
FINAL ANNOUNCEMENT
20th conference in series of the European Fuel Cell Forum in Lucerne
12th EUROPEAN SOFC & SOE FORUM 2016
5–8 July 2016
KKL Lucerne / Switzerland
Conference Chairman:
Prof. Nigel Brandon
Imperial College London
5 July 2016
FUEL CELL TUTORIAL
by Dr. Günther G. Scherer, ex PSI Villigen
Dr. Jan Van herle, EPF Lausanne
International Solid Oxide Fuel Cell and
Electrolyser Conference with Exhibition,
Industry Workshops and Tutorial
SWISS
Official Carrier
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Convenient hotel rooms are being held until 15 Mai 2016

Schedule of Events

www.EFCF.com/Events

Motto 2016: Solid Oxide Fuel Cells, Electrolysers and Reactors: From development to delivery.

Tuesday, 5 July 2016

11:00–16:00	Exhibition set-up
09:30–10:00	Tutorial Registration at KKL on the 2nd floor in the Club Rooms above the Auditorium
10:00–17:00	Tutorial held by Dr. Gunther G. Scherer & Dr. Jan Van herle
16:00–18:00	Poster pin-up / Official opening of the exhibition
16:00–18:00	On-site Registration open, continued on the following days
18:00–19:00	Welcome gathering on terrace of the KKL above the registration area
from 19:00	Thank You Dinner with special invitation only

Wednesday, 6 July 2016

08:00–16:00	On-site Registration open, continued on the following days
08:00–09:00	Speakers Breakfast in the Auditorium Foyer on the 1st floor of the KKL above sector A of the exhibition
09:00–18:00	Conference sessions 1–6 including plenary and keynote presentations on «Fuel Cell Market – Korean Industry – European Projects and Activities, companies & major groups development status, technical highlights, extended poster presentation by authors, networking & exhibition
09:00–18:00	Poster area and exhibition open
12:30	Press Conference by invitation only
18:30–23:00	This year special 20th EFCF Jubilee Swiss Surprise Night, separate registration for 80 places to be booked on a first-come-first-served basis

Thursday, 7 July 2016

08:00–16:00	On-site Registration open, continued on the following days
08:00–09:00	Speakers Breakfast in the Auditorium Foyer like on Wednesday
09:00–18:00	Poster area and exhibition open
09:00–18:00	Conference sessions 7–12 keynote on «FC innovations by Microsoft», extended poster presentation by authors, networking & exhibition
19:30–23:00	Great Dinner on the Lake

Friday, 8 July 2016

08:00–10:00	On-site Registration and Speakers Breakfast like on Wednesday
09:00–16:15	Conference sessions 13 – 16 including keynote of gold medal of honour winner 2016, poster presentation, networking & exhibition
09:00–12:00	Poster area & exhibition open; 12:00–14:00 Poster removal
15:00–16:15	Closing & Award Ceremony: Best poster, best scientific contribution & outstanding lifetime work; Keynote: «New Materials, structures & concepts for Solid Oxide Cells» John TS Irvine, Uni St. Andrews/UK
16:15–17:00	Goodbye coffee and travel refreshment in front of the Luzerner Saal

The sole purpose of the European Fuel Cell Forum is the promotion of fuel cell and hydrogen technologies through the EFCF conference, the Green Salon and Rondo event, literature and media. It is an enabling, high level exchange platform, providing scientific sessions, an exhibition and tutorial, as well as international project meeting support and recreational networking events at the charming and inspirational location of Lake Lucerne.

Every summer the European Fuel Cell Forum invites more than 6,000 stakeholders to participate in this internationally recognised event held on the shores of Lake Lucerne, in the heart of Switzerland. More than 300 contributions and posters will be presented in 26 partially parallel sessions over the course of 3 intensive and stimulating days. In addition to the high level scientific content, there are plenary presentations on market overview, Korean industry, European projects and activities, as well as on energy revolution by smart innovations & early adopters. Overviews of R&D at top institutions, and the development status of the industry leading companies and major groups worldwide will also be presented. To recognise the excellent poster contributions, two extended poster sessions are held. The posters are accessible throughout the entire conference. In the closing and award ceremony, the audience will be privileged to hear a keynote from the winner of the 2016 gold medal of honour: Prof. John TS Irvine from University of St Andrews/UK, who will summarise major findings under the title: "New materials, structures and concepts for Solid Oxide Cells". Based on the increasing number of submissions, up to 500 participants from 35–40 countries are expected at this years conference.

The EFCF has a heritage of more than 20 years! As far back as 1994 the 1st European SOFC Forum attracted leading international speakers as well as a global audience. Over the years a high quality conference series has been established. The conference topics alternate yearly. On even years the conference concentrates on «High Temperature Fuel Cells» and for the past several years has also included «HT Electrolysis». On odd years, the conference concentrates on «Hydrogen Fuel Cells» and «Direct Alcohol Fuel Cells» as well as «Hydrogen Production, Storage and Infrastructure». Keeping up with this tradition the 12th European SOFC & SOE Forum 2016 focuses on Solid Oxide Cells and Reactors.

Over the years, many strong relationships and contacts have been established at these events. This is thanks to a caretaking organisation with dedicated advisors and conference chairs, who keep a watchful eye on scientific quality. Unlike many commercial conferences, this event is organised by fuel cell technologists and scientists. As active members of the European fuel cell and hydrogen community, they have been observing the trends and following the recommendations from the EFCF International Board of Advisors. The conference organisers ensure that the stakeholder's needs are always the focus of the European Fuel Cell Forum.

With strong dedication, our 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 and for high-level networking. All of this creates an environment that will enable scientific breakthroughs and their subsequent transfer into industry.

A very special thank you for this year's conference goes to Prof. Dr. Nigel Brandon from Imperial College London. His career, both based in academia and industry, reflects very well the ambition of the European Fuel Cell Forum: Building a bridge from science to technology – from technology to products! Together we are proud to offer a sound scientific programme, unforgettable side events, and invite you to the well-known and pleasant surroundings of

Lucerne. Finally, we would like to thank all the authors, exhibitors and suppliers for their excellent contributions, the Scientific Advisory and Organising Committees for their review work, and our staff members for fastidiously taking care of all the organizational details. Together with the numerous participants and exhibitors, the stage has been set for an exuberant 12th European SOFC & SOE Forum 2016.

Thank you and we look forward to seeing you in Lucerne in July
Olivier Bucheli & Michael Spirig

European Fuel Cell Forum www.EFCF.com

12th European SOFC & SOE Forum
Conference Chairman:
Prof Nigel Brandon
Imperial College London

The 2016 conference has as its theme: Solid Oxide Fuel Cells, Electrolysers and Reactors: From development to delivery

Considerable progress continues to be made in the delivery of commercial fuel cell systems around the world, and Solid Oxide Fuel Cells are playing an important role in that, from kW scale micro combined heat and power units through to distributed power generation units

International Board of Advisors
www.EFCF.com/IBoA

Of the **European Fuel Cell Forum**
The IBoA guides EFCF in technical and strategic matters. It currently consists of the following 29 distinguished experts (17 countries; 6 continents; 14% women):

Prof. Joongmyeon Bae, KAIST, Daejeon, Korea
Prof. Frano Barbir, University of Split, Croatia
Dr. Ulf Bossel, ALMUS AG, Switzerland
Dr. Niels Christiansen, NCCI innovation, Denmark
Dr. Olaf Conrad, University of Cape Town, South Africa
Dr. Karl Föger, Ceramic Fuel Cells, Australia
Dr. Nancy L. Garland, Department of Energy, USA
Prof. Hubert A. Gasteiger, TU München, Germany
John Bøgild Hansen, Haldor Topsøe A/S, Denmark
Prof. Angelika Heinzel, ZBT, Germany
Prof. Ellen Ivers-Tiffée, Karlsruhe Institute of Technology, Germany
Prof. Deborah Jones, CNRS, France
Prof. John A. Kilner, Imperial College London, UK
Dr. Jari Kiviaho, VTT, Finland
Dr. Ruey-yi Lee, INER, Taiwan
Dr. Florence Lefebrve-Joud, CEA, France
Prof. Paulo Emilio V. de Miranda, Coppe, Brazil
Prof. Mogens B. Mogensen, DTU, Denmark
Prof. Vladislav A. Sadykov, Boreskov Institute of catalysis, Russia
Prof. Massimo Santarelli, Politecnico di Torino, Italy
Prof. Kazunari Sasaki, Kyushu University, Japan
Dr. Günther G. Scherer, ex PSI, Villigen, Switzerland, Singapore
Dr. Günter Schiller, DLR Stuttgart, Germany

at the 100's kW scale. There is also increasing interest in the application of solid oxide electrolysers for high efficiency hydrogen and/or syngas generation, a potential means of balancing variable renewables as the world transitions to lower carbon energy systems.

