

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

PROGRAMME

Schedule of Events

Motto 2013:

The Future with Fuel Cells & Hydrogen: From Materials Advances to Deployment

Tuesday, 2 July 2013

11:00–16:00 Exhibition set-up
 09:30–10:00 Tutorial registration (Clubroom, 2nd Floor)
 10:00–17:00 Tutorial by Dr. Günther G. Scherer & Dr. Jan Van herle
 16:00–18:00 Poster pin-up (continued on following morning)
 16:00 Official opening of the exhibition
 16:00–18:00 Registration (continued on following days)
 18:00–19:00 Welcome gathering on Luzerner Terrasse, (2nd floor)
 from 19:00 Thank-You Dinner according to special invitation

Wednesday – 3 July 2013

08:00–16:00 Registration
 08:00–09:00 Speakers' Breakfast
 09:00–18:00 Conference sessions 1–5 including plenary keynotes on worldwide FCH programs, strategic deployment projects, poster presentation by authors, exhibition, demonstrator show and networking
 12:30 Press Conference (by invitation only)
 18:30–23:00 Swiss Surprise Event (optional)

Thursday – 4 July 2013

08:00–09:00 Speakers' Breakfast and Registration continuation
 09:00–18:00 Conference sessions 6–10 including keynotes on Fuel Cell materials, components, stack and systems as well as sustainable H₂ production, poster presentation by authors, exhibition, demonstrator show and networking
 19:30–23:00 Great Dinner on the Lake

Friday – 5 July 2013

08:00–09:00 Speakers' Breakfast and Registration continuation
 09:00–16:00 Conference sessions 11–15 on Fuel Cell characterisation, diagnostics, degradation and mitigation strategies, sustainable H₂ production as well as perspectives on HFC acceptability, assessment and training, exhibition and networking
 16:00–16:45 Conference Summary and Christian Friedrich Schoenbein Award Ceremony for best poster and scientific contribution.
 16:45–17:00 Closing Ceremony

The European Fuel Cell Forum

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 2 ½ 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 year's edition, the 4th EUROPEAN PEFC AND H₂ FORUM 2013. It is open to all low temperature fuel cells including HT PEFC and electrolyzers 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 is an excellent Kick-Start to the 4th EUROPEAN PEFC AND H₂ FORUM 2013 Tuesday, 2 July 2013, from 09:30 to 17:00

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.



Dr. Günther G. Scherer



Dr. Jan Van herle

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).

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

Morning

Wednesday, July 3, 2013

Morning

1 _A	Auditorium	Chair: Deborah Jones, Michael Spirig, Olivier Bucheli
09:00	P1: Opening Session International Overview (A01)	
09:00	Welcome by the Organizers (A0101) Michael Spirig, Olivier Bucheli European Fuel Cell Forum; Luzern/Switzerland	
09:05	Welcome by the Chairlady (A0102) Deborah Jones ICGM-CNRS, Uni Montpellier 2; Montpellier/France	
09:15	Welcome to Switzerland the Smart Research Place (A0103) Stefan Oberholzer, Rolf Schmitz, Walter Steinmann Swiss Federal Office of Energy; Bern/Switzerland	
09:30	The Fuel Cells and Hydrogen Joint Undertaking, achievements and outlook to the future (A0104) Bert de Colvenaer FCH JU; Brussels/EU	
10:00	DOE Hydrogen and Fuel Cells Program (A0105) Nancy Garland Fuel Cell Technologies Office, EERE, US Department of Energy; USA	
10:30	Coffee Break – Ground Floor in the Exhibition	

Session Programm			
Auditorium	Page	Club Room 6–8	Page
1	P1: Opening Session International Overview	A	
2	P2: Major Regional and Company Developments	A	
3	Club Room 3–5	Poster Session I (covering All Oral Session Topics)	
4	Fuel Cell Membrane Synthesis, Structure and Morphology*	A	Stack and Systems Integration, Early Market Implementation B
5	Advanced Fuel Cell Catalysts*	A	Fuel Processing, Stack and Systems Integration B
6	High Temperature PEM Fuel Cell Membranes*	A	Fuel Cell Modelling B
7	PEM and Alkaline Electrolysis*	A	Novel Supports and non-Platinum Fuel Cell Catalysts B
8	Club Room 3–5	Poster Session II (covering All Oral Session Topics)	
9	Renewable Hydrogen	A	Fuel Cell Components B
10	Characterisation of Fuel Cell Materials	A	Alkaline and Direct Alcohol Fuel Cells B
11	Characterisation of High Temperature PEM Fuel Cells	A	Durability, Degradation and Mitigation Strategies B
12	Demonstration and Deployment*	A	Fuel Cell Diagnostics B
13	Assessment, Acceptability and Education*	A	Hydrogen Production, Storage, Purification B
14	P3: Perspectives on HFC future deployment	A	Legend: Px = Plenary; * = with Keynote Introduction
15	P4: Summary, Next Conferences; Closing Ceremony	A	

Morning

Wednesday, July 3, 2013

Morning

2_A	Auditorium	Chair: Robert Steinberger, Deborah Jones
11:00	P2: Major Regional and Company Developments (A02)	
11:00	Fukuoka Hydrogen Strategy – Hy-Life Project (A0201) Shogo Watanabe, Takeshi Kodama, Kazunari Sasaki New Industries and Technologies Promotion Division; Fukuoka/Japan	
11:30	FCV Overview, Status and Future (A0202) Jörg Wind Daimler AG; Kirchheim/Teck-Nabern/Germany	
12:00	On the Way to Hydrogen Infrastructure all over Baden-Württemberg (A0203) Franz Loogen, Manuel C. Schaloske e-mobil BW GmbH; Stuttgart/Germany	
12:30	Lunch – 2nd Floor on the Terrace Coffee – Ground Floor in the Exhibition & 2nd Floor in the Poster Session	

Afternoon

Wednesday, July 3, 2013

Afternoon

3_A	Club Room 3–5	Chair: Deborah Jones
13:15	Poster Session I (covering all Oral Session Topics)	

