laboratory of Photonics and Interfaces (LPI), EPFL, SB ISIC; Lausanne/Switzerland</td>
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<tr>
<td>15:00</td>
<td>Influence of Mesoporosity in Hematite Films on Water Splitting Efficiency (A0903)</td>
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<td>Caroline Toussaint, Rudi Cloots, Duy Nguyen, Catherine Henrist, Uni of Liège, Chemistry Dep., GREENMat-LCIS; Liège/Belgium</td>
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<tr>
<td>15:15</td>
<td>Bioreactors for Hydrogen Production (A0904)</td>
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<td>Sergei A. Markov, Elvira R. Eivazova, Biology Dep., Austin Peay State Uni; Clarksville/U.S.A.</td>
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<tr>
<td>15:30</td>
<td>Pressurized H2O Cells at ca. 250°C: Potential and Challenges (A0905)</td>
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<tr>
<td></td>
<td>Mogens B. Mogensen, Christodoulos Chatzichristodoulos, Frank Alebrod, Jonathan Hallinder, Federica Vico, A. Mohammed Hussain, Peter Holtappel, Dep. of Energy Conversion and Storage, Technical Uni of Denmark; Roskilde/Denmark</td>
</tr>
<tr>
<td>15:45</td>
<td>Low Temperature Aqueous-Phase Methanol Dehydrogenation to Hydrogen and Carbon Dioxide (A0906)</td>
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<td>Henrik Junge, Martin Nielsen, Matthias Beller, Leibniz-Inst. for Catalysis Rostock; Rostock/Germany</td>
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</tbody>
</table>

**Coffee Break – Ground Floor in the Exhibition**

### Afternoon

**Club Room 6–8**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>14:30</td>
<td>Fuel Cell Components (B09)</td>
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<td>14:30</td>
<td>Pemican Project: Objectives and Main Results (B0901)</td>
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<tr>
<td></td>
<td>Joël Pauchet, Commissariat à l’Energie Atomique et aux Energies Alternatives (CEA), Lab. d’Innovation pour les Technologies des Energies Nouvelles et les nanomatériaux (LITEN); Grenoble/France</td>
</tr>
<tr>
<td>14:45</td>
<td>Correlating Properties of Special Carbons with Their Performance in the Bipolar Plate and MEA Component of PEM Fuel Cells (B0902) Marlene Rodlert, Timcal Graphite &amp; Carbon; Bodio/Switzerland</td>
</tr>
<tr>
<td>15:00</td>
<td>Gas Diffusion Layer Materials and Their Effect on Polymer Electrolyte Fuel Cell Performance – Ex-situ and In-situ Characterisation (B0903) Ahmad El-Kharouf, Waldemar Bujalski, Neil Rees Uni of Birmingham, Edgbaston, Centre of Hydrogen &amp; Fuel Cell Research, School of Chemical Engineering; Birmingham/UK</td>
</tr>
<tr>
<td>15:15</td>
<td>Fabrication and Characterization of PEMFC Composites Bipolar Plates Manufactured by Compression Molding (B0904) Philippe Toneguzzo (1), Mathieu Comyn (1), Sébastien Dagaz (1), Pierrick Buvat (1), Thierry Geneston (2), Christian Quinieri (2), (1) CEA DAM; Monts/France; (2) AREVA Stockage d’Energie; Aixen Provence/France</td>
</tr>
<tr>
<td>15:30</td>
<td>Project LASER-CELL: Laser Fabrication Processes for Alkaline Fuel Cell Production (B0905) Martin Thomas, AFC Energy plc; Cranleigh/UK</td>
</tr>
<tr>
<td>15:45</td>
<td>Extending Lifetime of Alkaline Fuel Cells via Efficient Water Management Strategies (B0906) Naveed Akhtar, Gene Lewis, AFC Energy plc.; Cranleigh/UK</td>
</tr>
</tbody>
</table>
Thursday, July 4, 2013

10A Auditorium
Chair: Kazunari Sasaki, Olaf Conrad

16:30 Characterisation of Fuel Cell Materials (A10)
Raman Microspectroscopy as a Useful Tool for In-situ and Operando Studies of Water Transport in Perfluorosulfonic Membranes for PEMFCs (A1001)
Stefano Deabate (1), Patrice Huguet (1), Arnaud Morin (2), Gérard Gebel (3), Yannick Lanteri (1), Anna-Katharina Sutor (1), (1) IEM, UMR; Montpellier/F; (2) LITEN-DEHT-LCPEM, CEA-Grenoble; Grenoble/F; (3) SPrAM, CEA-Grenoble; Grenoble/F

16:45 High-resolution Atomic Force Microscopy Analysis of Conductivity and Mechanical Properties of PEM Membranes (A1002)
Renate Hiesgen (1), Stefan Heimly (2,3), Ines Galm (1), Tobias Morawietz (1), K. Andreas Friedrich (2,3), (1) Uni of Applied Sciences Esslingen, Dep. of Basic Science; Esslingen; (2) German Aerospace Center, Inst. of Technical Thermodynamics; (3) Uni of Stuttgart, Inst. for Thermodynamics and Thermal Engineering; Stuttgart/Germany

17:00 Diffusion Coefficient of Protons in Thin PEM Films Determined by Ac-electrogravimetry (A1003)
O. Sel (1), C. Gabrielli (1), C. Laberty-Robert (2), H. Berrot, (1) CNRS, UPR 15 du CNRS, Lab. Interfaces et Systèmes Electrochimiques (LISE); Paris/France; (2) LCMCP-CNRS-UMR-7574-Collegue de France; Paris/France

17:15 Determination of ORR Active Sites and Reaction Mechanism Analysis of group 4 and 5 Metal Oxide-based Cathodes for PEFCs (A1004)
Hideto Imai (1), Toshihiro Asada (1), Kei Kubobuchi (1), (1) NISSAN ARC Ltd.; Yokosuka/Japan

H. Perez (1), X. Cheng (1), E. Pardieu (1,2), M. Pinault (1), A. Etcheberry (2), (1) Lab. Francis Perrin, CEA/DSM/IRAMIS/SPAM-CNRS; Gif-sur-Yvette/France; (2) Inst. Lavoisier (ILV, UMR 8180 CNRS), Uni de Versailles-Saint Quentin; Versailles/France

17:45 Study of Electrosprey Deposited Catalyst Layers in Air Breathing Single Cells for Portable Applications (A1006)
P. Perea, A. J. Martin, M. A. Folgado, A. M. Chaparro Dep. of Energy, CIEMAT; Madrid/Spain

16:30 Club Room 6–8
Chair: Naveed Akhtar, Mario Casciola

16:30 Mechanistic and Direct Alcohol Fuel Cells (B10)
Mechanistic Study of the Hydrogen Oxidation Reaction on Platinum in Alkaline Electrolyte (B1001)
Philipp Jan Rheinländer, Juan Herranz, Hubert A. Gasteiger, Inst. of Technical Electrochemistry, Technische Uni München; Garching/Germany

16:45 Polyethylene Based Radiation Grafted Membranes for Solid Alkaline Fuel Cell Application (B1002)
Polyethylene Based Radiation Grafted Membranes for Solid Alkaline Fuel Cell Application (B1002)
Taucqi A. Sherazi (1,2), Doo Sung Hwang (2), Joon-Yong Sohn (3), Michael D. Guiver (2,4), Young Moo Lee (2), (1) Dep. of Chemistry, COMSATS Inst. of Information Technology; Abbottabad/Pakistan; (2) WCU Dep. of Energy Engineering, College of Engineering, Hanyang Uni; Seoul/Korea; (3) Advanced Radiation Technology Inst., Korea Atomic Energy Research Inst.; Jeolla-buk-do/Korea; (4) National Research Council; Ontario/Canada

17:00 Readsoption Effects in the Anodic Oxidation of Ethanol in Alkaline Fuel Cells (B1003)
C. Cremers, J.O. Meier, K. Pinkwart, J. Tübke, Fraunhofer Inst. for Chemical Technology ICT; Pfinztal/Germany