This, the 12th European SOFC & SOE Forum, will present a complete overview of the current state of the art in solid oxide fuel cell and electrolyser science, engineering and technology. And, for the first time, we also have a session dedicated to reactors/separators based on solid oxide technology. The programme includes an update on the status of leading developers, and detailed technical sessions including cell, stack and system lifetime; materials discovery and characterisation; materials processing; cell, stack and system modelling, design and diagnostics; and markets. I am delighted to chair this 12th European SOFC & SOE Forum 2016, which aims to deliver productive interactions and discussions between researchers, engineers, and manufacturers, between developers and end users, and between academia, and industry.

The technical program has been established by a Scientific Advisory Committee comprising key players in the field, with full independence in all scientific and technical matters. All papers presented as lectures or posters will be collated in the electronic proceedings, which will be distributed to all participants at the time of registration and later distributed to libraries, research institutions and universities.

Sincerely
Nigel Brandon
Imperial College London

Conference language is English

Dr. Subhash Singhal, Pacific Northwest National Laboratory, USA
Dr. Martin Smith, Uni St. Andrews, United Kingdom
Prof. Robert Steinberger-Wilckens, Uni Birmingham, UK (Chair)
Prof. Constantinos Vayenas, University of Patras, Greece
Prof. Wei Guo Wang NIMTE/PR, China
Dr. Christian Wunderlich, IKTS, Germany

Scientific Advisory Committee

www.EFCF.com/SAC

Of the **12th European SOFC & SOE Forum 2016**

Dr. Ainara Aguadero, ICL, UK
Prof. Joongmyeon Bae, KAIST, Korea
Dr. Rajendra Basu, CSIR, India
Prof. Viola Birss, Univ Calgary, Canada
Dr. Brian Borglum, Fuel cell energy, Canada
Prof. Nigel P. Brandon, Imperial College London (Chair)
Dr. Rob Braun, Colorado School of Mines, USA
Dr. Dan Brett, UCL, UK
Dr. Annabelle Brisse, European Inst. for Energy Res. (EIFER), Germany
Dr. Qiong Cai, Univ Surrey, UK
Dr. Mark Cassidy, Univ St. Andrews, UK
Prof. Jong Shik Chung, POSTEC, Korea
Prof. Paola Costamagna, Univ Genoa, Italy
Dr. Rich Goettler, LGFCS, USA
Prof. Anke Hagen, Risoe Nat. Lab. / DTU, Denmark
Prof. Min-Fang Han, Tsinghua University, China
Mr John Bøgild Hansen, Haldor Topsøe A/S, Denmark
Prof. John Irvine, Univ St. Andrews, UK

Chaired by: Prof. Nigel Brandon

www.EFCF.com/Conference

Prof. Nigel Brandon OBE FREng holds the BG Chair in Sustainable Gas at Imperial College London. He is Director of the Sustainable Gas Institute and the UK SUPERGEN Hydrogen and Fuel Cells Hub, and Co-Director of the UK SUPERGEN Energy Storage Hub. Nigel holds a first degree in Minerals Engineering (1981) and a PhD in electrochemical engineering (1984), both from Imperial College London.

After research positions with both BP (1984–1992), and Rolls-Royce (1992–1998) where he was an inventor of the Integrated Planar Solid Oxide Fuel Cell, he joined Imperial College as a Senior Lecturer in electrochemical engineering in 1998. In 2001 he co-founded the fuel cell company Ceres Power, acting as CEO to 2003, CTO to 2006 and Chief Scientist to 2009. Prof. Nigel Brandon was appointed to the Shell Chair in Sustainable Development in Energy in 2005 and the BG Chair in Sustainable Gas in 2014. From 2007 to 2011, he acted as the UK focal point with China in energy and climate change. Awarded the Royal Academy of Engineering Silver Medal in 2007, he also received the ASME Francis Bacon Medal in 2014, for his contribution to fuel cell science, engineering and technology. Prof Dr Nigel Brandon leads a research group focused on the science, engineering and technology of electrochemical devices for energy applications, with a particular focus on solid oxide fuel cells and electrolysers. He holds 15 patents and has published over 170 journal papers.

Prof. Ellen Ivers-Tiffée, Universität Karlsruhe, Germany
Dr. Jari Kiviaho, VTT Technical Research Center of Finland, Finland
Prof. Florence Lefebvre-Joud, CEA, H2 and FC Program, France
Dr. Dario Montinaro, SOFCpower S.r.l., Italy
Dr. Subhashish Mukerjee, Ceres Power, UK
Prof. Kazunari Sasaki, Univ Kyushu, Japan
Prof. Prabhaker Singh, Univ Connecticut, USA
Prof. Stephen Skinner, ICL, UK
Prof. Robert Steinberger-Wilckens, Univ Birmingham, UK
Prof. Detlef Stolten, Forschungszentrum Jülich GmbH, Germany
Dr. Pei-Chen Su, NTU, Singapore

The Scientific Advisory and Organising Committees have been formed to structure the technical program of the this years conference. This panel has exercised full scientific independence in all technical matters.

Scientific Organizing Committee

www.EFCF.com/SOC

Of the **12th European SOFC & SOE Forum 2016**

Dr. Paul Boldrin, ICL, UK
Prof. Nigel P. Brandon, Imperial College London (Chair)
Dr. Richard Dawson, Univ Lancaster, UK
Dr. Jung-Sik Kim, Univ Loughborough, UK
Dr. Zeynep Kurban, ICL, UK
Dr. Mardit Matian, SOLIDpower/HTceramix, CH
Dr. Enrique Ruiz Trejo, ICL, UK
Dr. Paul Shearing, UCL, UK
Dr. Farid Tariq, ICL, UK
Dr. Vladimir Yufit, ICL, UK

Date and Place

The 12th European SOFC & SOE Forum 2016 will be held from 5th to 8th July 2016 in the renowned Kultur- und Kongresszentrum Luzern KKL in Lucerne, Switzerland. The parallel lectures will be presented in the «Luzerner Saal» and the «Auditorium», while all posters will be permanently exhibited in the «Club Rooms». The KKL is located next to the railway station on the shore of Lake Lucerne. Boats, water front activities, spectacular views of the old town and snow-capped mountains add to the charm of the conference venue.

Technical Program

www.EFCF.com

The conference will focus on solid oxide fuel cells and electrolysers, with the addition of a new category addressing reactors and separators based on sold oxide membranes. The technical programme will range from fundamental science and new materials, through cell, stack, and system development, to the latest results from commercial deployment. There are plenary presentations on market overview, Korean industry, European projects and activities, as well as on energy revolution by smart innovations & early adopters. The oral and poster presentations cover overviews of R&D at top institutions and the development status of prominent companies world. wide as well as material, manufacturing, diagnostics, modelling from cell to system including components and balance of plant. Finally the winner of the gold medal of honour will summarise in a keynote major findings in "New materials, structures and concepts for Solid Oxide Cells". An attractive four-day programme, starting with a tutorial, offers product presentations, scientific lectures, demonstrations, posters and exhibits. Altogether, more than 300 scientific contributions will be presented i.e. 120 oral presentations in 26 sessions and nearly 200 posters in two large dedicated poster sessions, with extended time for discussion. The poster rooms are permanently accessible throughout the entire event.

All events are held in the same building. Registration covers unrestricted admission to both conference and exhibition. European global developers present innovative high temperature fuel cell and electrolysis solutions, as well as materials, development equipment, fuel cell components and supplies. The technical programme is designed to inform representatives from industry, trade, finance, utilities and users as well as planners, engineers, technology brokers and members of the scientific research community. Product and application information are available from the exhibitors. The 12th European SOFC & SOE Forum 2016 will be the major international event on these subjects this year.