Afternoon

Wednesday, July 3, 2013

Afternoon

4 _A	Auditorium Chair: Brian Benicewicz, Michael Eikerling	4 _B	Club Room 6–8 Chair: Herbert Wancura, Jörg Wind
<p>14:30</p> <p>14:30</p> <p>15:00</p> <p>15:15</p> <p>15:30</p>	<p>Fuel Cell Membrane Synthesis, Structure and Morphology* (A04)</p> <p>Keynote: Interrelating Physical, Thermodynamic, Structural and Functional Properties of Proton Conducting Membranes (A0401) 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</p> <p>Radiation Grafted Membranes Providing Low Cost, High Performance and Durability (A0403) Lukas Bonorand, Pia Reichel, Jürg Thut, Lorenz Gubler, Paul Scherrer Inst., Electrochemistry Lab.; Villigen ex PSI/Switzerland</p> <p>Nafion Membranes with a Porous Surface (A0404) Dirk Henkensmeier, Quoc Khanh Dang, Jong Hyun Jang, Hyoung-Juhn Kim, Korea Inst. of Science and Technology, Fuel Cell Research Center/UST; Seoul/Korea</p> <p>Keynote: Elucidating Structure/Function Relations in PEMs with Multiscale Simulations (A0405) Stephen J. Paddison, Uni of Tennessee, Dep. of Chemical and Biomolecular Engineering; Knoxville/U.S.A.</p>	<p>14:30</p> <p>14:30</p> <p>14:45</p> <p>15:00</p> <p>15:15</p> <p>15:30</p> <p>15:45</p>	<p>Stack and Systems Integration, Early Market Implementation (B04)</p> <p>Antares DLR H₂ – Fuel Cell Testing under Aeronautical Conditions (B0401) Josef Kallo, Philipp Rathke, Thomas Stephan, Johannes Schirmer German Aerospace Center (DLR e.V.); Stuttgart/Germany</p> <p>Development of a lightweight 200W Direct Methanol Fuel Cell System for UAV Applications and Flight Demonstration (B0402) Hyunchul Ju, Kyungmun Kang, Sunghyun ParkInha Uni, School of Mechanical Engineering; Incheon/Republic of Korea</p> <p>A 50kW PEMFC Pilot Plant operated with Industry Grade Hydrogen – System Design and Site Integration (B0403) Timo Keränen, Henri Karimäki, Kaj Nikiforow, Samu Kukkonen, Jaana Viitakangas, Heidi Uusalo, Jari Ihonen, VTT Technical Research Centre of Finland; VTT/Finland</p> <p>FITUP – Fuel Cell Field Test Demonstration of Economic and Environmental Viability for Portable Generators, Backup and UPS Power System Applications (B0404) Ulrike Trachte, Peter Sollberger, Beat Wellig, Lucerne School of Engineering and Architecture, CC Thermal Energy Systems & Process Engineering; Horw/Switzerland</p> <p>Early Market Implementation of LPG based Auxiliary Power Units for Application in Recreational Vehicles (B0405) Martin O'Connell (1), Martin Wichert (1), Helmut Pennemann (1), Gunther Kolb (1), Sven Butschek (2), Reinhard Frank (2), Andreas Schiegl (2), (1) Inst. für Mikrotechnik Mainz GmbH; Mainz/Germany; (2) Truma Gerätetechnik GmbH; Putzbrunn/Germany</p> <p>Monarch Fuel Cell Cycle – Part Way of Hydrogen Mobility (B0406) 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 Gerätetechnik GmbH; Putzbrunn/Germany</p>
16:00	Coffee Break – Ground Floor in the Exhibition		

5 _A	Auditorium	Chair: Andreas Friedrich, Antonino Arico	5 _B	Club Room 6–8	Chair: Agata Godula-Jopek, Franz Loogan
16:30	Advanced Fuel Cell Catalysts* (A05)		16:30	Fuel Processing, Stack and Systems Integration (B05)	
16:30	Keynote: Catalysts and MEAs from South Africa – The world's platinum nation moves up the value chain (A0501) Olaf Conrad, Pieter Leveque, 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	Status and Challenges in Developing an IRMFC Internal Reforming Methanol Fuel Cell (B0501) Michael Steffen, Eunjin Ahn, George Bandlamudi, Frank Filusch, Christian Hesse, Tobias Meijer, Peter Beckhaus, Angelika Heinzel, Zentrum für BrennstoffzellenTechnik GmbH; Duisburg/Germany	
17:00	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), 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		16:45	Coupled Operation of a Diesel Steam Reformer and a PEFC (B0502) Philip 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	
17:15	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) Nanoengineering 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		17:00	Pre-reforming of Hydrocarbons as Fuel Processing Technology for Fuel Cells (B0503) Nils Kleinohl (1), John Bøgild Hansen (2), Pedro Nehter (3), Hassan Modarresi (2), Ansgar Bauschulte(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/Howaldtswerke-Deutsche Werft GmbH; Kiel/Germany	
17:30	Oxygen Reduction Reaction Activity of Pt/MetalB₂ (0001) (A0505) Eishiro Toyoda, Ryosuke Jinnouchi, Tetsu Ohsuna, Tatsuya Hatanaka, Shigeki Otani, Takashi Aizawa, Yoshiaki Kido, Yu Morimoto, Toyota Central R&D Labs., Inc.; Aichi/Japan		17:15	HT PEMFC System Containing Large Area Cells (B0504) George Bandlamudi, Sina Souzani, Christian Hesse, Peter Beckhaus, Angelika Heinzel, ZBT GmbH; Duisburg/Germany	
17:45	Ionic Pt Doped CeO₂ Thin Film Catalysts for PEMFC (A0506) Vladimir Matolin, Roman Fiala, Iva Matolinova, Charles Uni in Prague; Praha/Czech Republic		17:30	Playing on Full HT-PEM Benefits -A Novel, Highly Integrated Micro-CHP-System (B0505) Hans-Peter Schmid, WS Reformer GmbH; Rennigen/Germany	
18:00	End of Sessions		17:45	An Object-Oriented Equation-Based Spatially Resolved PEFC Stack Model for System Simulation (B0506) Tian Tang (1), Hannes Scholz (2), Jan-Philipp Brinkmeier (2), Wilhelm Tegethoff (1), (1) Inst. für Thermodynamik, Technische Uni Braunschweig; Braunschweig/Germany; (2) Volkswagen AG; Wolfsburg/Germany	
18:30	Swiss Surprise		Registered participants meet between KKL and railway station		