17:15 Tailoring the Properties of Pt/C Catalysts for DEFC (B1004)
Tailoring the Properties of Pt/C Catalysts for DEFC (B1004)
Marta C. Figueiredo, Juan M. Feliu, Tanja Kallio, Research Group of Fuel Cells, Dep. of Chemistry, Aalto Uni; Aalto/Finland

17:30 Bimetallic PtPd Nanowires Supported on Reduced Graphene Oxide Nanosheets for Methanol Oxidation (B1005)
Bimetallic PtPd Nanowires Supported on Reduced Graphene Oxide Nanosheets for Methanol Oxidation (B1005)
Shangfeng Du(1), Yaxiang Lu (1), Sairam K Malladi (2), Robert Steinberger-Wilckens (1), (1) School of Chemical Engineering, Uni of Birmingham; Birmingham/UK; (2) Kavli Inst. of Nanoscience, Delft Uni of Technology, Delft/The Netherlands

17:45 Operation and Controls of Operating Direct Methanol Fuel Cells with PVA Based Membranes Modified by Benzimidazolium Groups (B1006)
Operation and Controls of Operating Direct Methanol Fuel Cells with PVA Based Membranes Modified by Benzimidazolium Groups (B1006)
Pratima Gajbhiye (1,2), Anil Kumar (1), J.K.Singh (1), (1) Indian Inst. of Technology Kanpur (IIT Kanpur); Kanpur/India; (2) Indian School of Mines Dhanbad

18:00 End of Sessions

19:30 Dinner on the Lake Boarding 19.20, Lake side of KKL pier 5/6 – back 23.30 (short stop in Brunnen 22.30 for early return by train)
Morning

**Auditorium**

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>09:00</td>
<td>Characterisation of High Temperature PEM Fuel Cells (A11)</td>
<td>Sebastian H. Eberhardt, Felix N. Büchi, Thomas J. Schmidt, Paul Scherer Ins.; Villigen ex PSI/Switzerland</td>
</tr>
<tr>
<td>09:00</td>
<td>Localization of Phosphoric Acid in HT-PEFCs by X-Ray Tomographic Microscopy (A1101)</td>
<td>Fang Liu (1), Sajedeh Mohajeri (1), Yidu Di (1), Werner Lehner (1,2), Inst. of Energy and Climate Research (IET-3), Forschungszentrum Jülich, Jülich/Germany; (2) Modeling in Electrochemical Process Engineering, RWTH Aachen Uni; Aachen/Germany</td>
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<tr>
<td>09:15</td>
<td>Effect of Catalyst and Acid Amount on Water Transport for HT-PEFC (A1102)</td>
<td>Fang Liu (1), Sajedeh Mohajeri (1), Yidu Di (1), Werner Lehner (1,2), (1) Inst. of Energy and Climate Research IET-3: Electrochemical Process Engineering, Forschungszentrum Jülich, Jülich/Germany; (2) Modeling in Electrochemical Process Engineering, RWTH Aachen Uni; Aachen/Germany</td>
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<tr>
<td>09:30</td>
<td>Effects of Gas Composition on Degradation of PBI-based HT-PEMFCs (A1103)</td>
<td>Gisu Jeong, Mansu Kim, Minjoong Kim, Jun Young Han, Hyoung-Juhn Kim, Sung Jong Yoo, Jong Hyun Jang, Eunae Cho, Fuel Cell Research Center, Korea Inst. of Science and Technology (KIST); Seoul/Republic of Korea</td>
</tr>
<tr>
<td>09:45</td>
<td>In Situ Raman Spectroscopy on HT-PEM Fuel Cells (A1104)</td>
<td>Anne Majerus (1), Martin Labus (2), Carsten Korte (1), Hans Bettermann (2), Werner Lehner (1,3), (1) Inst. of Energy and Climate Research – Electrochemical Process Engineering (IET-3), Forschungszentrum Jülich GmbH; Jülich/Germany; (2) Inst. of Physical Chemistry, Liquid-Phase Laser Spectroscopy, Heinrich-Heine-Uni of Düsseldorf; Düsseldorf/Germany; (3) Modeling in Electrochemical, Process Engineering, RWTH Aachen Uni; Aachen/Germany</td>
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<tr>
<td>10:00</td>
<td>Spectroscopic and Electroanalytic Investigation of Pt Supported on Functionalized-MWCNTs in HT PEMFCs (A1105)</td>
<td>M.K. Daletou (1), A. Orfanidi (1,2), S.G. Neophytides (1)</td>
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<td>10:30</td>
<td>Coffee Break – Ground Floor in the Exhibition</td>
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Morning

**Club Room 6–8**

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>09:00</td>
<td>Durability, Degradation and Mitigation Strategies (B11)</td>
<td>Edward Brightman, Gareth Hinds, National Physical Lab.; Middlesex/United Kingdom</td>
</tr>
<tr>
<td>09:00</td>
<td>In-Situ Study of Start-up and Shut-down Degradation Using Time Resolved Potential Mapping and CO₂ Measurement (B1101)</td>
<td>Edward Brightman, Gareth Hinds, National Physical Lab.; Middlesex/United Kingdom</td>
</tr>
<tr>
<td>09:15</td>
<td>Electrocatalyst Stability under Dynamic and Stationary Operation of Polymer Electrolyte Fuel Cells (B1102)</td>
<td>K. Andreas Friedrich (1), Stefan Helmly (1), Renate Hiesgen (2), Tobias Morawietz (2), (1) Inst. of Technical Thermodynamics, German Aerospace Center (DLR); Stuttgart/Germany; (2) Uni of Applied Sciences Esslingen, Dep. of Basic Science; Esslingen/Germany</td>
</tr>
<tr>
<td>09:45</td>
<td>Electrochemical Degradation of Catalysts and the Design of Core-Shell Catalysts (B1103)</td>
<td>Anil V. Virkar, Uni of Utah, Dep. of Materials Science and Engineering; Salt Lake City/USA</td>
</tr>
<tr>
<td>10:00</td>
<td>Comprehensive Two Dimensional Structural Investigation on the Stability of Polymer Electrolyte Fuel Cell under Hygrothermal Cyclic Loading/Unloading (B1105)</td>
<td>KK Poornesh, Chongdu Cho, Inha Uni; Incheon/South Korea</td>
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<tr>
<td>10:15</td>
<td>Degradation and CO Tolerance Studies of PEMFC Aimed for Reformate Fuel Operation in µCHP Units (Premium Act Project) (B1106)</td>
<td>Sylvie Escrivan (1), Laure Guétaz (1), Pierre-André Jacques (1), Fabrice Micoud (1), Madeleine Odgaard (2) and Jacob Lindner Bonde (2), (1) CEA/LITEN/DEHT; Grenoble/France; (2) IRD Fuel Cells; Denmark</td>
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Friday, July 5, 2013
Friday, July 5, 2013

**12A Auditorium**

**11:00** Demonstration and Deployment* (A12)

**11:00** Keynote: FCEV Development at Nissan (A1201)
Akihiro Iiyama, Nissan Motor Co Ltd; Yokosuka/Japan

**11:30** High durability H₂ stationary PEMFC Systems Development, Industrialization and Commercialization (A1203)
Eric Claude, Jean-Marc Chareyre, AXANE; Sassenage/France

**11:45** Proton Exchange Membrane Fuel Cell Stack Combined Heat and Power Prototype System (A1204)
Mihai Varlam, Mihai Culcer, Mariana Iliescu, Mircea Raceanu, Adrian Enache, National R&D Inst. for Cryogenics and Isotopic Technologies-ICIT Ramnicu Valcea; Ramnicu Valcea/Romania

**12:00** Keynote: Hydrogen and Fuel Cells for Transportation – Becoming a Major Trend for the Future? (A1205)
Detlef Stolten, Thomas Grube, Sebastian Schiebahn, Research Center Juelich, IEK-3: Inst. of Electrochemical Process Engineering; Jüllich/Germany