Exhibition

www.EFCF.com/ExReg

The technical exhibition will be held adjacent to the lecture halls. This event offers industry, suppliers, test equipment providers and research laboratories the opportunity to showcase their latest products and services, as well as making connections with potential new clients.

Exhibitors from all over the world are invited to participate.

In addition to fuel cell, electrolyser and reactor developers showing systems, related hardware and applications, suppliers can present new materials, stack and system components, control devices, production technology, qualification and test benches and diagnostic tools alongside research and development services.

For further information please contact the European Fuel Cell Forum or visit www.EFCF.com/Exhibition. The details of confirmed exhibitors are listed in the rear of this booklet.

International Project Meetings

As many International subject matter experts participate at the European Fuel Cell Forum, the Monday and Tuesday of the conference week offer an ideal opportunity for international project meetings. Please feel free to use this time to schedule your meetings for any ongoing projects, setting-up of new projects or for other related events such as an IEA workshop.

To simplify project initiators' and organisers' life, the organisation of such events for registered participants and exhibitors is actively supported by our organisation. Get more information and download a registration form on www.EFCF.com or send an e-mail to forum@efcf.com.

Publication Offers: Proceedings (ISBN), Journals www.EFCF.com/PP

The complete proceedings will be available in electronic format and distributed to all conference participants for an optimal scientific exchange. In addition EFCF offers three possibilities for publication of the works:

1. a. Authors may benefit from a publication of their contribution in the web-accessible proceedings, under the 2016 ISBN: 978-3-905592-21-4 (see www.EFC.com/LIB: Proceedings with ISBN).

1.b. Authors can apply for inclusion of their contribution in a Special Issue of "FUEL CELLS – From Fundamentals to Systems" (Impact Factor 2012: 3.15; 2013: 1.55, www.fuelcells.wiley-vch.de). Selected papers will need to comply with the journal's guidelines and go through a peer-review process.

2. Authors are also free to publish their work ELSEWHERE.

In the case of 1.b. and 2. only the title, contact and one page abstract will appear in the ISBN proceedings to prevent a clash of copyrights.

Presentation available with approved participant login www.EFCF.com/Library

At the EFCF conferences, participants are not permitted to take pictures of the presentations (literary property). This allows presenters to show their latest results, which are e.g. intended for publication in a scientific paper at a later date. However, presenters usually indicate their willingness to share their presented and eventually copyedited slides to the conference registrants. Upon receiving the authors permission, presentations of the current and previous years will be made available in the online library www.EFCF.com/Lib for all registered participants of the European Fuel Cell Forum with an approved login. To obtain download rights after the conference, post-registration is possible by "filing Contact Data" on the www.EFCF.com/Lib on-line form.

Who should attend?

The conference with exhibition offers an attractive programme for potential users of fuel cells, decision makers, researchers and engineers in industry, laboratories, academic institutions, governments, investors, consultants and electric power engineers. The event provides many opportunities for informal exchanges between industry, market and academia, a platform for technology transfer and recruitment of qualified students and trainees. The 12th European SOFC & SOE Forum 2016 combines the personal atmosphere of a workshop with the format of a scientific conference. This is the time and the place where decision makers meet politicians, inventors meet investors, engineers meet scientists, power & transport industry meet OEMs and users meet providers. Participants from all continents are invited and welcome to attend this prestigious event.

The Tutorial is an excellent Kick-Start to the 12th European SOFC & SOE Forum 2016

Dr. Günther G. Scherer

Dr. Jan Van herle

The Tutorial will provide the basic concepts required to address the general but also more specialised field of fuel cells. 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 i.e Hydrogen Fuel Cells (H_2FC) and High Temperature Fuel Cells (HTFC) as well as Hydrogen Production, Storage and Infrastructure (H_2PSI). Applications and examples will be mostly surrounding the two most popular fuel cell types, PEFC (G. G. Scherer = GGS) and SOFC (J. Van herle = JVh), this is due to the expertise of both lecturers in their respective specialties.

The Tutorial will be targeted to newcomers as well as those who have been working in the area of fuel cells for some time. Participants will gain, or revise, 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 fuel cell 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).

Tutorial Schedule:

09:30 Registration, welcome refreshments
10:00 Lecture 1: Fundamentals of Electrochemical Energy Conversion (GGS)
10:45 Lecture 2: Characteristics of the Important Fuel Cell Technologies (GGS)
11:30 Coffee break
11:45 Lecture 3: Fuels for fuel cells, fuel processing (JVh)
12:30 Lunch break
14:00 Lecture 4: Applications of Polymer Electrolyte Fuel Cells PEFC (GGS)
14:45 Lecture 5: System aspects, applications of High Temperature Fuel Cells SOFC,… (JVh)
15:30 Coffee break
15:45 Lecture 6: State-of-the-art, challenges, summary (JVh)
17:00 End of Tutorial, Possibility to visit the exhibition

The Tutorial language is English. **Register online at - www.EFCF.com/TutReg**
Each participant will receive a copy of all of the Tutorial lectures. The tutorial registration fee for all participants is CHF 500.–.

Oral Session Programme

A1 Luzerner Saal — S-Chair: Nigel Brandon

09:00 P1: Opening Session

09:00 **Welcome by the Organizers (A0101)**
Olivier Bucheli, Michael Spirig; European Fuel Cell Forum, Luzern/Switzerland

09:05 **Welcome by the Chair (A0102)**
Nigel Brandon, Imperial College London, London/UK

09:15 **Welcome to Switzerland - FCH Research and Realisation (A0103)**
Stefan Oberholzer, Rolf Schmitz, Walter Steinmann; Swiss Federal Office of Energy, Bern/Switzerland

A2 Luzerner Saal — S-Chair: Nigel Brandon

09:30 P2: Fuel Cell Market – Korean Industry – European Overview (A02)

09:30 **Fuel cell market summary - global overview (A0201)**
David Hart; E4Tech, Lausanne/Switzerland

09:50 **Korea: Current status of Fuel Cell Industry (A0202)**
Hae-Weon Lee; Korea Institute of Science and Technology (KIST), Seoul/Korea

10:10 **Europe: Overview on FCH-JU projects & activities in stationary applications (A0203)**
Mirela Atanasiu; FCH JU, Busssles/Belgium

10:30 Break – Ground Floor in the Exhibition

Session Overview

Legend: Px: = Plenary

A3 Luzerner Saal

S-Chair: Florence Lefebvre-Joud, Dan Rastler (tbc)

11:00 Companies & Major groups development status I (A03)

11:00 Advances in Hexis' SOFC development (A0301)
Andreas Mai, Felix Fleischhauer, J. Andreas Schuler, Roland Denzler, Volker Nerlich, Alexander Schuler
Hexis Ltd., Winterthur

11:15 Solid Oxide Fuel Cell Development at Versa Power Systems and FuelCell Energy (A0302)
Brian Borglum (1), Hossein Ghezel-Ayagh (2),
(1) Versa Power Systems, Ltd., Calgary/Alberta/Canada, (2) FuelCell Energy, Inc., Danbury/USA

11:30 Development status of Ceres Power Steel Cell technology: further improvements in manufacturability, durability and performance (A0303)
Robert Leah, Adam Bone, Mike Lankin, Mahfujur Rahman, Eva Hammer, Ahmet Selcuk, Andy Clare, Subhasish Mukerjee, Mark Selby, Ceres Power Ltd., Horsham/UK

11:45 High-efficiency cogenerators from SOLIDpower SpA (A0304)
Massimo Bertoldi (1), Olivier Bucheli (2), Alberto V. Ravagni (1,2)
(1) SOLIDpower SpA, Mezzolombardo/Italy, (2) HTceramix SA, Yverdon-les-Bains/Switzerland

12:00 25kW Stack Module Development Status at sunfire (A0305)
Christian Walter, Thomas Strohbach, Peter Meisel, Kai Herbrig, Danilo Schimanke,
sunfire GmbH, Dresden/Germany

12:15 Development and Demonstration of a Novel Reversible SOFC System for Utility and Micro Grid Energy Storage (A0306)
Joshua Mermelstein (1), Oliver Posdziech (2)
(1) Boeing, Huntington Beach/USA, (2) sunfire GmbH, Dresden/Germany