Morning

Thursday, July 4, 2013

Morning

6_A	Auditorium Chair: Stephen Paddison, Isotta Cerri	6_B	Club Room 6–8 Chair: Thomas Zawodzinski, Georgios Tsotridis
<p>09:00</p> <p>09:00</p> <p>09:30</p> <p>09:45</p> <p>10:00</p> <p>10:15</p>	<p>High Temperature PEM Fuel Cell Membranes* (A06)</p> <p>Keynote: Next Generation PBI Membranes (A0601) Brian C. Benicewicz, Max Molleo, Guoqing Qian, Xiaoming Chen, Uni of South Carolina; Columbia/USA</p> <p>Proton Conductive Properties of Sulfonated Polyimide Nanofiber for Fuel Cells (A0603) Hiroyoshi Kawakami, Dep. of Applied Chemistry, Tokyo Metropolitan Uni; Tokyo/Japan</p> <p>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</p> <p>Zirconium Phosphate Reinforced Aquivion Membranes (A0605) Mario Casciola (1), Paula Cojocar (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</p> <p>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</p>	<p>09:00</p> <p>09:15</p> <p>09:30</p> <p>09:45</p> <p>10:00</p> <p>10:15</p>	<p>Fuel Cell Modelling (B06)</p> <p>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</p> <p>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</p> <p>Mean-field Models in PEM Nanopores (B0603) Peter Berg, Bjoern Eirik Benjaminsen, Dep. of Physics, NTNU; Trondheim/Norway</p> <p>DMFC: Polarization Curves, Impedance Spectra and How to Make Use of Methanol Crossover (B0604) A. A. Kulikovskiy, Research Centre Juelich; Juelich/Germany</p> <p>Oxygen Reduction Reaction in PEM Fuel Cells: A Theoretical Study of O₂ Chemisorption in N, B or O Doped Graphene (B0605) Irina Flyagina, Kevin J. Hughes, Mohamed Pourkashanian, The Uni of Leeds; Leeds/United Kingdom</p> <p>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</p>
10:30	Coffee Break – Ground Floor in the Exhibition		

7 _A	Auditorium Chair: Florence Lefebvre-Joud, Mardit Matian	7 _B	Club Room 6–8 Chair: Sara Cavaliere, Frederic Jaouen
11:00	<p>11:00 PEM and Alkaline Electrolysis* (A07)</p> <p>Keynote: Water Electrolysis for Hydrogen Production – Paving the Way to Renewables (A0701) Marcelo Carmo, David L. Fritz, Jürgen Mergel, Detlef Stolten, Research Center Juelich, IEK-3: Inst. of Electrochemical Process Engineering; Jülich/Germany</p> <p>11:30 Titanium Coatings Deposited by Thermal Spraying for Bipolar Plates of PEM Electrolysers (A0703) A. S. Gago, A. S. Ansar, N. Wagner, J. Arnold, K. A. Friedrich, Inst. of Technical Thermodynamics, German Aerospace Center (DLR); Stuttgart/Germany</p> <p>11:45 Membrane Development for Alkaline Water Electrolysis (A0704) Michal Gorbar, Ulrich F. Vogt, Alexander Bonk, Andreas Züttel, EMPA, Hydrogen & Energy; Dübendorf/Switzerland</p> <p>12:00 High Temperature and Pressure Alkaline Electrolysis (A0705) Frank Allebrod, Christodoulos Chatzichristodoulou, Mogens Mogensen, Danmarks Tekniske Uni, Inst. for Energy Conversion and Storage; Roskilde/Denmark</p> <p>12:15 Fast Response Alkaline Water Electrolysis for Green Energy Storage (A0706) Jan Vaes, Ruben Daneels, Dimitri Van Dingenen, Hydrogenics Europe NV; Oevel/Belgium</p>	11:00	<p>11:00 Novel Supports and non-Platinum Fuel Cell Catalysts (B07)</p> <p>Alternative Electrocatalyst Support for PEFCs: SnO₂-supported Carbon-free Electrocatalysts (B0701) Kazunari Sasaki (1,2,3,4), Kohei Kanda (1), Yuma Takabatake (1), Takuya Tsukatsune (1), Takahiro Higashi (1), Fumiaki Takasaki (1), Zhiyun Noda (2), Akari Hayashi (2,3,4), (1) Faculty of Engineering, Kyushu Uni; Fukuoka/Japan; (2) International Research Center for Hydrogen Energy, Kyushu Uni; Fukuoka/Japan; (3) Next-Generation Fuel Cell Research Center (Next-FC), Kyushu Uni; Fukuoka/Japan; (4) International Inst. for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu Uni; Fukuoka/Japan</p> <p>11:15 Bare and Doped Ti-oxides as Supports and Promoters for Electro-catalysts in Low Temperature Direct Methanol and Polymer Electrolyte Fuel Cells (B0702) A.S. Aricò, V. Baglio, S. Siracusano, A. Stassi, I. Gatto, E. Passalacqua, E. Modica, A. Patti, M. Girolamo CNR-ITAE Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano"; Messina/Italy</p> <p>11:30 Durable Catalyst Supports for HTPEM Fuel Cell Electrodes (B0703) Markus Perchthaler – Elcomax GmbH; Munich/Germany</p> <p>11:45 Group 4 and 5 Metal Oxide-based Compounds as New Non-platinum Cathode for PEFC (B0704) Akimitsu Ishihara (1), Koichi Matsuzawa (1), Shigenori Mitsuhashi (1), Ken-ichiro Ota (1), Masashi Matsumoto (2), Hideto Imai (2), (1) Yokohama National Uni; Yokohama/Japan; (2) NISSAN ARC, LTD.; Yokosuka/Japan</p> <p>12:00 Graphene Nano-foam as a Catalyst Support (B0705) Stephen Lyth, Jianfeng Liu, Kazunari Sasaki Kyushu Uni, International Inst. for Carbon-Neutral Energy Research (I2CNER); Fukuoka/Japan</p> <p>12:15 Graphene Oxide as a Support Material for HT-PEFCs (B0706) 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</p>
12:30	<p>Lunch – 2nd Floor on the Terrace Coffee – Ground Floor in the Exhibition</p>		

Afternoon

Thursday, July 4, 2013

Afternoon

8_A	Club Room 3-5	Chair: Deborah Jones
13:15	Poster Session II (covering all Oral Session Topics)	