12:30 Lunch – 2nd Floor on the Terrace

**12B Club Room 6–8**

**11:00** Fuel Cell Diagnostics (B12)

**11:00** Analysis of Electrical Short-cuts Inside PEMFC (B1201)
Gilles De Moor (1), Corine Bas (1), Elizabeth Rosinot (2), Nicolas Caque (2), Lionel Flandin (1), (1) LEPMI, UMR 5279, CNRS – Grenoble INP – Uni de Savoie – Uni J.Fourie; (2) Axane; Sassenage/France

**11:15** Controlling Fuel Cell Stacks by Impedance Data (B1202)
Stefan Keller, Andreas Popenheim, Fraunhofer ISE; Freiburg/Germany

**11:30** Advanced Studies of Start/Stop Induced MEA Degradation in High Temperature PEFC (B1203)
Tom Engl, Lorenz Gubler, Thomas J. Schmidt, Electrochemistry Lab., Paul Scherrer Inst.; Villigen ex PSI/Switzerland

**11:45** Influence of the Cathode Architecture in the Frequency Response of Air-breathing PEM Fuel Cells (B1204)
Paloma Ferreira-Aparicio, Antonio M. Chaparro, Cetro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT); Madrid/Spain

**12:00** Loss Analysis of PtCo Cathodes for PEMFC (B1205)
Max Cimenti, Jürgen Stumper, Wendy Lee, Automotive Fuel Cell Cooperation Corporation; Burnaby/Canada

**12:15** Enhancement of PEFC Carbon Monoxide Tolerance by Combination of Different Mitigation Methods (B1206)
Luis Martinez, Taneli Rajala, Pauli Koski, Henri Karimäki, Timo Keränen, Kaj Nikiforow, Jaana Viitakangas, Jari Ihonen, VTT – Technical Research Centre of Finland; Espoo/Finland
Afternoon Friday, July 5, 2013

**13A Auditorium**

**13:30**  Assessment, Acceptability and Education* (A13)

**13:30**  Keynote: Low FCEV and Infrastructure Deployment: What Could be Learned from Early Stages of Electric Infrastructures in France for Rechargeable Vehicles (A1301)

Paul Lucchese, CEA; Paris/Paris

**14:00**  A Technology Monitoring and Assessment Tool for Technology Road Mapping (A1303)

Herbert Wancura (1), Ritah Mubbala (2), Alexander Nowak(3), Michael Sprig (4), synergesis consult; Graz/Austria; (2) PLANET GbR, Donnerschweer Str. 89/91; Oldenburg/Germany; (3) CSMS Janina Święch-Skiiba, ul. Zdrojowa 2; Pszczyna Poland; (4) European Fuel Cell Forum AG; Luzern-Adligenswil/Switzerland

**14:15**  Full Steam Ahead? Public Acceptance of Hydrogen Technology (A1304)

René Zimmer, Marta Kaiser, Jörg Welke, Independent Inst. for Environmental Issues; Berlin/Germany

**14:30**  HyProfessionals: Development of Educational Programmes and Training Initiatives Related to Hydrogen Technologies and Fuel Cells in Europe (A1305)

Lucía Alberdi, Joaquín Mora, Luis Correas, Aragon Hydrogen Foundation; Cuarte/Spain

**14:45**  European Curriculum in Fuel Cells and Hydrogen (A1306)

Robert Steinberger-Wilckens (1), Soeren Linderoth (2), Arief Dahoe (3), Josef Mertens (4), Svea Reiners (5), (1) Centre for Hydrogen and Fuel Cell Research, School of Chemical Engineering, Uni of Birmingham; Birmingham/UK; (2) Danish Technical Uni; Risø/Denmark; (3) Uni of Ulster; Belfast/Northern Ireland; (4) Forschungszentrum Jülich; Jülich/Germany; (5) Heliocentris GmbH; Berlin/Germany

**15:00**  Coffee Break – 1st Floor in front of Auditorium & 2nd Floor in front of Club Rooms

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**13B Club Room 6–8**

**13:30**  Hydrogen Production, Storage, Purification (B13)

**13:30**  Carbon Dioxide as Hydrogen Vector – Sustainable H₂ Storage and Delivery (B1301)

Gábor Laurenczy, EPFL, École Polytechnique Fédérale de Lausanne, Lab. de Chimie Organométallique et Médicinale (LCOM); Lausanne/Switzerland

**13:45**  Investigations of the Steam Iron Process for Decentralised Renewable Hydrogen Production (B1302)

Stephan Nestl, Gernot Voitic, Viktor Hacker, Inst. of Chemical Engineering and Environmental Technology, Graz Uni of Technology; Graz/Austria

**14:00**  Formic Acid – a Suitable Material for Hydrogen Storage (B1303)

Peter Sponholz, Dörthe Mellmann, Henrik Junge, Matthias Beller, Leibniz-Inst. for Catalysis Rostock; Rostock/Germany

**14:15**  Efficient Large Scale Hydrogen Liquefaction (B1304)

Ilka Seemann, Christoph Haberstroh, Hans Quack, TU Dresden, Bitzer Chair of Refrigeration, Cryo and Compressor Technology; Dresden/Germany

**14:30**  Dense Palladium-Copper Alloy Membranes for Hydrogen Separation (B1305)

Naser A Al-Mufachi, Shahrouz Nayebossadi, John Speight, Waldemar Bujalski, David Book, Uni of Birmingham, School of Metallurgy and Materials; Birmingham/UK

**14:45**  Electro-chemical Hydrogen Compression (B1306)

Peter Bouwman, Sander ten Hoopen, Menno Koeman, Wiebrand Kout, Daniel Semerel, Marten-Jan Verbeek, Frans Mulder, Hydrogen Efficiency Technologies – HyF; Amhem/The Netherlands

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*Chair: Ulf Bossel, Stylianos Neophytides
Chair: Paulo Miranda, Uwe Hannesen
### Afternoon, Friday, July 5, 2013

#### 14A Auditorium

**15:30** P3: Perspectives on HFC future deployment (A14)

If Hydrogen Is Such a Great Solution, Why Is Taking So Long? (A1401)

David Hart, E4Tech; Lausanne/Switzerland and London/UK

**Chair: Nancy Garland**

#### 15A Auditorium

**16:00** P4: Summary, Next Conferences; Closing Ceremony (A15)

Summary by the Chairlady (A1501)

Deborah Jones, ICGM-CNRS, Uni Montpellier 2; Montpellier/France


Olivier Bucheli, Michael Spirig, European Fuel Cell Forum; Luzern/Switzerland

Award for the Best Paper (A1503)

Carl-Albrecht Schiller (1), Norbert Wagner (2), (1) Zahner-Elektrik GmbH & Co.KG; Kronach/Germany; (2) DLR/Institut für Techn. Thermodynamik; Stuttgart/Deutschland

Friedrich Schönbein Award for the Best Poster, Best Science Contribution, Medal of Honour (A1504)

Deborah Jones, ICGM-CNRS, Uni Montpellier 2; Montpellier/France

Thank you and Closing by the Organizers (A1505)

Michael Spirig, Olivier Bucheli, European Fuel Cell Forum; Luzern/Switzerland

17:00 End of Sessions – End of Conference
Poster Session I (with all Session Topics) Wednesday, July 3, 2013, 13:15–14:30; Club Room 3–5

Poster Session II (with all Session Topics) Thursday, July 4, 2013, 13:15–14:30; Club Room 3–5

**Improved Mechanical Properties of Low Equivalent Weight Short Side Chain PFSA (A0412)**
Deborah Jones (1), Surya Subianto(1), Jacques Roziere(1), Sara Cavaliere(1), Yannig Nedellec (1), Paula Cojocaru (2), Luca Merlo (2), Graham Hards (3), Sarah Burton (3), Mario Casiola (4), Monica Pica (4), Anna Donnadieu (4). ICGM-CNRS, Université de Montpellier; (1) Université de Montpellier; (2) Solvay Speciality Polymers; (3) Johnson Matthey Fuel Cells Ltd.; (4) Unipol/UK.