B3 Auditorium

S-Chair: Joongmyeon Bae (tbc), Enrique Ruiz-Trejo

11:00 State of the art & novel processing routes (B03)

11:00 Development of tubular proton conducting electrolysers (B0301)
M.-L. Fontaine (1), C. Denonville, R. Strandbakke (2), E. Vøllestad (2), J.M. Serra (3), D.R. Beeaff (4), C. Vigen (4), T. Norby (2), (1) SINTEF Materials and Chemistry, Oslo/Norway, (2) University of Oslo, Oslo/Norway, (3) ITQ UPV-CSIC, Valencia/Spain, (4) CoorsTek Membrane Sciences Norway, Oslo/Norway

11:15 Silicon-supported Nano Thin Film Solid Oxide Fuel Cell Array with Superior Mechanical Stability (B0302)
Jong Dae Baek, Yong-Jin Yoon, Pei-Chen Su
School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore/Singapore

11:30 Anode with Ni-YSZ Nanostructures Infiltrated into YSZ Pillars (B0303)
Keisuke Nagato (1,2), Lei Wang (1), Takaaki Shimura (3), Masayuki Nakao (1), Naoki Shikazono (3,4)
(1) Graduate School of Engineering, The University of Tokyo, Tokyo/Japan, (2) JST PRESTO, Saitama/Japan, (3) Institute of Industrial Science, The University of Tokyo, Tokyo/Japan, (4) JST CREST, Saitama/Japan

11:45 Influence of Process Parameters on Microstructure and Permeability of Axial Suspension Plasma Sprayed Electrolytes in SOFCs (B0304)
Mohit Gupta, Nicolaie Markocsan, University West, Trollhättan/Sweden

12:00 Nondestructive Method for Solid Oxide Fuel Cells Electrolyte Gas Tightness Assessment (B0305)
Enrico Concettoni, Lorenzo Stroppa, Cristina Cristalli
Research for Innovation dept. - Loccioni Group, Maiolati Spontini/Italy

12:15 On the optimization of $(Mn,Co)_3O_4$ suspensions for electrophoretic deposition (B0306)
Sophie Labonnote-Weber (1), Guttorm Syvertsen-Wiig (1), Hilde Lein (2), Andreas Richter (1)
(1) Ceramic Powder Technology AS, Tiller/Norway, (2) Department of Materials Science and Engineering, Norwegian University of Science and Technology, Trondheim/Norway

12:30 Lunch – 2nd Floor on the Terrace / Coffee – Ground Floor in the Exhibition & 2nd Floor in the Poster Session

A4 Club Room 3–8

S-Chair: Nigel Brandon, Jürgen Rechberger

13:15 Club Room 3-8: Poster Session I covering All Oral Session Topics (A04)

A5 Luzerner Saal

S-Chair: Robert Steinberger-Wilckens, Anke Hagen

15:00 Companies & Major groups development status II (A05)

15:00 **Recent Advances in MSC Stack Technology for Mobile Applications at Plansee (A0501)**
Wolfgang Schafbauer, Christian Bienert, Matthias Rüttinger, Marco Brandner, Lorenz S. Sigl
Plansee SE, Reutte/Austria

15:15 **Solid Oxide Fuel Cell APUs for Transport Applications (A0502)**
Juergen Rechberger, Michael Reissig, Jörg Mathe, Bernd Reiter
AVL List GmbH, Graz/Austria

15:30 **Status of Elcogen unit cell and stack development (A0503)**
Enn Õunpuu, Paul Hallanoro, Matti Noponen, Andre Koit
Elcogen AS, Tallinn/Estonia

15:45 **Sylfen: a new energy storage company using solid oxide fuel cell & electrolysis technology (A0504)**
Nicolas Bardi, Caroline Rozain
Sylfen, Grenoble/France

B5 Auditorium

S-Chair: Viola Birss, Rajendra Basu (tbc)

15:00 Lifetime: Materials and cells (B05)

15:00 **Quantitative review of degradation and lifetime of solid oxide cells and stacks (B0501)**
Theis L. Skafte (1,2), Johan Hjelm (2), Peter Blennow (1), Christopher Graves (2)
(1) Haldor Topsoe A/S, Kgs. Lyngby/Denmark,
(2) Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde/Denmark

15:15 **Electrochemical Analysis of Sulfur Poisoning in Ni/8YSZ Cermet Anodes (B0502)**
Sebastian Dierickx, André Weber, Ellen Ivers-Tiffée
Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

15:30 **Phase decomposition of $La_2NiO_{4+\delta}$ under Cr- and Si-poisoning conditions (B0503)**
N. Schrödl (1), A. Egger (1), E. Bucher (1), C. Gspan (2), T. Höschen (3), F. Hofer (2), W. Sitte (1)
(1) Chair of Physical Chemistry, Montanuniversitaet Leoben, Leoben/Austria, (2) Institute for Electron Microscopy and Nanoanalysis (FELMI), Graz University of Technology & Graz Centre for Electron Microscopy (ZFE), Graz/Austria, (3) Max Planck Institute for Plasma Physics, Garching/Germany

15:45 **Experimental and theoretical evaluation of sulfur poisoning of Ni/CGO SOFC anodes (B0504)**
Matthias Riegraf (1), Vitaliy Yurkiv (1), Günter Schiller (1), Andreas Mai (2), Arnulf Latz (1), K. Andreas Friedrich (1)
(1) German Aerospace Center (DLR), Stuttgart/Germany, (2) Hexis Limited, Winterthur/Switzerland

16:00 Break – Ground Floor in the Exhibition & 2nd Floor in the Poster Session

A6 Luzerner Saal

S-Chair: Subhashish Mukerjee, Pei-Chen Su

16:30 R&D at institutions - Overviews and status (A06)

16:30 **Status of SOFC/SOEC Stack and System Development and Commercialization Activities at Fraunhofer IKTS (A0601)**
Mihails Kusnezoff, Stefan Megel, Thomas Pfeifer, Jens Baade
Fraunhofer IKTS, Dresden/Germany

16:45 **Current Status of NEDO Durability Project with an Emphasis on Correlation Between Cathode Overpotential and Ohmic Loss (A0602)**
Harumi Yokokawa
Institute of Industrial Science, The University of Tokyo, Tokyo/Japan

17:00 **Stack Development at Forschungszentrum Jülich (A0603)**
Ludger Blum (1), Qingping Fang (1), Nikolaos Margaritis (2), Roland Peters (1)
(1) Institute of Energy and Climate Research, (2) Central Institute of Engineering, Electronics and Analytics - Forschungszentrum Jülich GmbH, Jülich/Germany

17:15 **NEXT-FC: An SOFC-Center for tight industry-academia collaboration and demonstration (A0604)**
K. Sasaki (1-5), S. Taniguchi (1,2,5), Y. Shiratori (1-5), A. Hayashi (1-5), T. Oshima (3), Y. Tachikawa (5), M. Nishihara (4), J. Matsuda (4), T. Kawabata (2), M. Fujita (2), A. Zaitsu (2)
(1) Next-Generation Fuel Cell Research Center (NEXT-FC), (2) International Research Center for Hydrogen Energy, (3) Faculty of Engineering (Hydrogen Energy Systems), Fukuoka/Japan, (4) International Institute for Carbon-Neutral Energy Research (WPI-I2CNER) Kyushu University, Fukuoka/Japan, (5) Center for Co-Evolutional Social Systems (CESS) - Kyushu University, Fukuoka/Japan

17:30 **Status of CEA research and development on SOEC/SOFC cells, stacks and systems (A0605)**
J. Mougin (1), G. Roux (1), M. Reytier (1), J. Vulliet (2), F. Lefebvre-Joud (1)
(1) CEA-Grenoble, LITEN, Grenoble/FRANCE, (2) CEA/-Le Ripault DMAT, Monts/France

17:45 **Research and Development of SOFC and SOEC at DLR: from Next Generation Cells to Efficient and Effective Systems (A0606)**
Remi Costa, Günter Schiller, Marc Heddrich, Asif Ansar, K. Andreas Friedrich
German Aerospace Center (DLR), Stuttgart/Germany