9 _A	Auditorium Chair: Marcello Carmo, Eric Claude	9 _B	Club Room 6–8 Chair: Akihiro Iiyama, Stephen Thorpe
14:30	Renewable Hydrogen (A09)	14:30	Fuel Cell Components (B09)
14:30	Improving Photocurrent Onset Potential in Ultrathin Hematite Films Using a Combination of Nb₂O₅-, SiO₂-underlayers and a Ga₂O₃ Overlayer (A0901) Ludmilla Steier, Takashi Hisatomi, Kevin Sivula, Michael Grätzel, Inst. of Chemical Sciences and Engineering, EPFL; Lausanne/Switzerland	14:30	Pemican Project: Objectives and Main Results (B0901) 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
14:45	Photocatalytic water splitting with modified LaTiO₂N (A0902) (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; Dübendorf/Switzerland; (2) Laboratory of Photonics and Interfaces (LPI), EPFL, SB ISIC; Lausanne/Switzerland	14:45	Correlating Properties of Special Carbons with Their Performance in the Bipolar Plate and MEA Component of PEM Fuel Cells (B0902) Marlene Rodlert, Timcal Graphite & Carbon; Bodio/Switzerland
15:00	Influence of Mesoporosity in Hematite Films on Water Splitting Efficiency (A0903) Caroline Toussaint, Rudi Cloots, Duy Nguyen, Catherine Henrist, Uni of Liège, Chemistry Dep., GREEnMat-LCIS; Liège/Belgium	15:00	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 & Fuel Cell Research, School of Chemical Engineering; Birmingham/UK
15:15	Bioreactors for Hydrogen Production (A0904) Sergei A. Markov, Elvira R. Eivazova, Biology Dep., Austin Peay State Uni; Clarksville/U.S.A.	15:15	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 Quintieri (2), (1) CEA DAM; Monts/France; (2) AREVA Stockage d'Energie; Aixen Provence/France
15:30	Pressurized H₂, C₂O₂ Cells at ca. 250° C: Potential and Challenges (A0905) Mogens B. Mogensen, Christodoulos Chatzichristodoulou, Frank Allebrod, Jonathan Hallinder, Federica Vico, A. Mohammed Hussain, Peter Holtappel, Dep. of Energy Conversion and Storage, Technical Uni of Denmark; Roskilde/Denmark	15:30	Project LASER-CELL: Laser Fabrication Processes for Alkaline Fuel Cell Production (B0905) Martin Thomas, AFC Energy plc; Cranleigh/UK
15:45	Low Temperature Aqueous-Phase Methanol Dehydrogenation to Hydrogen and Carbon Dioxide (A0906) Henrik Junge, Martin Nielsen, Matthias Beller, Leibniz-Inst. for Catalysis Rostock; Rostock/Germany	15:45	Extending Lifetime of Alkaline Fuel Cells via Efficient Water Management Strategies (B0906) Naveed Akhtar, Gene Lewis, AFC Energy plc.; Cranleigh/UK
16:00	Coffee Break – Ground Floor in the Exhibition		

Afternoon

Thursday, July 4, 2013

Afternoon

10 _A	Auditorium	Chair: Kazunari Sasaki, Olaf Conrad	10 _B	Club Room 6–8	Chair: Naveed Akhtar, Mario Casciola
16:30	Characterisation of Fuel Cell Materials (A10)		16:30	Alkaline and Direct Alcohol Fuel Cells (B10)	
16:30	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), Zhè Peng (1,2), Anna-Katharina Sutor (1), (1) IEM, UMR; Montpellier/F; (2) LITEN-DEHT-LCPem, CEA-Grenoble; Grenoble/F; (3) SPrAM, CEA-Grenoble; Grenoble/F		16:30	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	High-resolution Atomic Force Microscopy Analysis of Conductivity and Mechanical Properties of PEM Membranes (A1002) Renate Hiesgen (1), Stefan Helmly (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		16:45	Polyethylene Based Radiation Grafted Membranes for Solid Alkaline Fuel Cell Application (B1002) Tauqir 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.; Jeollabuk-do/Korea; (4) National Research Council; Ontario/Canada	
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. Perrot, (1) CNRS, UPR 15 du CNRS, Lab. Interfaces et Systèmes Electrochimiques (LISE); Paris/France; (2) LCMCP-CNRS-UMR-7574-Collège de France; Paris/France		17:00	Readsorption 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; Pfingztal/Germany	
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), Masazumi Arao (1), Kei Kubobuchi (1), Masato Mogi (1), Yohei Takahashi (1), Masashi Matsumoto (1), Akimitsu Ishihara (2), Ken-ichiro Ota (2), (1) NISSAN ARC Ltd.; Yokosuka/Japan; (2) Yokohama National Uni; Yokohama/Japan		17:15	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	Model Porous Structures Based and Carbon Nanotubes and Organically Grafted Pt Electrocatalyst Allows New Approaches for the Characterization of Fuel Cell Electrodes (A1005) H. Perez (1), X. Cheng (1), E. Pardieu (1,2), E. Sayah (1,2), M. Mayne (1), M. Pinault (1), A. Etcheberry (2) (1) Lab. Francis Perrin, CEA/DSM/IRAMIS/SPAM-LFP CNRS; Gif-sur-Yvette/France; (2) Inst. Lavoisier (ILV, UMR 8180 CNRS), Uni de Versailles-Saint Quentin; Versailles/France		17:30	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	Study of Electro Spray Deposited Catalyst Layers in Air Breathing Single Cells for Portable Applications (A1006) P. Ferreira, A. J. Martin, M. A. Folgado, A. M. Chaparro Dep. of Energy, CIEMAT; Madrid/Spain		17:45	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)				