**Understanding Proton Transport by Impedance Spectroscopy in Hybrid Organic-Inorganic Membranes Synthesized via Electrospinning and Sol-gel Chemistry (A0143)**
Leslie Dos Santos (1,2), Ozlem Sel (2), Hubert Perrot (2), Christel Laberty-Robert (1), Laboratoire de Chimie de la Matière Condensée de Paris, UPMC, CNRS-UMR7574, Paris/France; (2) Laboratoire Interfaces et Systèmes Electrochimiques, CNRS-UPR15, UPMC.

**Advanced Fuel Cell Catalysts* (A05)**

**Fabrication of Pt/C Electrode with Double Catalyst Layers by Electrophoresis Deposition Method for PEFC (A0509)**
Yeong-Tae Yu, Ganpurev Adilbish, Jin-Woo Kim, Jun-Woo Lee, Division of Advanced Materials Engineering, College of Engineering, Chonbuk National University; Jeonju/South Korea.

**Developing New PEM Membrane Materials for High Temperature PEM Fuel Cells (A06)**

**Development of Composite Membranes of Phosphate Based – Solid Acids for Medium Temperature PEM Fuel Cell and Electrolyser (A0608)**
Asier Gorri-Urtiaga, Keith Scott, School of Chemical Engineering and Advanced Materials, Newcastle University; Newcastle upon Tyne/UK.
Novel Composite Proton Exchange Membrane Materials for Intermediate Temperature Fuel Cells (A0609)
Mariska Hattenberger (1), Surbhi Sharma (1), Amrit Chandan (1), Waldemar Bujalski (1), Valerie Self (2) and John Richmond (2), (1) Centre for Hydrogen and Fuel Cell Research, The Uni of Birmingham; Birmingham/UK; (2) Tata Motors European Technical Centre, Uni of Warwick; Coventry/UK

A Single Step Preparation Method for Cross-linked High Acid Doping Level Polybenzimidazole Membranes (A0610)
Aurélien Kreisz, Nicolas Donzel, Deborah Jones, Jacques Rozière, ICGM-CNRS, Uni Montpellier 2; Montpellier/France

Next Generation High Temperature PEM Fuel Cells Incorporating Quasi-Anhydrous and Dry Membranes: from Components to PEMs (A0611)
Deborah Jones (1), Jacques Rozière (1), Nicolas Donzel (1), Sara Cavaliere(1), Irene Gatto (2), Alessandro Stassi (2), Antonino Arico(2), Silvain Buche (3), Graham Hards (3), Michael Schuster (4), Bernd Bauer (4), Arindam Sannigrahi (5), Patric Jannasch (5), Jennifer Wegener (6), Markus Klapper (6), (1) ICGM-CNRS, Uni Montpellier 2; Montpellier/France; (2) CNR-ITAE; Messina/Italy; (3) Johnson Matthey Fuel Cells Ltd.; Sonning Common/U.K.; (4) fumatech GmbH; Sankt Ingbert/Germany; (5) Lund Uni; Lund/Sweden; (6) Max-Planck-Inst. for Polymer Research; Mainz/Germany

PEM and Alkaline Electrolysis* (A07)
New Materials for the Anion Exchange Membrane Electrolyzer (AEM) (A0707)
M. Manolova, C. Schöberl, R. Freudenberger, Forschungsinst. für Edelmetalle und Metallchemie (fem); Schwäbisch Gmünd/Germany

An Efficient Numerical Model of a PEM Electrolyzer (A0708)
David L. Fritz, Marcelo Carmo, Jürgen Mergel, Detlef Stolten, Forschungszentrum Jülich, Inst. of Energy and Climate Research (IEK-3); Jülich/Germany

Degradation Characterisation of Nickel Electrodes of an Alkaline Electrolyser (A0710)
Daniel Symes, Bushra Al-Duri, Aman Dhir, Chemical Engineering, Uni of Birmingham, Centre for Hydrogen and Fuel Cell Research; Birmingham/United Kingdom

Titanium Dioxide Nanotubes Based Catalyst Supports for Hydrogen Evolution in PEM Water Electrolyser (A0711)
Radostina Genova-Koleva, Francisco Alcaide, Hans-Jürgen Grande, Oscar Miguel, Dep. de Energia, IK4-CIDETEC; Donostia-San Sebastian/Spain

Pressurised PEM Electrolyzer Catalyst Development (A0712)
Antti T. Pasanen (1), Elina Tii-Rantala (1), Eini Puhakka (1), Johanna Forsman (1), Pertti Kauranen (1), Max Johansson (2), Mikael Bergelin (2), Per Wittenhoff (3), Laila Grahl-Madsen (3), (1) VTT Technical Research Centre of Finland; Tampere/Finland; (2) Åbo Akademi Uni; Turku/Finland; (3) IRD Fuel Cells LLC; Svendborg/Denmark

A Dual-circuit Redox Flow Battery for the Generation of Hydrogen from Renewable Energy (A0713)
Véronique Amstutz, Kathrin E. Toghill, Christos Comninellis, Hubert H. Graulat, Ecole Polytechnique Fédérale de Lausanne; Lausanne/Switzerland

The Solar Fuel: a very Steep Energetic Vector (A0714)
Salim Daoaudi (1), Adelhamid Ithnawi (2), (1) Uni of BBA, Faculty of the Sciences and Technology; Bordj Bou Arreridj/Algeria; (2) LMSE, Uni of BBA, Faculty of the Sciences and Technology; Bordj Bou Arreridj/Algeria

Three-dimensional Modeling and Simulation of Hydrogen Desorption in Metal Hydride Hydrogen Storage Vessels (A0715)
Hyunchul Ju, Hanuel Yoo, School of Mechanical Engineering, Inha Uni; Incheon/Republic of Korea

Renewable Hydrogen (A09)
Dörthe Meilmann, Peter Sponholz, Henrik Junge, Matthias Beller, Leibniz Inst. for Catalysis Rostock; Rostock/Germany

Nix-Cuy /A203 Catalyst for H₂ Production Via Methanol Steam Reformation (A0909)
Martin Khzouz, Joe Wood, Uni of Birmingham, School of Chemical Engineering; Birmingham/UK

Adsorptive Desulphurization of Natural Gas Using Mesoporous Material for Fuel Cell (A0910)
Jaedong Kim (1), kihoon An (2), Daryaung Park (1), Jeonghwan Choi (1), Younga Cho (1), Sungho Hong (1), Wankeun Bang (3), Jihan Kim (2), (1) New Energy Technology Center, R & D Division, Korea Gas Corporation; Ansari/Korea; (2) Dep. of Chemistry, BK21 School of Materials Science and Dep. of Energy Science, Sungkyunkwan Uni, Suwon 440-476, Korea; Suwon/Korea; (3) Coseal Co.Ltd. Research Center 493 2 Soryong-dong, Kunsan-cho, Cheollabuk-do; Cheollabuk-do/Korea

Must and Fruit Juice Wastewaters Fermentation to Hydrogen (A0911)
Araceli Gonzalez del Campo, Pablo Carles, Justo Lobato, Manuel Rodrigo, Francisco Jesus Fernandez, Uni of Castilla-La Mancha, Chemical Engineering Dep.; Ciudad Real/Spain

Obtaining of Hydrogen in Gaseous and Metallic States from Sea Water (A0912)
Leonid F. Dubikovsky, I.Frantsevych Inst. for Problems of Materials Science NASU; Kiev/Ukraine

Computational analysis of Hydrogen Embrittlement in Polycrystalline Nickel and Anisotropic Polyhedral Micro, Nano Grain Size Effects (A0913)
S.Jothi, T.N.Croft, S. G. R. Brown, E. de Souza Neto, College of Engineering, Swansea Uni; Swansea/UK
An activity in Japan for Realisation of CO2 Free H2 Global Chains (A0914)
Masaharu Sasakura, Atsushi Kurosawa, Yuki Ishimoto, Nobuyuki Goto, Kenji Murata, Kenzo Fukuda, Inst. of Applied Energy; Tokyo/Japan