B6 Auditorium

S-Chair: Prabhaker Singh (tbc), Rich Goettler

16:30 Electrolytes, interconnects, seals (B06)

16:30 **Usage of Ceria for Solid Oxide Electrochemical Cells (B0601)**
Hirofumi Sumi (1), Eisaku Suda (2), Masashi Mori (3); (1) National Institute of Advanced Industrial Science and Technology (AIST), Moriyama-ku/Nagoya/Japan, (2) Anan Kasei Co., Ltd., Anan/Tokushima /Japan, (3) Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka/Kanagawa/Japan

16:45 **Intermediate temperature proton conducting fuel cells for transportation applications (B0602)**
S (Elango) Elangovan (1), Dennis Larsen (1), Cortney Kreller (2), Mahlon Wilson (2), Yu Seung Kim (2), Kwan Soo Lee (2), Rangachari Mukundan (2), Nilesh Dale (3); (1) Ceramatec, Inc., Salt Lake City/USA, (2) Los Alamos National Laboratory, Los Alamos/USA, (3) Nissan Technical Center, Michigan/USA

17:00 **Natural hematite-based membrane for low-temperature solid oxide fuel cell (B0603)**
Chen Xia, Baoyuan Wang, Yixiao Cai, Muhammad Afzal, Bin Zhu
Royal Institute of Technology, Department of Energy Technology, Stockholm/Sweden

17:15 **Effect of temperature on the oxidation and Cr evaporation behavior of Co and Ce/Co coated steel (B0604)**
Hannes Falk-Windisch, Jan-Erik Svensson and Jan Froitzheim
Chalmers University of Technology, Energy and Materials, Göteborg/Sweden

17:30 **Benchmarking protective coatings for SOFC ferritic steel interconnects – The SCORED 2:0 project (B0605)**
Robert Steinberger-Wilckens (1), Shicai Yang (2), Kevin Cooke (2), Johan Tallgren (3), Olli Himanen (3), Stefano Frangini (4), Andrea Masi (4,5), Manuel Bianco (6), Jan Van herle (6), Jong-Eun Hong (1), Melissa Oum (1), Francesco Bozza (7), Alessandro Delai (8); (1) Centre for Hydrogen and Fuel Cell Research, School of Chemical Engineering, University of Birmingham, Birmingham/UK, (2) Teer Coatings Ltd, Miba Coating, Droitwich/UK, (3) VTT Technical Research Centre, Fuel Cells, Espoo/Finland, (4) ENEA CR Casaccia, Rome/Italy, (5) DAFNE, University of Tuscia, Viterbo/Italy, (6) FUELMAT Group, EPFL Valais, Sion/Switzerland, (7)

17:45 **Glass ceramic sealants for CFY based SOFC (B0606)**
Jochen Schilm, Axel Rost, Mihails Kusnezoff, Alexander Michaelis
Fraunhofer IKTS, Dresden/Germany

18:00	End of Sessions	
18:30	Swiss Surprise	Registered participants meet between KKL and railway station

Morning

Thursday, July 7, 2016

Morning

A7	Luzerner Saal	S-Chair: Nigel Brandon
09:00	**P3: Keynote – Energy Revolution: Smart innovations & early adopters (A07)**	
09:00	**Changing data centers to change the world. How smart innovation and early adopters will usher in the next energy revolution. (A0701)** Sean James Microsoft Infrastructure & Operations , USA	
09:25	**5 Min to change to Auditorium for B08 Session**	

A8 Luzerner Saal

S-Chair: Rob Braun , Ludger Blum

09:30 Lifetime: Cells & Stacks (A08)

09:30 **20 000 Hours Steam Electrolysis with a Solid Oxide Cell (A0801)**
Annabelle Brisse, Josef Schefold
European Institute for Energy Research (EIFER), Karlsruhe/Germany

09:45 **Post-test analysis on a Solid Oxide Cell stack operated for 10700 hours in steam electrolysis mode (A0802)**
Giorgio Rinaldi (1), Stefan Diethelm (1), Pierre Burdet (1), Emad Oveisi (1), Jan Van herle (1), Dario Montinaro (2), Qingxi Fu (3), Annabelle Brisse (3)
(1) École polytechnique fédérale de Lausanne Valais/Wallis, Sion/Switzerland, (2) SOLIDpower, Mezzolombardo/Italy, (3) European Institute for Energy Research, Karlsruhe/Germany

10:00 **Degradation analysis of an SOEC stack operated for more than 10,000 h (A0803)**
Qingping Fang, Ludger Blum, Norbert H. Menzler
Forschungszentrum Jülich GmbH , Institute of Energy and Climate Research, Jülich/Germany

10:15 **Long-term operation of a solid oxide cell stack for co-electrolysis of steam and CO_2 (A0804)**
Karsten Agersted (1), Ming Chen (1), Peter Blennow (2), Rainer Küngas (2), Peter Vang Hendriksen (1)
(1) Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde/Denmark, (2) Haldor Topsoe A/S, Kgs. Lyngby/Denmark

B8 Auditorium

S-Chair: Ellen Ivers-Tiffée, Jan Van herle

09:30 Modelling, validation & optimisation: Cell & stack (B08)

09:30 **Simulation of the electrochemical impedance response of SOFC anodes: from the microstructural reconstruction to the physically-based modelling (B0801)**
Antonio Bertei, Enrique Ruiz-Trejo, Farid Tariq, Vladimir Yufit, Kristina Kareh, Nigel Brandon
Department of Earth Science and Engineering, Imperial College London, London/UK

09:45 **Relaxation of stresses during reduction of anode supported SOFCs (B0802)**
Henrik Lund Frandsen, Christodoulos Chatzichristodoulou, Peter Stanley Jørgensen, Kawai Kwok, Peter Vang Hendriksen
Technical University of Denmark, Roskilde/Denmark

10:00 **Designing Porous Cathode Structures for SOFCs (B0803)**
Jochen Joos, Helge Geisler, André Weber, Ellen Ivers-Tiffée
Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

10:15 **Dealing with fuel contaminants degradation in Ni-anode SOFCs (B0804)**
Andrea Lanzini, Davide Papurello, Domenico Ferrero, Massimo Santarelli
Energy Department, Politecnico di Torino, Torino/Italy

10:30 Break – Ground Floor in the Exhibition

A9 Luzerner Saal

S-Chair: Qiong Cai, Kazunari Sasaki (tbc)

11:00 Cell design and characterisation (A09)

11:00 **Mechanics of SOFC Contacting (A0901)**
Zhangwei Chen (1), Xin Wang (2), Nigel Brandon (3), Alan Atkinson (2)
(1) Earth Science and Engineering, (2) Department of Materials, (3) Sustainable Gas Institute, Imperial College, London/UK

11:15 **Relation between shape of Ni-particles and Ni migration in Ni-YSZ electrodes – a hypothesis (A0902)**
Mogens B. Mogensen, Anne Hauch, Xiufu Sun, Ming Chen, Youkun Tao, Sune D. Ebbesen, Peter V. Hendriksen
Department of Energy Conversion and Storage, Technical University of Denmark (DTU), Roskilde/Denmark

11:30 **Cation diffusion at the CGO barrier layer region of solid oxide fuel cells (A0903)**
V. Miguel-Pérez (1), A. Tarancón (1), M. Torrell (1), J. P. Ouweltjes (2), J. M. Bassat (3), D. Montinaro (4), A. Morata (1)
(1) IREC, Catalonia Institute for Energy Research, Dept of Advanced Materials for Energy Applications, Barcelona/Spain, (2) HTceramix SA, Yverdon-les-Bains/Switzerland, (3) CNRS, ICMCB, Pessac/France, (4) SOLIDPower SpA, Mezzolombardo/Italy

B9 Auditorium

S-Chair: Dario Montinaro

11:00 Metal supported SOFCs (B09)

11:00 **Recent Results of the Christian Doppler Laboratory for Interfaces in Metal-Supported Electrochemical Energy Converters (B0901)**
Martin Bram (1,2), Marco Brandner (3), Jürgen Rechberger (4), Alexander Opitz (1,5)
(1) Christian Doppler Laboratory for Interfaces in Metal-Supported Electrochemical Energy Converters, Jülich/Germany, (2) Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK-1), Jülich/Germany, (3) Plansee SE, Innovation Services, Reutte/Austria, (4) AVL List GmbH, Graz/Austria, (5) Institute of Chemical Technologies and Analytics, Technical University Vienna, Vienna/Austria