11 _A	Auditorium Chair: Jacques Roziere, Renate Hiesgen	11 _B	Club Room 6–8 Chair: Antonio Chaparro, Surya Subianto
09:00	Characterisation of High Temperature PEM Fuel Cells (A11)	09:00	Durability, Degradation and Mitigation Strategies (B11)
09:00	Localization of Phosphoric Acid in HT-PEFCs by X-Ray Tomographic Microscopy (A1101) Sebastian H. Eberhardt, Felix N. Büchi, Thomas J. Schmidt, Paul Scherrer Inst.; Villigen ex PSI/Switzerland	09:00	In-Situ Study of Start-up and Shut-down Degradation Using Time Resolved Potential Mapping and CO₂ Measurement (B1101) Edward Brightman, Gareth Hinds, National Physical Lab.; Middlesex/United Kingdom
09:15	Effect of Catalyst and Acid Amount on Water Transport for HT-PEFC (A1102) Fang Liu (1), Sajedah Mohajeri (1), Yidu Di (1), Werner Lehnert (1,2), (1) Inst. of Energy and Climate Research IEK-3: Electrochemical Process Engineering, Forschungszentrum Jülich; Jülich/Germany; (2) Modeling in Electrochemical Process Engineering, RWTH Aachen Uni; Aachen/Germany	09:15	Electrocatalyst Stability under Dynamic and Stationary Operation of Polymer Electrolyte Fuel Cells (B1102) 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
09:30	Effects of Gas Composition on Degradation of PBI-based HT-PEMFCs (A1103) Gisu Jeong, Mansu Kim, Minjoong Kim, JunYoung 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	09:30	Electrochemical Degradation of Catalysts and the Design of Core-Shell Catalysts (B1103) Anil V. Virkar, Uni of Utah, Dep. of Materials Science and Engineering; Salt Lake City/USA
09:45	In Situ Raman Spectroscopy on HT-PEM Fuel Cells (A1104) Anne Majerus (1), Martin Labus (2), Carsten Korte (1), Hans Bettermann (2), Werner Lehnert (1,3), (1) Inst. of Energy and Climate Research – Electrochemical Process Engineering (IEK-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	09:45	Surface Modification of Fas Diffusion Layers During Ageing in Fuel Cell (B1104) E. Planes, C. Bas, L. Flandin, LEPMI, UMR 5279, CNRS – Grenoble INP – Uni de Savoie –Uni J.Fourie; Le Bourget du Lac/France
10:00	Spectroscopic and Electrocatalytic Investigation of Pt Supported on Functionalized-MWCNTs in HT PEMFCs (A1105) M.K.Daletou (1), A.Orfanidi (1,2), S.G.Neophytides (1)Break, Ground Floor in the Exhibition(1) Inst. of Chemical Engineering Sciences-Foundation of Research and Technology; Patras/Greece; (2) Dep. of Chemical Engineering, Uni of Patras; Patras/Greece	10:00	Comprehensive Two Dimensional Structural Investigation on the Stability of Polymer Electrolyte Fuel Cell under Hygrothermal Cyclic Loading/Unloading (B1105) KK Poornesh, Chongdu Cho, Inha Uni; Incheon/South Korea
10:15	Degradation Effects of Stainless Steel Bipolar Plates Caused by Phosphoric Acid in HT-PEMFCs (A1106) P. Alnegren, J.G. Grolig, L.-G. Johansson, J.-E. Svensson, Environmental Inorganic Chemistry, Chalmers Uni of Technology; Göteborg/Sweden	10:15	Degradation and CO Tolerance Studies of PEMFC Aimed for Reformate Fuel Operation in μCHP Units (Premium Act Project) (B1106) Sylvie Escribano (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
10:30	Coffee Break – Ground Floor in the Exhibition		

Morning

Friday, July 5, 2013

Morning

12 _A	Auditorium Chair: Paul Lucchese, Günther Scherer	12 _B	Club Room 6–8 Chair: Mogens Mogensen, Sylvie Escribano
<p>11:00 Demonstration and Deployment* (A12)</p> <p>11:00 Keynote: FCEV Development at Nissan (A1201) Akihiro Iiyama, Nissan Motor Co Ltd; Yokosuka/Japan</p> <p>11:30 High durability H₂ stationary PEMFC Systems Development, Industrialization and Commercialization (A1203) Eric Claude, Jean-Marc Chareyre, AXANE; Sassenage/France</p> <p>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</p> <p>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; Jülich/Germany</p>			<p>11:00 Fuel Cell Diagnostics (B12)</p> <p>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; Le Bourget du Lac/France; (2) Axane; Sassenage/France</p> <p>11:15 Controlling Fuel Cell Stacks by Impedance Data (B1202) Stefan Keller, Andreas Popenheim, Fraunhofer ISE; Freiburg/Germany</p> <p>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</p> <p>11:45 Influence of the Cathode Architecture in the Frequency Response of Air-breathing PEM Fuel Cells (B1204) Paloma Ferreira-Aparicio, Antonio M. Chaparro, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT); Madrid/Spain</p> <p>12:00 Loss Analysis of PtCo Cathodes for PEMFC (B1205) Max Cimenti, Jürgen Stumper, Wendy Lee, Automotive Fuel Cell Cooperation Corporation; Burnaby/Canada</p> <p>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</p>
12:30	Lunch – 2 nd Floor on the Terrace		Coffee – 2 nd Floor on the Terrace

13 _A	Auditorium Chair: Ulf Bossel, Stylianos Neophytides	13 _B	Club Room 6–8 Chair: Paulo Miranda, Uwe Hannesen
<p>13:30</p> <p>13:30</p> <p>14:00</p> <p>14:15</p> <p>14:30</p> <p>14:45</p>	<p>Assessment, Acceptability and Education* (A13)</p> <p>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/France</p> <p>A Technology Monitoring and Assessment Tool for Technology Road Mapping (A1303) Herbert Wancura (1), Ritah Mubbala (2), Robert Steinberger-Wilckens (2), Alexander Nowak(3), Michael Spirig (4), synergesis consult.ing; Graz/Austria; (2) PLANET GbR, Donnerschweer Str. 89/91; Oldenburg/Germany; (3) CSMS Janina Świąch-Skiba, ul. Zdrojowa 2; Pszczyna Poland; (4) European Fuel Cell Forum AG; Luzern-Adligenswil/Switzerland</p> <p>Full Steam Ahead? Public Acceptance of Hydrogen Technology (A1304) René Zimmer, Marta Kaiser, Jörg Welke, Independent Inst. for Environmental Issues; Berlin/Germany</p> <p>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</p> <p>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</p>	<p>13:30</p> <p>13:45</p> <p>14:00</p> <p>14:15</p> <p>14:30</p> <p>14:45</p>	<p>Hydrogen Production, Storage, Purification (B13)</p> <p>Carbon Dioxide as Hydrogen Vector – Sustainable H₂ Storage and Delivery (B1301) Gábor Laurency, EPFL, École Polytechnique Fédérale de Lausanne, Lab. de Chimie Organométallique et Médicinale (LCOM); Lausanne/Switzerland</p> <p>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</p> <p>Formic Acid – a Suitable Material for Hydrogen Storage (B1303) Peter Sponholz, Dörthe Mellmann, Henrik Junge, Matthias Beller, Leibniz-Inst. for Catalysis Rostock; Rostock/Germany</p> <p>Efficient Large Scale Hydrogen Liquefaction (B1304) Ilka Seemann, Christoph Haberstroh, Hans Quack, TU Dresden, Bitzer Chair of Refrigeration, Cryo and Compressor Technology; Dresden/Germany</p> <p>Dense Palladium-Copper Alloy Membranes for Hydrogen Separation (B1305) Naser A Al-Mufachi, Shahrouz Nayebossadri, John Speight, Waldemar Bujalski, David Book, Uni of Birmingham, School of Metallurgy and Materials; Birmingham/UK</p> <p>Electro-chemical Hydrogen Compression (B1306) Peter Bouwman, Sander ten Hoopen, Menno Koeman, Wiebrand Kout, Daniel Semerel, Marten-Jan Verbeek, Frans Mulder, Hydrogen Efficiency Technologies – HyET; Arnhem/The Netherlands</p>
15:00	Coffee Break – 1st Floor in front of Auditorium & 2nd Floor in front of Club Rooms		