Sensitivity Study on Hydrogen Cost in Inter-continental Renewable Energy Transportation Systems (A0915)
Ko Sakata, Yuki Ishimoto, Kenzo Fukuda, The Institute of Applied Energy; Tokyo/Japan

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Micro-Raman Spectroscopy Characterization of Perfluorosulfonic Acid (PFSA) Ionomers (A1007)
Corine Bas, Jean-De Massas, Eddy Moukheiber, Gilles De Moor, Asma El Kaddouri, Lionel Flandin, LEPMI, UMR 5279, CNRS-Grenoble INP-Uni de Savoie-Uni J.Fourier; Le Bourget du Lac/France

Influence of Operation Parameters on the Response of a PEMFC with Electrodeposited Pt-WO3 Cathode (A1008)
Antonio J. Martín, Antonio M. Chaparro, Dep. of Energy, CIEMAT; Madrid/Spain

Spectroscopic Identification of Active Sites in Precious-Metal-Free Catalysts for Polymer Electrolyte Fuel Cells (A1009)
Vincent Goellner, Adina Morozan, Moulay-Tahar Sougrati, Lorenzo Stievano, Deborah Jones, Frédéric Jaouen, Inst. Charles Gerhardt Montpellier; Montpellier/France

Analysis of the Cathode Behavior of an Air Breathing Single PEM Cell Based on a Flooded Agglomerate Model (A1010)
Paloma Ferreira-Aparicio, Antonio M. Chaparro, Dep. of Energy, CIEMAT; Madrid/Spain

Investigation Phase Inhomogeneous Distribution by Neutron and X-ray Scattering on 6ScSZ Electrolyte in SOFC Stacks (A1011)
Tzu-Wen Huang, Artur Braun, Lab. for High Performance Ceramics Empa, Swiss Federal Lab. for Materials Science and Technology; Dübendorf/Switzerland

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Fosca Conti (1,2), Anne Majerus (1), Sabine Willbold (3), Werner Lehnert (1), Martin Brenner (2), Hans-Georg Anfang (3), (1) Inst. of Energy and Climate Research – Electrochemical Process Engineering (IEK-3), Forschungszentrum Jülich GmbH; Jülich/Germany; (2) Dep. of Chemical Sciences, Uni of Padova; Padova/Italy; (3) Central Division of Analytical Chemistry (ZCH), Forschungszentrum Jülich; Jülich/Germany; (4) Modeling in Electrochemical Process Engineering, RWTH Aachen Uni; Aachen/Germany

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HHO Fact or Fiction? (A1207)
Aman Dhir (1), Daniel Symes (1), Jose Herreros Arellano (2), (1) Centre for Hydrogen and Fuel Cell Research, School of Chemical Engineering, Uni of Birmingham; Birmingham/UK; (2) Engines Group, School of Mechanical Engineering, Uni of Birmingham; Birmingham/UK

Effect of Using Different Fuels on Performance of High-Temperature PEMFC Systems (A1208)
Suthida Athayanun (1), Anomchai Arpornwichaporn (2), (1) Srinakharinwirote Uni, Dep. of Chemical Engineering, Faculty of Engineering; Nakhon Nayok/Thailand; (2) Chulalongkorn Uni, Dep. of Chemical Engineering, Faculty of Engineering; Bangkok/Thailand

A Passive Proton Exchange Membrane Fuel Cell and Li-ion Battery Hybrid System (A1209)
Sheng-Miao Lin, Yong-Song Chen, Advanced Inst. of Manufacturing for High-tech Innovations and Dep. of Mechanical Engineering, National Chung Cheng Uni; Chiayi County/Taiwan ROC

On the Complementarity of Batteries and Fuel Cells for Electric Driving (A1210)
Aimen Smatt (1), Alain Le Duigou (2), (1) Arts et Métiers ParisTech – internatship at CAE/DEA/DANS/Itéé; Gif Sur Yvette/France; (2) DEA/DANS/Itéé; Gif Sur Yvette/France

Operation Strategies of a Diesel Fuel Processor for Fast Start-up and Catalyst Regeneration (A1211)
Marius Maximini (1), Philip Engelhardt (1), Martin Brenner (2), Hans-Georg Anfang (3), (1) Oel-Wärme-Inst. GmbH; Heizkraftwerk Zentrale GmbH; (2) DEH GmbH & Co. KG; Stuttgart/Germany; (3) CECO Heizkoerper GmbH; Heidelberg/Germany

Reva Electric Vehicle Conversion to a Hydrogen Fuel Cell Powered Vehicle (A1212)
Lorenzo Nasarre Cortes, Joaquín Mora Larramona, Marcos Ruperez, Luis Correas Uson, Aragon Hydrogen Foundation; Cuarte/Spain

Fuel Cell Operating on Convensional Fuel as Auxiliary Power Source for Battery Electric Vehicles (A1213)
C. Cremers (1), U. Groos (2), A. Schaadt (2), J.-E. Svensson (3), T. Steenberg (4), J. Krömer (5), M. Bang (6), H.-P. Schmid (7), (1) Fraunhofer Inst. for Chemical Technology ICT; Pfinztal/Germany; (2) Fraunhofer Inst. for Solar Energy Systems ISE; Freiburg/Germany; (3) Chalmers Uni of Technology; Gothenburg/Sweden; (4) Danis Power Systems Ltd; Lyngby/Denmark; (5) Borit NV; Geel/Belgium; (6) Serenergy A/S ; Hobro/Denmark; (7) WS Reformer GmbH; Renningen/Germany

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Kee Young Koo, Yu Ho Jung, Wang Lai Yoon, Hydrogen and Fuel Cell Dep., Korea Inst. of Energy Research; Daejeon/Republic of Korea
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Thomas Hück (1), Philip Engelhardt (2), (1) Axcellsys GmbH; Herzogenrath/Germany; (2) OWT Oel-Waerme-Inst. GmbH; Herzogenrath/Germany

The catalytic performance of CuO/CGO for preferential oxidation (A1216)
Jiwoo Oh, Joongmyeon Bae, School of Mechanical, Aerospace & System Engineering, KAIST; Daejeon/Korea

Development of HTPEM Fuel Cell Stack with an Integrated Reactant Preheating System (A1217)
Vasu Gollangi, E Hanibabu, M R Pawar, BHEL Corporate R&D Division, Fuel cells & Renewable Energy Group; Hyderabad/India

Modeling and Simulations of a 20 kW Fuel Cell System with Bio-gas Processors (A1218)
Hyunchul Ju, Kyungmun Kang, Haneul Yoo, Inha Uni, School of Mechanical Engineering; Incheon/Republic of Korea

HYPER Project: Integrated Hydrogen Power Packs for Portable and Other Autonomous Applications (A1219)
Agata Godula-Jopek, EADS Innovation Works, TCC6 Energy & Propulsion; Munich/Germany

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Hydrogen- Based Peak Power Management Unit for a Residential Application (B0407)
Mithal Varlam, Mithal Culcer, Mariana Ilescu, Mircea Raceanu, Adrian Enache, National R&D Inst. for Cryogenics and Isotopic Techniocs - ICT Ramnicu Valcea; Ramnicu Valcea/Romania

Hydrogen-Based Peak Power Management Unit for a Residential Application (B0408)
Mario Ludwig (1,2), Christoph Haberstroh (2), Ullrich Hesse (2), (1) Boysen-TUD-Graduiertenkolleg; Dresden/Germany; (2) Bitzer Stiftungsprofessur für Kryo-, Kälte- und Kompressorentechnik; TU Dresden/Germany