11:15 **Validation methodology and results from a Ceres Power Steel Cell technology platform (B0902)**
Adam Bone, Oliver Postlethwaite, Robert Leah, Subhasish Mukerjee, Mark Selby
Ceres Power Ltd., Horsham/UK

11:30 **Development of robust metal supported SOFCs and stack components in EU-METSAPP consortium (B0903)**
B.R. Sudireddy (1), J. Nielsen (1), Å. H. Persson (1), K. Thydén (1), K. Brodersen (1), S. Ramousse (1), D. Neagu (2), E. Stefan (2), J.T.S. Irvine (2), H. Geisler(3), A. Weber (3), G. Reiss (4), R. Schauperl (5), J. Rechberger (5), J. Froitzheim (6), R. Sachitanand (6), H. F. Windisch (6), J. E. Svensson (6), M. W. Lundberg (7), R. Berger (7), J. Westlinder (7), S. Hornauer (8), T. Kiefer (8)
(1) Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde/Denmark, (2) School of Chemistry, University of St Andrews, St Andrews/Scotland/UK, (3) Institut für Werkstoffe der Elektrotechnik (IWE), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany, (4) ICE Strömungsforschung GmbH, Leoben/Austria, (5) AVL List GmbH, Graz/Austria, (6) Department of Chemistry and Chemical Engineering, Chalmers University of Technology, Gothenburg/Sweden, (7) AB Sandvik Materials Technology, Sandviken/Sweden, (8) ElringKlinger AG

11:45	**Direct-methane solid oxide fuel cells with ceria-coated Ni layer at reduced temperatures (A0904)** Jin Goo Lee (1), Ok Sung Jeon (1), Ho Jung Hwang (2), Jeong Seok Jang (1), Yeyeon Lee (2), Sang-Hoon Hyun (3), Yong Gun Shul (1,2) (1) Department of Chemical and Bio-molecular Engineering, Yonsei University, Seoul/Republic of Korea, (2) Department of Graduate Program in New Energy and Battery Engineering, Yonsei University, Seoul/Republic of Korea, (3) Department of Materials Science and Engineering, Yonsei University, Seoul/Republic of Koreany	11:45	**Development of advanced high temperature metal supported cell with perovskite based anode: a step toward the next generation of SOFC (B0904)** Feng Han (1), Robert Semerad (4), Patric Szabo (1), Vitaliy Yurkiv (1), Laurent Dessemond (2,3), Rémi Costa (1) (1) German Aerospace Center (DLR), Stuttgart/Germany, (2) Université Grenoble Alpes, Laboratoire d'Electrochimie et de Physico-Chimie des Matériaux et des Interfaces, (3) CNRS, Laboratoire d'Electrochimie et de Physico-Chimie des Matériaux et des Interfaces, Grenoble/France, (4) Ceraco Ceramic Coating GmbH, Ismaning/Germany
12:00	**Investigation of high performance low temperature ceria-carbonate composite fuel cells (A0905)** Muhammad Imran Asghar (1), Ieeba Khan (2), Suddhasatwa Basu (2), Peter D. Lund (1) (1) Department of Applied Physics, Aalto University, Aalto/Finland, (2) Department of Chemical Engineering, Indian Institute of Technology, New Delhi/India	12:00	**Development of metal supported proton ceramic electrolyser cells (PCEC) for renewable hydrogen production (B0905)** M. Stange (1), E. Stefan (2), C. Denonville (1), Y. Larring (1), M.L. Fontaine (1), R. Haugsrud (2) (1) SINTEF Materials and Chemistry, Oslo/Norway, (2) University of Oslo, Oslo/Norway
12:15	**1D numerical modeling of direct ammonia solid oxide fuel cells (A0906)** Masashi Kishimoto, Yuki Matsui, Hiroshi Iwai, Motohiro Saito, Hideo Yoshidan Department of Aeronautics and Astronautics, Kyoto University, Nishikyo-ku/Kyoto/Japan	12:15	**Adapted Sintering of LSCF-Electrodes for Metal-Supported Solid Oxide Fuel Cells (B0906)** D. Udomsilp (1,2), D. Roehrens (1,2), N.H. Menzler (2), W. Schafbauer (3), O. Guillon (2,4), M. Bram (1,2) (1) Christian Doppler Laboratory for Interfaces in Metal-Supported Electrochemical Energy Converters, Jülich/Germany, (2) Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research – Materials Synthesis and Processing (IEK-1), Jülich/Germany, (3) PLANSEE SE, Innovation Services, Reutte/Austria, (4) Jülich Aachen Research Alliance: JARA-Energy, Aachen/Germany
12:30	**Lunch – 2nd Floor on the Terrace Coffee – Ground Floor in the Exhibition & 2nd Floor in the Poster Session**		




A10 Club Room 3–8

S-Chair: Nigel Brandon, Jürgen Rechberger

13:15 Poster Session II covering All Oral Session Topics

A11 Luzerner Saal

S-Chair: Jari Kiviaho

15:00 Lifetime: Stacks & systems (A11)

15:00 **Post-Test Analysis of a Solid Oxide Fuel Cell Stack Operated for 35,000h (A1101)**
Norbert H. Menzler (1), Peter Batfalsky (2), Alexander Beez (1), Ludger Blum (1), Sonja-Michaela Groß-Barsnick (2), Leszek Niewolak (1), Willem J. Quadakkers (1), Robert Vaßen (1)
(1) Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK), Jülich/Germany, (2) Forschungszentrum Jülich GmbH, Central Institute for Engineering, Electronics and Analytics (ZEA), Jülich/Germany

15:15 **Understanding lifetime limitations in the Topsoe Stack Platform using modeling and post mortem analysis (A1102)**
Peter Blennow, Jeppe Rass-Hansen, Thomas Heiredal-Clausen, Rainer Küngas, Tobias Holt Nørby, Søren Primdahl
Haldor Topsoe A/S, Kgs. Lyngby/Denmark

15:30 **Understanding of SOEC Degradation Processes by means of a Systematic Parameter Study (A1103)**
Michael P. Hoerlein, Vitaliy Yurkiv, Günter Schiller, K. Andreas Friedrich
German Aerospace Center (DLR), Institute of Engineering Thermodynamics, Stuttgart/Germany

15:45 **Durability assessment of SOFC stacks with several types of structures for thermal cycles during their lifetimes on residential use (A1104)**
Koki Sato (1), Takaaki Somekawa (1), Toru Hatae (1), Shinji Amaha (1), Yoshio Matsuzaki (1), Masahiro Yoshikawa (2), Yoshihiro Mugikura (2), Shunsuke Taniguchi (3), Toshihiro Oshima (3), Kengo Miyara (3), Kazunari Sasaki (3), Hiroshi Sumi (4), Makoto Ohmori (5), Harumi Yokokawa (6); (1) Tokyo Gas Co., Ltd., (2) Central Research Institute of Electric Power Industry, (3) Kyushu University, Fukuoka/Japan, (4) NGK Spark Plug CO. Ltd, Nagoya/Japan, (5) NGK Insulators Ltd., Tokyo/Japan, (6) The University of Tokyo, Tokyo/Japan

B11 Auditorium

S-Chair: John Bøgild Hansen, Mardit Matian

15:00 Modelling, validation & optimisation: System (B11)

15:00 **Efficient integration of SOFC and gasification system (B1101)**
Stephan Herrmann, Manuel Jimenez Arreola, Michael Geis, Sebastian Fendt, Hartmut Spliethoff
Lehrstuhl für Energiesysteme, Technische Universität München, Garching/Germany

15:15 **Development of the FlexPCFC: a Low-Cost Intermediate-Temperature Fuel-Flexible Protonic Ceramic Fuel Cell (B1102)**
Alexis Dubois (1), Kevin J. Albrecht (1), Chuancheng Duan (2), Jianhua Tong (2), Ryan O'Hayre (2), Robert J. Braun (1); (1) Department of Mechanical Engineering, (2) Department of Materials & Metallurgical Engineering, Colorado School of Mines, Golden/USA