Afternoon

Friday, July 5, 2013

Afternoon

14_A	Auditorium	Chair: Nancy Garland
15:30	P3: Perspectives on HFC future deployment (A14)	
15:30	If Hydrogen Is Such a Great Solution, Why Is Taking So Long? (A1401) David Hart, E4Tech; Lausanne/Switzerland and London/UK	

15_A	Auditorium	Chair: Deborah Jones, Michael Spirig, Olivier Bucheli
16:00	P4: Summary, Next Conferences; Closing Ceremony (A15)	
16:00	Summary by the Chairlady (A1501) Deborah Jones, ICGM-CNRS, Uni Montpellier 2; Montpellier/France	
16:12	Information on Next EFCF: 11th European SOFC Forum 2014 – 5th PEFC & H₂ Forum 2015 (A1502) Olivier Bucheli, Michael Spirig, European Fuel Cell Forum; Luzern/Switzerland	
16:24	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	
16:36	Friedrich Schönbein Award for the Best Poster, Best Science Contribution, Medal of Honour (A1504) Deborah Jones, ICGM-CNRS, Uni Montpellier 2; Montpellier/France	
16:48	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	



3_A **Poster Session I (with all Session Topics) Wednesday, July 3, 2013**
 8_A **Poster Session II (with all Session Topics) Thursday, July 4, 2013**

Afternoon 13:15–14:30; Club Room 3–5
Afternoon 13:15–14:30; Club Room 3–5

P2: Major Regional and Company Developments

A02

H₂FC European Infrastructure Technical Support in Order to Strengthen Research and Development on Fuel Cells and Hydrogen Technologies (A0204)

Olaf Jedicke, Karlsruhe Inst. of Technology, Inst. for Nuclear- and Energy Technologies; Eggenstein-Leopoldshafen/Germany

Generating a Strategic Energy Technology Development Plan In Case of Low Oil Prices and Additional Nuclear Plant Construction with Integrated AHP/TOPSIS Approaches (A0205)

Seongkon Lee (1,2), Gento Mogi (2), Sangkon Lee (3), K.N Hui (4), (1) Energy Policy Research Center, KIER; Daejeon/Republic of Korea; (2) Dep. of Technology Management for Innovation, Graduate School of Engineering, The Uni of Tokyo; Tokyo/Japan; (3) Green Transformation Technology Center, KITECH; Daegu/Korea; (4) School of Materials Science and Engineering, Pusan National Uni; Busan/Republic of Korea

Fuel Cell Membrane Synthesis, Structure and Morphology*

A04

Durability Enhanced Sulfonated Poly(arylene ether) Sulfone for PEMFC (A0408)

Young-Woo Choi, Mi-Soon Lee, Chang-Soo Kim, Tae-Hyun Yang, Hydrogen and Fuel Cells Research Dep., Korea Inst. of Energy Research; Daejeon/South Korea

Synthesis and Properties of Sulfonated Conjugated Polyphenylene Electrolyte Prepared by Nickel Catalyzed Carbon-carbon Coupling Polymerization (A0409)

Young-Don Lim, Dong-Wan Seo, Soon-Ho Lee, Seong-Young Choi, Whan-Gi Kim, Konkuk Uni, Dep. of Applied Chemistry; Chungbuk/Korea

Synthesis and Properties of Sulfonated Poly(fluorene-phenylene)s Containing Multiphenyl Structure by Diels-Alder Reaction (A0410)

Youngdon Lim, Dongwan Seo, Soonho Lee, Md. Awlad Hossain, Sangyoung Lee, Hyunho Joo, Whangi Kim, Konkuk Uni, Dep. of Applied Chemistry; Chungbuk/Korea

Improved Mechanical Properties of Low Equivalent Weight Short Side Chain PFSA (A0412)

Deborah Jones (1), Surya Subianto(1), Jacques Rozière(1), Sara Cavaliere(1), Yannig Nedellec (1), Paula Cojocar (2), Luca Merlo (2), Graham Hards (3), Sarah Burton (3), Mario Casciola (4), Monica Pica (4), Anna Donnadio (4), (1) ICGM-CNRS, Uni Montpellier 2; Montpellier/France; (2) Solvay Speciality Polymers; Bollate/Italy; (3) Johnson Matthey Fuel Cells Ltd.; Swindon/U.K.; (4) Uni di Perugia; Perugia/Italy

Understanding Proton Transport by Impedance Spectroscopy in Hybrid Organic-Inorganic Membranes Synthesized via Electrospinning and Sol-gel Chemistry (A0413)

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-UPR 15, UPMC

Advanced Fuel Cell Catalysts*

A05

Fabrication of Pt/C Electrode with Double Catalyst Layers by Electrophoresis Deposition Method for PEFC (A0509)

Yeon-Tae Yu, Ganpurev Adilbish, Jin-Woo Kim, Jun-Woo Lee, Division of Advanced Materials Engineering, College of Engineering, Chonbuk National Uni; Jeonju/South Korea

High Temperature PEM Fuel Cell Membranes*

A06

Development of Cross-linked Membranes for High Temperature PEMFC Applications (A0607)

Christina Morfopoulou (1,2), Aikaterini Andreopoulou (1,2), Maria Daletou (2), Stylianos Neophytides(2,3), Joannis Kallitsis (2,3), Uni of Patras, (1) Dep. of Chemistry; Patras/Greece; (2) FORTH-ICEHT; Patras/Greece; (3) Advent Technologies S. A.; Patras/Greece

Development of Composite Membranes of Phosphate Based – Solid Acids for Medium Temperature PEM Fuel Cell and Electrolyser (A0608)

Asier Goñi-Urtiaga, Keith Scott, School of Chemical Engineering and Advanced Materials, Newcastle Uni; 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 Kreis, 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 MEA (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 Energía, IK4-CIDETEC; Donostia-San Sebastián/Spain

Pressurized PEM Electrolyzer Catalyst Development (A0712)

Antti T. Pasanen (1), Elina Yli-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, Kathryn E. Toghill, Christos Comninellis, Hubert H. Girault, Ecole Polytechnique Fédérale de Lausanne; Lausanne/Switzerland

The Solar Fuel: a very Steep Energetic Vector (A0714)

Salim Daoudi (1), Abdelhamid Iratni (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, Haneul Yoo, School of Mechanical Engineering, Inha Uni; Incheon/Republic of Korea