Fuel Processing, Stack and Systems Integration (B05)
Polymer electrolyte Fuel Cell Stack Modeling in VHDL-AMS Language with Temporal and EIS Experimental Validations (B0607)
El-Hassane AGLZIM (1), Daniela CHRENKO (1), Amar ROUANE (2), Djilali KOURTICHE (2), Mustapha NADI (2), (1) Uni of Burgundy – ISAT Lab.; Nevers/France; (2) Uni of Lorraine – LIEN Lab.; Vandoeuvre Lès Nancy/France

A Novel Model for Cathode Electrode of PEMFCs Based on Lattice-Boltzmann Method (B0608)
G. R. Molaeimanes, M. H. Akbari, Center for Fuel Cell Research, School of Mechanical Engineering, Shiraz Uni; Shiraz/Iran

Dynamic Simulation of 1kW PEMFC Hybrid System for Unmanned Aerial Vehicle (B0609)
Sanggyu Kang (1), Hanseok Kim (1), Sueyong Chae (2), Yujin Song (2), (1) Korea Institute of Machinery and Materials; Daejeon/Korea; (2) Korea Institute of Energy Research

Novel Supports and non-Precious Fuel Cell Catalysts (B07)
Valve Metal Oxide Based Catalysts for the Oxygen Reduction Reaction in Acidic DMFCs (B0708)
Thomas Mittermeier, Pankaj Madikar, Xiaodong Wang, Hubert A. Gasteiger, Michele Piana, Technische Universität München, Lehrstuhl Technische Elektrochemie ; Garching. München/Germany

The Catalytic Activity of Cathode with Sputtered Iron with Graphene on Carbon Paper (B0709)
Kiseong Lee (1), Dong-Il Kim (2), Tae-Whan Hong (3), Whan-Gi Kim (4), Hyun-Chul Ju (5), Dong Min Kim (1), (1) Dep. of Materials Science and Engineering, Hongik Uni, Dep. of Fuel Cells; Chungnam/Republic of Korea; (2) Dongjin Semichem. Co Ltd.; Incheon/South Korea; (3) Dep. of Materials Science and Engineering, Korea National Uni of Transportation; Chungbuk/Republic of Korea; (4) Dep. of Applied Chemistry, Konkuk Uni; Chungbuk/Republic of Korea; (5) Dep. of Mechanical Engineering, Inha Uni; Incheon/Republic of Korea

The Catalytic Activity of Sputtered Cobalt with Carbon Nanotube on Carbon Paper (B0710)
Kiseong Lee (1), Minku Lee (2), Dong Min Kim (1), (1) Dep. of Materials Science and Engineering, Hongik Uni, Dep. of Fuel Cells; Sejong/Republic of Korea; (2) Nuclear Materials Development Division, Korea Atomic Energy Research Inst.; Daejeon/South Korea

Fabrication of Carbon Nanocapsule Supported non-Precious Catalysts for Oxygen Reduction Reaction (B0711)
Cheng-Hong Liu, Wen-Lin Wang, Chao-Ho Lan, Fang-Hsi Tsau, Dep. of Hydrogen Energy and Fuel Cells, Green Energy and Eco-technology Center, Industrial Technology Research Inst. (ITRI), South Campus; Tainan City/Taian

Synthesis Strategies of Precious-Metal-Free Catalysts for Polymer Electrolyte Fuel Cells (B0712)
Adina Morozan, Vincent Goellner, Marta Zaton, Jacques Rozière, Frédéric Jaouen, Inst. Charles Gerhardt Montpellier; Montpellier/France

Dopant-driven Architectures of Nanostructured SnO₂: “Loose-fibre” Fibres as Novel PEMFC Electrocatalyst Supports (B0713)

Enhanced Electrochemical Stability of PEMFC Electrodes Based on Electrosynptan Titanium Dioxide Nanofibres (B0714)
I. Savych, J. Bernard d’Arbigny, S. Subianto, S. Cavaliere, D. J. Jones, J. Rozière, Inst. Charles Gerhardt, Lab. des Agrégats, Interfaces et Matériaux pour l’Energie, Uni Montpellier 2; Montpellier/France
Electrochemical oxidation of hydrogen sulfide (B0715)
D. Uzun (1), E. Razkazova-Velkova (2), V. Beshkov (2), K. Petrov (1), (1) Institute of Electrochemistry and Energy Systems, Bulgarian Academy of Sciences; Sofia/Bulgaria; (2) Institute of Chemical Engineering, Bulgarian Academy of Sciences

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The Effect of Compression on MEA Performance: Changes in the GDL Properties (B0907)
Ahmad El-Kharouf, Waldemar Bujalski, Neil Rees, Uni of Birmingham, Centre of Hydrogen & Fuel Cell Research, School of Chemical Engineering: Birmingham/UK

Metal-based Gas Diffusion Layer in Proton Exchange Membrane Fuel Cells (B0908)
N. Alhazmi, D. B. Ingham, M. S. Ismail, K. Hughes, L. Ma, M. Pourkashanian, Energy Technology and Innovation Initiative, The Uni of Leeds; Leeds/UK

Highly Conductive Elastic Epoxy/Graphite/Carbon Fiber Filament Composites for Bipolar Plate Application in Polymer Electrolyte Fuel Cells (B0909)
Jae-Young Lee, Hee-Suck Jung, Hong-Ki Lee, Hydrogen Fuel Cell Regional Innovation Center; Woosuk Uni; Chonbuk/Korea

Carbon Coated Stainless Steel for Bipolar Plates in PEM Fuel Cells (B0910)
Anna Jansson, Hanna Bramfeldt, Jörgen Westlinder and Håkan Holmberg R&D Sandvik Materials Technology; Sandviken/Sweden

Phosphoric Acid Transport to Metallic Bipolar Plates in High Temperature PEMFCs (B0911)

Phosphoric Acid Transport to Metallic Bipolar Plates under Different temperatures (B0912)
Ching-Ying Huang, Wen-Lin Wang, Chao-Ho Lan, Fang-Hei Tsau, ITRI South Campus, Hydrogen Energy & Fuel Cell Department; Tainan city/Taiwan R.O.C.

Alkaline and Direct Alcohol Fuel Cells B10
Performance of a Passive Direct Methanol Fuel Cell: Modelling and Experimental Studies (B1010)
V.B. Oliveira, M. Fortunato, A.M.F.R. Pinto, Faculdade de Engenharia da Uni do Porto, Dep. de Engenharia Química; Oporto/Portugal

Carbon-metal Oxide Heterostructures by Electrospinning and Atomic Layer Deposition for Methanol Oxidation (B1011)
I. Savych (1), C. Marichy (2), N. Pinna (3), S. Cavaliere (1), D.J. Jones (1), J. Rozière (1), (1) Inst. Charles Gerhardt, Lab. des Agrégats, Interfaces et Matériaux pour l’Energie, Uni Montpellier 2; Montpellier/France; (2) Dep. of Chemistry, CICERO, Uni of Aveiro; Aveiro/Portugal; (3) Dep. of Chemistry, Humboldt-Uni zu Berlin; Berlin/Germany

Improvement and Durability of Cost-effective Components for New Generation Solid Polymer-DURAMET Project (B1012)
A.S. Aricò (1), V. Baglio (1), E. Modica (1), A. Stassi (1), C. D’Urso (1), S.C. Zignani (1), D. Jones (2), M. Dupont (2), J. Rozière (2), M. Schuster (3), P. Alnegren (4), C. D’Urso (5), D. Pullini (5), G. Tsotridis (9), (1) CNR-ITAE; Messina/Italy; (2) CNRS; Montpellier/France; (3) FUMATECH; St. Ingbert/Germany; (4) CRF; Torino/Italy; (5) TUM; Munich/Germany; (6) IRD FUEL CELLS A/S; Denmark; (7) Politecnico di Torino; Torino/Italy; (8) PRETEKO; Montpellier/France; (9) Inst. for Energy and Transport, European Commission, Directorate-General Joint Research Centre; Petten/The Netherlands