15:30 **A Thermodynamic Analysis of Integrated SOFC Cycles for Ships (B1103)**
L. van Biert, K. Visser, P.V. Aravind
3mE, Delft University of Technology, Delft/The Netherlands

15:45 **Power to Power efficiencies based on a SOFC/SOEC reversible system (B1104)**
A. Chatroux, S. Di Iorio, G. Roux, C. Bernard, J. Mougin, M. Petitjean, M. Reytier
CEA-Grenoble, LITEN, Grenoble/France

16:00 Break – Ground Floor in the Exhibition & 2nd Floor in the Poster Session

A12 Luzerner Saal — S-Chair: Annabelle Brisse

16:30 Stack design and characterisation (A12)

16:30 **Stability of SOFC cassette stacks during redox-thermal-cycling (A1201)**
Ute Packbier (1), Tim Bause (2), Qingping Fang (1), Ludger Blum (1), Detlef Stolten (1)
(1) Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK), Jülich/Germany, (2) ElringKlinger AG, Dettingen/Germany

16:45 **Evaluation of a SOEC stack for hydrogen and syngas production: a performance and durability analysis (A1202)**
Mikko Kotisaari (1), Olivier Thomann (1), Dario Montinaro (2), Jari Kiviaho (1)
(1) VTT Technical Research Centre of Finland Ltd., Fuel Cells, Helsinki/Finland, (2) SOLIDPower SpA, Trento/Italy

17:00 **Investigation of a 500W SOFC stack fed with dodecane reformate (A1203)**
Massimiliano Lo Faro, Stefano Trocino, Sabrina C. Zignani, Giuseppe Monforte, Antonino S. Aricò
CNR-ITAE, Messina/Italy

17:15 **Performance Characteristics of Elcogen Solid Oxide Fuel Cell Stacks (A1204)**
Matti Noponen, Jukka Göös, Pauli Torri, Daniel Chade, Heikki Vähä-Piikkiö, Paul Hallanoro
Elcogen Oy, Vantaa/Finland

B12 Auditorium — S-Chair: Ulrich Vogt

16:30 Advanced characterisation tools and techniques (B12)

16:30 **Understanding Blocking Grain Boundaries Within Proton Conducting Ceramics Using Atom Probe Tomography (B1201)**
Daniel Clark (1,2), Dave Diercks (2), Huayang Zhu (3), Robert J. Kee (3), Sandrine Ricote (3), Brian Gorman (2), Ryan O'Hayre (1, 2)
(1) Renewable Energy Materials Research Science and Engineering Center, (2) Colorado Center for Advanced Ceramics, (3) Colorado Fuel Cell Center, Colorado School of Mines, Golden/USA

16:45 **Oxide ion blocking effect at $SrZrO_3$/YSZ and Y-doped $SrZrO_3$/YSZ interfaces (B1202)**
Katherine Develos-Bagarinao (1), Harumi Yokokawa (1, 2), Haruo Kishimoto (1) Teruhisa Horita (1), Katsuhiko Yamaji (1)
(1) Research Institute for Energy Conservation, National Institute of Advanced Industrial Science and Technology, Tsukuba/Ibaraki/Japan, (2) Institute of Industrial Science, The University of Tokyo, Tokyo/Japan

17:00 **Understanding performance limiting impacts in SOFCs - visualizing the nature of cathode/electrolyte interfaces using advanced focused ion beam/ scanning electron microscope (FIB-SEM) tomography techniques (B1203)**
F. Wankmueller (1), J. Szasz (1), J. Joos (1), V. Wilde (2), H. Stoermer (2), D. Gerthsen (2), E. Ivers-Tiffée (1)
(1) Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany, (2) Laboratory for Electron Microscopy (LEM), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

17:15 **Experimental method to determine the changes of Ni content in operated SOFC anodes (B1204)**
Paolo Piccardo (1,2), Alex Morata (3), Valeria Bongiorno (1,2), Jan Pieter Ouweltijes (4)
(1) Laboratory of Metallurgy and Materials, DCCI, University of Genoa, Genoa/Italy, (2) Institute for Energetics and Interphases, National Council of Research, Genoa/Italy, (3) IREC, Barcelona/Spain, (4) HTceramix SA, Yverdon/Switzerland

17:30	**Performance and degradation of an SOEC stack with different air electrodes (A1205)** Y. Yan, Q. Fang, L. Blum, W. Lehnert Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Jülich/Germany	17:30	**Photoacoustic Measurement of cPO_x Catalyst Activity in Microtubular SOFC (B1205)** Lois Milner, Artur Majewski, Robert Steinberger-Wilckens; Centre for Hydrogen and Fuel Cell Research, School of Chemical Engineering, The University of Birmingham, Birmingham/UK
17:45	**Fuel Distributions in Anode-Supported Honeycomb Solid Oxide Fuel Cells (A1206)** Hironori NAKAJIMA (1), Tatsumi KITAHARA (1), Sou IKEDA (2) (1) Department of Mechanical Engineering, Faculty of Engineering, (2) Department of Hydrogen Energy Systems, Graduate School of Engineering, Kyushu University, Fukuoka/Japan	17:45	**Tomography beyond the pretty pictures to numbers for 3D SOFC Electrodes (B1206)** Farid Tariq (1,2), Vladimir Yufit (1,2), Xin An (1), Ed Cohen (1), Kristina Kareh (1), Antonio Bertei (1), Enrique Ruiz-Trejo (1), Nigel Brandon (1,2) (1) Imperial College London, London/UK, (2) IQM Elements Ltd, Quantitative Imaging Division, London/UK
18:00	**End of Sessions**		
19:30	**Dinner on the Lake**	**Boarding 19.20, Lake side of KKL pier 5/6 – back 23.25 (ok for train to Zurich, stop in Brunnen 22.30 for early return by train)**	

Morning

Friday, July 8, 2016

Morning

A13 Luzerner Saal

S-Chair: Mark Selby, Marc Heddrich

09:00 Development of systems and balance of plant components (A13)

09:00 **Development of highly efficient SOFC power generating system using fuel concentration recovery process (A1301)**
Kazuo Nakamura, Takahiro Ide, Shumpei Taku, Tatsuya Nakajima, Marie Shirai, Tatsuki Dohkoh, Takao Kume, Yoichi Ikeda, Takaaki Somekawa, Takuto Kushi, Kei Ogasawara, Kenjiro Fujita
Tokyo Gas Co., Ltd., Fundamental Technology Dept., Yokohama/Japan

09:15 **Prognostics-oriented simulation of an MSR fuel processor for SOFCs (A1302)**
Federico Pugliese (1), Andrea Trucco (2), Paola Costamagna (1)
University of Genoa: (1) Department of Civil, Chemical and Environmental Engineering (DICCA), (2) Department of Electrical, Electronics and Telecommunications Engineering (DITEN), Genoa/Italy

B13 Auditorium

Chair: Brian Borglum, Danilo Schimanke

09:00 Anodes: State-of-the-art & novel materials I (B13)

09:00 **Evolution of the electrochemical interface in Solid Oxide Cells (B1301)**
John TS Irvine (1), Dragos Neagu (1), Maarten C Verbraeken (1), Christodoulos Chatzichristodoulou (2), Christopher Graves (2), Mogens B Mogensen (2)
(1) School of Chemistry, University of St Andrews, St Andrews/UK, (2) Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde/Denmark

09:15 **Elucidating structure-property-function relationships in cermet anodes through independent variation of metal and ceramic composition and microstructure (B1302)**
Paul Boldrin (1), Farid Tariq (1), Mengzheng Ouyang (1), Tanapa Konuntakiet (2), Nigel P. Brandon (1)
(1) Department of Earth Science & Engineering, Imperial College London, London/UK, (2) Department of Chemical Engineering, Imperial College London, London/UK