Renewable Hydrogen

A09

Hydrogen Generation from Formic Acid: A new Iron-based Catalytic System (A0908)

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

Nix-Cu/Al₂O₃ Catalyst for H₂ Production Via Methanol Steam Reforming (A0909)

Martin Khzouz, Joe Wood, Uni of Birmingham, School of Chemical Engineering; Birmingham/UK

Adsorptive Desulfurization of Natural Gas Using Mesoporous Material for Fuel Cell (A0910)

Jaedong Kim (1), kihoon An (2), Dalryung Park (1), Jeonghwan Choi (1), Bongyu Kim (1), Younga Cho (1), Sungho Hong (1), Wankeun Bang (3), Jiman Kim (2), (1) New Energy Technology Center, R & D Division, Korea Gas Corporation; Ansan/Korea; (2) Dep. of Chemistry, BK21 School of Materials Science and Dep. of Energy Science, Sungyunkwan Uni, Suwon 440-476, Korea; Suwon/Korea; (3) Coseal Co.Ltd. Research Center 493-2 Soryong-dong, Kunsan-city, Cheollabuk-do; Cheollabuk-do/Korea

Must and Fruit Juice Wastewaters Fermentation to Hydrogen (A0911)

Araceli Gonzalez del Campo, Pablo Cañizares, 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. Dubikovskiy, I.Frantsevych Inst. for Problems of Materials Science NASU; Kiev/Ukraine

Computational analysis of Hydrogen Embrittlement in Polycrystalline Nickel and Anisotropic Polygonal 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, Ko Sakata, 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

Characterisation of Fuel Cell Materials**A10****Micro-Raman Spectroscopy Characterization of Perfluorosulfonic Acid (PFSA) Ionomers (A1007)**

Corine Bas, Jean De Massas, Eddy Moukheiber, Gilles De Moor, Assma 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

Characterisation of High Temperature PEM Fuel Cells**A11****Ex-situ NMR and Raman Studies of H₃PO₄ and H₂O Uptake of Polybenzimidazole Membranes for PEMFC (A1107)**

Fosca Conti (1,2), Anne Majerus (1), Sabine Willbold (3), Werner Lehnert (1,4), Carsten Korte(1), (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

Demonstration and Deployment***A12****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 Authayanun (1), Amornchai Arpornwichanop (2), (1) Srinakharinwirot 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 – internship at CEA/DEN/DANS/I-tésé; Gif Sur Yvette/France; (2) CEA/DEN/DANS/I-tésé; 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-Waerme-Inst. GmbH; Herzogenrath/Germany; (2) BEHR GmbH & Co. KG; Stuttgart/Germany; (3) Clariant Produkte (Deutschland) GmbH; Heufeld/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 Conventional Fuel as Auxiliary Power Source for Battery Electric Vehicles (A1213)

C. Creemers (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; Pfingsttal/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

Studies on the Catalytic CO Oxidation over Ce-promoted Pt/Al₂O₃ Catalyst for Preferential CO Oxidation (A1214)

Kee Young Koo, Un Ho Jung, Wang Lai Yoon, Hydrogen and Fuel Cell Dep., Korea Inst. of Energy Research; Daejeon/Republic of Korea

Investigation of Different HT-PEM MEA with Reformate from a Methanol Steam Reformer (A1215)

Thomas Huck (1), Philip Engelhardt (2), (1) Aixcellsys GmbH; Herzogenrath/Germany; (2) OWI 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 Haribabu, 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

Stack and Systems Integration, Early Market Implementation**B04****Hydrogen-Based Peak Power Management Unit for a Residential Application (B0407)**

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

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 Kompressortechnik; TU Dresden/Germany

Fuel Processing, Stack and Systems Integration**B05****Fuel Cell Modelling****B06****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), Suyong Chae (2), Yujin Song (2), (1) Korea Institute of Machinery and Materials; Daejeon/Korea; (2) Korea Institute of Energy Research

Novel Supports and non-Platinum Fuel Cell Catalysts**B07****Valve Metal Oxide Based Catalysts for the Oxygen Reduction Reaction in Acidic DMFCs (B0708)**

Thomas Mittermeier, Pankaj Madkikar, Xiaodong Wang, Hubert A. Gasteiger, Michele Piana, Technische Universität München, Lehrstuhl Technische Elektrochemie; Garchingb. 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-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

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-tube” Fibres as Novel PEMFC Electrocatalyst Supports (B0713)

S. Cavaliere, S. Subianto, I. Savych, M. Tillard, D. J. Jones, J. Rozière, Inst. Charles Gerhardt, Lab. des Agrégats, Interfaces et Matériaux pour l’Energie, Uni Montpellier 2; Montpellier/France

Enhanced Electrochemical Stability of PEMFC Electrodes Based on Electrospun 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

Fuel Cell Components**B09****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)

J.G. Grolig, P. Alnegren, L.-G. Johansson, J.-E. Svensson, Environmental Inorganic Chemistry, Chalmers Uni of Technology; Göteborg/Sweden

Performance of PEMFC with Metal 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, CICECO, Uni of Aveiro; Aveiro/Portugal; (3) Dep. of Chemistry, Humboldt-Uni zu Berlin; Berlin/Germany

Improved Durability and 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), B. Bauer (3), M. F. Sgroi (4), D. Pullini (4), V. Dallacà (4), M. Piana (5), T. Mittermeier (5), Xiaodong Wang (5), H. A. Gasteiger (5), J. L. Bonde (6), T. De Rieke (6), S. Specchia (7), C. Francia (7), N. Cros (8), G. Tsotridis (9), T. Malkow (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) PRETEXO; Montpellier/France; (9) Inst. for Energy and Transport, European Commission, Directorate-General Joint Research Centre; Petten/The Netherlands

PVA Based Membranes Modified by Benzimidazolium Groups for Fuel Cell Application (B1013)

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; 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) Energy Convergence Research Center, 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 Lagergren, Göran Lindbergh, 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 Moukheiber, 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), Kyoungyou 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 Liefink (2), David Wails (3), George Karagiannakis (4), Toste Azevedo (5), Marina Aguiar (6), Maria 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 Bioenergía San Roque, S.A; Spain; (7) Abengoa Hidrógeno, S.A.; Spain

Low Temperature Reforming of Diesel over Structured Catalysts (B1308)

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

La_{0.75}Sr_{0.25}Cr_{0.5}Mn_{0.5}O_{3-δ} Oxide Based Steam Reforming Catalyst for SOFC Direct Internal Reforming (B1309)