PVA Based Membranes Modified by Benzenimidazole Groups for Fuel Cell Application (B1013)
Priatima Gajbhiye (1,2), Anil Kumar (1), J.K. Singh (1), (1) Indian Inst. of Technology Kanpur (ITK Kanpur); Kanpur/India; (2) Indian School of Mines Dhanbad; Dhanbad/India

Investigation of operational durability of membrane electrode assemblies in DMFC prepared by a roll-press based decal technique (B1014)
Asad Mehmood (1,2), Heung Yong Haa (2), (1) School of Mechanical Engineering, Korea Institute of Science and Technology (KIST); Seoul, Republic of Korea; (2) Department of Energy and Environmental Engineering, University of Science and Technology (UST); Daejeon, Republic of Korea

Durability, Degradation and Mitigation Strategies B11
Effects of CO poisoning on the Performance of a High Temperature PEMFC using Phosphoric Acid Doped Polybenzimidazole Membrane (B1107)
Kyeongmin Oh, Johan Ko and Hyunchul Ju, (1) School of Mechanical Engineering, Inha University; Incheon/Republic of Korea

Ion Chromatography of Process Waters of Various Fuel Cell Systems (B1108)
Nadine Bruns, Peter Wagner, Carl von Ossietzky Uni Oldenburg, NEXT ENERGY · EWE-Research Centre for Energy Technology; Oldenburg/Germany

The Effect of Hydrocarbon Impurities in the Hydrogen Fuel on the Anode Activity in PEMFC (B1109)
Rakel Wreland Lindström, Katrin Kortsdottir, Francisco J. Perez Ferriz, Julio J. Conde Lopez, Benjamin Cormier, Carina Lager-gren, Göran Lindberg, Applied Electrochemistry, KTH Royal Inst. of Technology; Stockholm/Sweden

Focuses on the Perfluorosulfonic Acid (PFSA) Membrane Degradation Induced by PEMFC Operation (B1110)
Corine Bas, Laurent Leclerc, Eddy Moukheibir, Gilles De Moor, Lionel Flandin, LEPMI, UMR 5279, CNRS — Grenoble INP — Uni de Savoie — Uni J.Fourie; Le Bourget du Lac/France
Investigation of anti-corrosive graphite layer on metal bipolar plate for proton exchange membrane fuel cell (B1111)

Wen-Lin Wang, Cheng-Hong Liu, Chao-Ho Lan, Fang-Hei Tsau, Dep. of Hydrogen Energy and Fuel Cells, Green Energy and Eco-technology Center, Industrial Technology Research Inst. (ITRI), South Campus; Tainan City/Taiwan

The AVL PEMFC System Validation Program (B1112)

Vincent Lawlor, Gunther Weirum, Kurt Salzgeber, Hannes Hick, AVL List GmbH; Graz/Austria

Numerical Modeling and Analysis of Degradation Rate for Membrane Electrode Assemblies in High Temperature PEM Fuel Cells (B1113)

Minjin Kim (1,2), Taegon Kang (1,2), Young-Jun Sohn (1), (1) Korea Inst. of Energy Research; Daejeon/Korea; (2) Uni of Science and Technology; Daejeon/Korea

Fuel Cell Diagnostics B12

Measurements of Water Droplet Behavior in Cathode Channel of Polymer Electrolyte Fuel Cell (B1207)

Eiji Ejiri, Chiba Inst. of Technology; Narashino-City/Japan

PEM Fuel Cell Modeling and Effective Diffusivity Characterization in Simulated Cathode Catalyst Layer (B1208)

Young-Jun Sohn (1,2), Sung-Dae Yim (1), Gu-Gon Park (1), Minjin Kim (1), Kyoungyoun Kim (2), Suk Won Cha (3), (1) Korea Inst. of Energy Research (KIER); Daejeon/Republic of Korea; (2) Dep. of Mechanical Engineering, Hanbat National Uni; Daejeon/Republic of Korea; (3) School of Mechanical and Aerospace Engineering, Seoul National Uni; Seoul/Republic of Korea

Spatial Heterogeneities in Influence of Heat Transfer on the Electronic Structure and Conductivity of LSM Cathodes in SOFC stacks (B1209)

Tzu-Wen Huang, Artur Braun, Lab. for High Performance Ceramics Empa, Swiss Federal Lab. for Materials Science and Technology; Dübendorf/Switzerland

Hydrogen Production, Storage, Purification B13

On-site Hydrogen Production at Refueling Stations from Diesel and Biodiesel (B1307)

Stefan Martin (1), Dick Lifteink (2), David Wails (3), George Karagiannakis (4), Toste Azevedo (5), Marina Maynar (7), (1) German Aerospace Center; Germany; (2) HyGear B.V.; The Netherlands; (3) Johnson Matthey PLC.; United Kingdom; (4) Centre for Research and Technology Hellas; Greece; (5) Instituto Superior Técnico; Portugal; (6) Abengoa Bioenergia San Roque, S.A; Spain; (7) Abengoa Hidrógeno, S.A.; Spain

Low Temperature Reforming of Diesel over Structured Catalysts (B1308)

Sangho Lee, Joongmyeong Bae, Dept. of Mechanical Eng., KAIST; Daejeon/Republic of Korea

La0.75Sr0.25Cr0.5Mn 0.5O 3-δ Oxide Based Steam Reforming Catalyst for SOFC Direct Internal Reforming (B1309)

Byoung Young Yoon, Joongmyeong Bae, Dept. of Mechanical Eng., KAIST; Daejeon/Republic of Korea

Ru/Ni/MgAl2O4 Catalysts for Steam Reforming of Methane: Effects of Ru Content on Self-activation Property (B1310)

Dal-Ryung Park, Jae-Dong Kim, Seung-Chan Baek, Ki-Won Jeon, (1) New Energy Research Center, Korea Gas Corporation; Ansari/Republic of Korea; (2) Petroleum Displacement Technology Research Center, Korea Research Inst. of Chemical Technology(KRICT); Daejeon/Republic of Korea

Hydrogen Permeation of a Palladium-coated Vanadium-10at.%Aluminium Membrane (B1312)

Meng-Chang Lin, Yen-Hsun Chi, Yu-Li Lin, Ting-Wei Huang, Green Energy and Environment Research Lab., Industrial Technology Research Inst.; Hsinchu/Taiwan

The Enhanced Hydrogen Storage Properties of CNT Modified MgH2 (B1313)

Sang-Woon Hwang and Kee-Suk Nahm, School of Chemical Engineering and R&D Education Center for Fuel Cell Materials and Systems, Chonbuk National University; Jeonju/Jeollabuk-do/Republic of Korea

National Hydrogen Competitiveness Analysis With Fuzzy Theory Integrated Multi-Criteria Decision Making Approach In Case Of Hydrogen Production And Storage (B1314)

Seongkon Lee (1,2), Gento Mogi (2), Zoulin Li (2), Sangkon Lee (3), K.S Hui (4), K.N Hui (5), Jongwook Kim (1), (1) Energy Policy Research Center, KIER; Daejeon/Republic of Korea; (2) Department of Technology Management for Innovation, Graduate School of Engineering; Tokyo/Japan; (3) Green Transformation Technology Center, KITECH; Daegu/Korea; (4) Department of Mechanical Engineering, Hanyang University; Seoul/Republic of Korea; (5) School of Materials Science and Engineering, Pusan National University; Busan/Republic of Korea
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Special Events

Welcome Gathering
Tuesday, 2 July: 18:00, Luzerner Terrasse, 2nd floor: Meet old friends, find new ones and enjoy the splendid view of the lake and the historic town – a perfect starter to the conference.

Swiss Surprise (optional, limited to 80 participants)
Wednesday, 3 July: 18:30, place to be announced. A special surprise is offered in an unusual place close to Lucerne: Enjoyable evening with Swiss folklore, music, drinks and dinner. Tickets are sold at a first-come-first-serve-basis for CHF 120.– per person. Please choose this option during your on-line registration or use the registration form at www.efcf.com (EFCF 2013 Info, Downloads) to purchase tickets in advance for you and your guests.

Dinner on the Lake
Thursday, 4 July: 19:30 Pier 6 (“Brucke 6”) next to Congress Center: Historic paddle wheel steamer “Stadt Luzern” (1927, flagship of the fleet) will take us past a magnificent landscape to the “Rutli” glade, birthplace of Switzerland (1291). Enjoy the unique blend of music, drinks and candle-light dinner while gliding past beautiful scenery. Live music contributes to this unforgettable evening. This event is included in the registration fee. Please choose this option during your on-line registration at www.efcf.com to purchase additional tickets for your guests (CHF 120.– per person).

Entertainment for Accompanying Person
The Lucerne Tourist Office offers an entertainment program for accompanying persons from visits to the medieval part of the town to delightful excursions to the picturesque surroundings of Lucerne. All excursions are arranged locally. Accompanying persons may participate in the “Swiss Surprise” and “Dinner on the Lake”. Please choose this option during your on-line registration at www.efcf.com to purchase additional tickets for your guests (each CHF 120.– per person).
At the time of print of this Final Announcement the following developers, material, measurement tool and component suppliers as well as research institution had registered for the exhibition and/or the demonstration area:

**List of Exhibitors**

<table>
<thead>
<tr>
<th>Booth A01</th>
<th>ALMUS AG</th>
<th>Morgenacherstrasse 2F</th>
<th>CH-5452 Oberrohrdorf, Switzerland</th>
<th><a href="http://www.almus-ag.ch">www.almus-ag.ch</a></th>
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<tbody>
<tr>
<td>Booth A02</td>
<td>CEA-LITEN</td>
<td>17, rue des Martyrs</td>
<td>38054 Grenoble Cedex 9, France</td>
<td><a href="http://www.liten.cea.fr">www.liten.cea.fr</a></td>
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<td>Booth A03</td>
<td>Forschungszentrum Jülich</td>
<td>Wilhelm-Jonen-Str.</td>
<td>52428 Jülich, Germany</td>
<td><a href="http://www.fz-juelich.de">www.fz-juelich.de</a></td>
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<td>Booth A04</td>
<td>Raigi SAS</td>
<td>Arbouville</td>
<td>28310 Rouvray-Saint-Denis, France</td>
<td><a href="http://www.raigi.com">www.raigi.com</a></td>
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<td>Booth A05</td>
<td>Belenos Clean Power Holding Ltd</td>
<td>Rue des sors 3</td>
<td>2074 Marin-Epagnier, Switzerland</td>
<td><a href="http://www.belenoscleanpower.com">www.belenoscleanpower.com</a></td>
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<td>Booth A06</td>
<td>balticFuelCells GmbH</td>
<td>Hagenower Strasse 73</td>
<td>19061 Schwerin, Germany</td>
<td><a href="http://www.balticfuelcells.de">www.balticfuelcells.de</a></td>
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<td>Booth A07</td>
<td>Heliocentris Academia GmbH</td>
<td>Rudower Chaussee 29</td>
<td>12489 Berlin, Germany</td>
<td><a href="http://www.heliocentris.com">www.heliocentris.com</a></td>
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<td>Booth A08</td>
<td>Hynobis AG</td>
<td>Ziegelweg 3</td>
<td>73300 Geisenfeld, Germany</td>
<td><a href="http://www.hynobis.de">www.hynobis.de</a></td>
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<td>Booth A09</td>
<td>Diamond Lite S.A.</td>
<td>Rheineckerstr. 12 / P. O. Box 9</td>
<td>CH – 9425 Thal, Switzerland</td>
<td><a href="http://www.diamondlite.com">www.diamondlite.com</a></td>
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<tr>
<td>Booth A10</td>
<td>Empa</td>
<td>Überlandstrasse 129</td>
<td>8600 Dübendorf, Switzerland</td>
<td><a href="http://www.empa.ch/abt504">www.empa.ch/abt504</a></td>
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<tr>
<td>Booth A11/A12</td>
<td>PostAuto Schweiz AG</td>
<td>Belpstrasse 37</td>
<td>3030 Bern, Switzerland</td>
<td><a href="http://www.postauto.ch">www.postauto.ch</a></td>
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<tr>
<td>Booth A11/A12</td>
<td>Quintech e.K.</td>
<td>Danziger Straße 8</td>
<td>75000 Göppingen, Germany</td>
<td><a href="http://www.quintech.de">www.quintech.de</a></td>
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<tr>
<td>Booth A11/A12</td>
<td>Novaswiss AG/ NOVA WERKE AG</td>
<td>Vogelsangstrasse 24</td>
<td>CH-8307 Effretikon, Switzerland</td>
<td><a href="http://www.novaswiss.ch">www.novaswiss.ch</a></td>
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<tr>
<td>Booth A11/A12</td>
<td>S++</td>
<td>Waldstr. 5</td>
<td>82418 Murnau-Westried, Germany</td>
<td><a href="http://www.splusplus.com">www.splusplus.com</a></td>
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Registered by 22nd June 2013
List of Demo Area participants

Belenos Clean Power Holding Ltd
Rue des sors 3
2074 Marin-Epagnier
Switzerland
www.belenoscleanpower.com

Booth A05

Daimler AG
Mercedesstrasse 137
70327 Stuttgart
Germany
www.daimler.com

ZAHNER-elektrik GmbH & Co.KG
Thüringer Strasse 12
96317 Kronach, Germany
www.zahner.de

Booth A06

HYDROPOLE c/o Empa
Überlandstrasse 129
8600 Dübendorf, Switzerland
www.hydropole.ch

Booths A11/A12

E-mobil BW GmbH
Leuschnerstrasse 45
70176 Stuttgart
Germany
www.e-mobilbw.de

WEKA AG – Schweiz
Schuerlistrasse 8
8344 Bäretswil, Switzerland
www.weka-ag.ch

Booth A06

Empa
Überlandstrasse 129
8600 Dübendorf
Switzerland
www.empa.ch/abt504

WEKA AG – Schweiz
Schuerlistrasse 8
8344 Bäretswil
Switzerland
www.weka-ag.ch

Booth A06

DLR
Deutsches Zentrum für Luft- und Raumfahrt
Institut für Technische Thermodynamik,
Elektrochemische Energietechnik
Pfaffenwaldring 38-40
70569 Stuttgart
Germany
www.dlr.de/tt

Haute Ecole d'Ingénierie et de Gestion du Canton de Vaud (HEIG-VD)
Institut d’Energie et de Systèmes Electriques
Route De Cheseaux 1
1401 Yverdon
Switzerland
iese.heig-vd.ch/en-gb

Booths A11/A12

PostAuto Schweiz AG
Belpstrasse 37
3030 Bern
Switzerland
www.postauto.ch

WEKA AG – Schweiz
Schuerlistrasse 8
8344 Bäretswil
Switzerland
www.weka-ag.ch

Booth A12

National University of Singapore & eMobility Ltd.
119 Clementi Road
Blk I, #11-15 Kent Vale
129801 Singapore
Singapore
Various mobility demonstrators ready for your “Taste” – Demo-Area at water front side of KKL (3-4 July)
Lucerne

Lucerne is located in the heart of Switzerland on the Lake of Lucerne admired for its beauty and tranquility. Nostalgic paddle wheel steamers connect the romantic town to charming sites. From there you may ascend picturesque “Mount Rigi” and steep “Mount Pilatus”, or reach the high regions in the Alps of Switzerland. Cogwheel mountain trains, cable cars or aerial tramways take you past alpine scenery to breath-taking panoramic views of the Top of Switzerland. Most of the places can be reached within 1–3 hours travel.

Lucerne itself is built along the “Lake of Lucerne” and the “Reuss River”, outflow of the lake. The medieval part is closest to the waterfront. Bridges connect both banks. The famous wooden “Kapellbrucke” has been perfectly rebuilt by local artisan after total destruction by a catastrophic fire in 1993.

Switzerland is located in the heart of Europe. You may ideally combine your conference participation with business visits or private trips before and after the event.