Byoung Young Yoon, Joongmyeon 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; Ansan/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/Jellabuk-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), Zhoulin 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 ("Brücke 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 (EFCF 2013 Info, Downloads) 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

Registered by 22th June 2013

<p>ALMUS AG Morgenacherstrasse 2F CH-5452 Oberrohrdorf, Switzerland www.almus-ag.ch</p>	Booth A01	<p>CEA-LITEN 17, rue des Martyrs 38054 Grenoble Cedex 9, France www.liten.cea.fr</p>	Booth A02	<p>Heliocentris Academia GmbH Rudower Chaussee 29 12489 Berlin, Germany www.heliocentris.com</p>	Booth A08	<p>PostAuto Schweiz AG Belpstrasse 37 3030 Bern, Switzerland www.postauto.ch</p>	Booth A11/A12
<p>balticFuelCells GmbH Hagenower Strasse 73 19061 Schwerin, Germany www.balticfuelcells.de</p>	Booth A13	<p>Diamond Lite S.A. Rheineckerstr. 12 / P. O. Box 9 CH – 9425 Thal, Switzerland www.diamondlite.com</p>	Booth A11/A12	<p>HyET B.V. – Hydrogen Efficiency Technologies Leemansweg 15, 6827 BX Arnhem, The Netherlands, www.HyET.nl</p>	Booth A07	<p>Quintech e.K. Danziger Straße 8 73035 Göppingen, Germany www.quintech.de</p>	Booth A04
<p>Belenos Clean Power Holding Ltd Rue des sors 3 2074 Marin-Epagnier, Switzerland www.belenoscleanpower.com</p>	Booth A05	<p>Empa Überlandstrasse 129 8600 Dübendorf, Switzerland www.empa.ch/abt504</p>	Booth A11/A12	<p>KNF FLODOS Wassermatte 2 6210 Sursee, Switzerland www.knf-flodos.ch</p>	Booth A10	<p>Raigi SAS Arbouville 28310 Rouvray-Saint-Denis, France www.raigi.com</p>	Booth A02
<p>Bronkhorst (Schweiz) AG Nenzlingerweg 5 4153 Reinach, Switzerland www.bronkhorst.ch</p>	Booth A09	<p>Forschungszentrum Jülich Wilhelm-Jonen-Str. 52428 Jülich, Germany www.fz-juelich.de</p>	Booth A03	<p>Nova Swiss AG/ NOVA WERKE AG Vogelsangstrasse 24 CH-8307 Effretikon, Switzerland www.novaswiss.ch</p>	Booth A11/A12	<p>S++ Waldstr. 5 82418 Murnau-Westried, Germany www.splusplus.com</p>	Booth A04

WEKA AG – Schweiz

Schuerlistrasse 8
8344 Bäretswil, Switzerland
www.weka-ag.ch

Booth A05

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

List of Demo Area participants

Registered by 22th June 2013

Belenos Clean Power Holding Ltd

Rue des sors 3
2074 Marin-Epagnier
Switzerland
www.belenoscleanpower.com

Daimler AG

Mercedesstrasse 137
70327 Stuttgart
Germany
www.daimler.com

DLR

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

e-mobil BW GmbH

Leuschnerstrasse 45
70176 Stuttgart
Germany
www.e-mobilbw.de

Empa

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

**Haute Ecole d'Ingénierie et de
Gestion du Canton de Vaud (HEIG-VD)**

Institut d'Énergie et de Systèmes
Électriques
Route De Cheseaux 1
1401 Yverdon
Switzerland
iese.heig-vd.ch/en-gb

PostAuto Schweiz AG

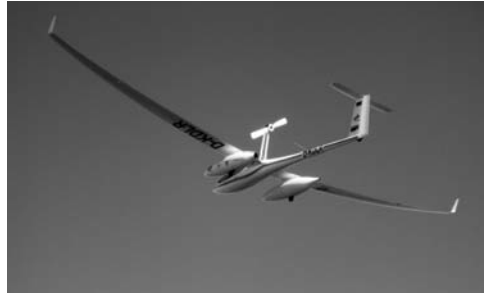
Belpstrasse 37
3030 Bern
Switzerland
www.postauto.ch

WEKA AG – Schweiz

Schuerlistrasse 8
8344 Bäretswil
Switzerland
www.weka-ag.ch

**National University of
Singapore & eMobility Ltd.**

119 Clementi Road
Blk I, #11-15 Kent Vale
129801 Singapore
Singapore
www.eng.nus.edu.sg/ero/news/index.php?
id=980



Various mobility demonstrators ready for your "Taste" – Demo-Area at water front side of KKL (3-4 July)

The event is endorsed by

ALPHEA

Rue Jacques Callot
FR-57600 Forbach/France

Bundesverband Mittelständische Wirtschaft, Unternehmerverband

Deutschlands e. V./Landesverband Schweiz
Baarerstrasse 135, CH-6301 Zug
www.bvmw-schweiz.ch www.bvmw.de

EUresearchCH Head Office

Effingerstrasse 19
CH-3001 Bern/Switzerland

FUEL CELLS 2000

1625 K Street NW, Suite 725
Washington, DC 20006/USA

IHEA – International Hydrogen Energy Association

P.O. Box 248294
Coral Gables, FL 33124/USA

SIA (Berufsg. Technik und Industrie)

Selnaustrasse 16
CH-8039 Zurich/Switzerland

Swiss Academy of Engineering Sciences

Seidengasse 16, CH-8001 Zurich/Switzerland

Swiss Gas and Water Industry Association

Eschengasse 10
CH-8603 Schwerzenbach/Switzerland

UK HFC Association

c/o Synnogy, Church Barn
Fullers Close Aldwincle
Northants NN14 3UU/United Kingdom

VDI Verein Deutscher Ingenieure

Graf-Recke-Strasse 84
DE-40239 Düsseldorf/Germany

Wiley – VCH Publishers

Boschstrasse 12
DE-69469 Weinheim/Germany

Vätgas Sverige

Drottninggatan 21 SE-411 14
Gothenburg/Sweden

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 “Kapellbrücke” 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.





Organized by the
European Fuel Cell Forum
Olivier Bucheli & Michael Spirig
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

Endorsed by:

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Bundesverband Mittelständische Wirtschaft
EUresearch Head Office
FUEL CELLS 2000

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SIA (Berufsgruppe Technik und Industrie)
Swiss Academy of Engineering Sciences
Swiss Gas and Water Industry Association
UK HFC Association
VDI Verein Deutscher Ingenieure
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