09:30	**A Planar Steam Reformer Designed for 60,000 h Operation (A1303)** Yves De Vos, Jean-Paul Janssens Bosal ECS NV, Lummen/Belgium	09:30	**Accessible Triple-Phase Boundary Length in Solid Oxide Fuel Cell Anodes (B1303)** A. Nakajo (1,2), A.P. Cocco (1), M.B. Degostin (1), P. Burdet (3), A.A. Peracchio (1), B. N. Cassenti (1), M. Cantoni (3), J. Van herle (2), W.K.S. Chiu (1) (1) Department of Mechanical Engineering, University of Connecticut, Storrs/USA, (2) Fuelmat Group, Faculty of Engineering Sciences and Technology STI, Ecole Polytechnique Fédérale de Lausanne, Lausanne/Switzerland, (3) Interdisciplinary Centre for Electron Microscopy, Ecole Polytechnique Fédérale de Lausanne, Lausanne/Switzerland
09:45	**Proof of concept for solid oxide electrolysis systems (A1304)** DI Richard Schauperl, Bsc Beppino Defner, Bsc Dominik Dunst, DI Jürgen Rechberger AVL List GmbH, Graz/Austria	09:45	**Development of Solid Oxide Fuel Cells Anode Ni-based Alloys (B1304)** Rizki Putri Andarini, Aman Dhir, Robert Steinberger-Wilckens Centre for Fuel Cell & Hydrogen Research, School of Chemical Engineering, Birmingham/UK
10:00	**SchIBZ – application of large diesel fueled SOFC systems for seagoing vessels and decentralized onshore applications (A1305)** Keno Leites thyssenkrupp Marine Systems GmbH, Hamburg/Germany	10:00	**Sulfur tolerant LSCM-based composite cathode for high temperature electrolysis/co-electrolysis of H_2O and CO_2 (B1305)** Chee Kuan Lim (1,2,3), Qinglin Liu (1,2), Juan Zhou (1,2), Qiang Sun (1,4), Siew Hwa Chan (1,2,3) (1) Singapore Research Centre, Campus for Research Excellence & Technological Enterprise (CREATE), Singapore/Singapore, (2) Energy Research Institute at NTU (ERIAN), Nanyang Technological University, Singapore/Singapore, (3) School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore/Singapore, (4) College of Engineering, Peking University, Beijing/China
10:15	**Development of a SOFC/Battery-Hybrid System for Distributed Power Generation in India (A1306)** Thomas Pfeifer, Mathias Hartmann, Markus Barthel, Jens Baade, Ralf Näke, Christian Dosch Fraunhofer IKTS, Dresden/Germany	10:15	**Characterization of SOEC nanocomposite electrodes based on mesoporous ceramic scaffolds infiltration. (B1306)** M. Torrell, E. Hernández, A. Morata, A. Tarancón; Catalonia Institute for Energy Research (IREC), Barcelona/Spain
10:30	**Break – Ground Floor in the Exhibition**		

A 14 Luzerner Saal

S-Chair: Paola Costamagna, AndreWeber (tbc)

11:00 Reactors, separators and storage based on solid oxide technology (A14)

11:00 **Surface analysis and ionic transport of ScSZ/LSCrF dual-phase membrane for oxygen transport (A1401)**
Chi Ho Wong, Stephen Skinner – Imperial College London, Department of Materials, Royal School of Mines, London/UK

11:15 **Cermet membranes for oxygen separation with low silver content (A1402)**
E. Ruiz-Trejo, A. Maserati, A. Bertei, P. Boldrin, N. P. Brandon
Department of Earth Science and Engineering, Imperial College London, London/UK

11:30 **Development of solid oxide electrolysis for oxygen production from mars atmosphere carbon dioxide. (A1403)**
Joseph Hartvigsen, S. Elango Elangovan, Jessica Elwell, Dennis Larsen, Laurie Clark
Ceramatec, Inc., Salt Lake City/USA

11:45 **Post-test analysis of a rechargeable oxide battery (ROB) based on Solid Oxide Cells (A1404)**
Cornelius M. Berger (1,2), Oleg Tokariev (1,2), Norbert H. Menzler (1,2), O. Guillon (1,2), M. Bram (1,2)
(1) Institute of Energy and Climate Research (IEK-1), Forschungszentrum Jülich GmbH, Jülich/Germany,
(2) Jülich Aachen Research Alliance (JARA)

12:00 **Characterization of Solid Oxide Cells based Rechargeable Oxide Battery (A1405)**
Qingping Fang, Cornelius M. Berger, Ludger Blum, Norbert H. Menzler, Martin Bram
Forschungszentrum Jülich GmbH , Institute of Energy and Climate Research, Jülich/Germany

12:15 **Convion SOFC System 5000h Validation (A1406)**
Kim Åström, Henri Stenberg, Matti Liukkonen, Erkko Fontell
Convion Ltd, Espoo/Finland

B 14 Auditorium

S-Chair: John Irvine, Mihail Kusnezoff (tbc)

11:00 Anodes: State-of-the-art & novel materials II (B14)

11:00 **Fabrication of Ni-yttria stabilized zirconia composites for highly active and stable SOFC anodes (B1401) –** Viola I. Birss, Aligul Buyukaksoy; Department of Chemistry, University of Calgary, Calgary/Canada

11:15 **Redox-stable SOFC anode materials based on La-doped $SrTO_3$ oxide with impregnated catalysts (B1402)**
Xuesong Shen (1), Kazunari Sasaki (1,2,3,4); (1) Department of Hydrogen Energy Systems, (2) International Research Center for Hydrogen Energy, (3) Next-Generation Fuel Cell Research Center (NEXT-FC), Fukuoka/Japan, (4) International Institute for Carbon-Neutral Energy Research (WPI-I2CNER) Kyushu University, Fukuoka/Japan

11:30 **SMART catalyst based on doped Sr-titanite for advanced SOFC anodes (B1403)**
Dariusz Burnat (1), Roman Kontic (1), Lorenz Holzer (2), Andreas Mai (3), Andre Heel (1)
(1) IMPE - Institute for Materials and Process Engineering, (2) ICP – Institute for Computational Physics, ZHAW – Zurich University of Applied Sciences, Winterthur/Switzerland, (3) Hexis AG, Winterthur/Switzerland

11:45 **Influence of multifunctional layers on the perfomance of solid oxide fuel cell anodes based on $Zr_xCe_{1-x}O_{2-\delta}$ (B1404)**
Selma A. Venâncio, George G. Gomes Jr., Paulo Emílio V. de Miranda; The Hydrogen Laboratory-Coppe – Department of Metallurgy and Materials Engineering, Federal University of Rio de Janeiro, Rio de Janeiro/Brazil

12:00 **Development and Testing of an Impregnated $La_{0.20}Sr_{0.25}Ca_{0.45}TiO_3$ Anode for Improved Performance and Sulphur Tolerance (B1405)**
Annabelle Brisse, Josef Schefold, Qingxi Fu, Gaël Corre; European Institute For Energy Research, Karlsruhe/Germany

12:15 **Redox behavior, electrical properties and electrochemical performance of $SrV_{1-x}Ti_xO_{3-d}$ perovskites as ceramic components for SOFC anodes (B1406)**
Javier Macias (1), Aleksey Yaremchenko (1), B.R. Sudireddy (2), S. Veltze (2), P. Holtappels (2), Jorge Frade (1)
(1) CICECO, Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro/Portugal,
(2) Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde/Denmark

12:30 Lunch – 2nd Floor on the Terrace Coffee – Ground Floor in the Exhibition & 2nd Floor on the Terrace

A15 Luzerner Saal — S-Chair: Tony Wood

13:30 Current and future market issues (A15)

13:30 Operational Experience with a Solid Oxide Fuel Cell System with Low Temperature Anode off-gas Recirculation (A1501)
Maximilian Engelbracht, Roland Peters, Wilfried Tiedemann, Ludger Blum, Detlef Stolten, Ingo Hoven
Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK), Jülich/Germany

13:45 A Total Cost of Ownership Analysis of SOFC Fuel Cell Systems (A1502)
Shuk Han Chan (1), Max Wei (2), Ahmad Mayyas (2), Timothy Lipman (3)
(1) University of California Berkeley, Etcheverry Hall/USA, (2) Lawrence Berkeley National Laboratory, Berkeley/USA, (3) Transportation Sustainability Research Center, California/USA

14:00 Road Truck LNG Boil-Off Converted to Battery Power by Small Planar SOFC System (A1503)
Ulf Bossel; ALMUS AG, Oberrohrdorf/Switzerland

14:15 Electrochemical and Hydrogen Energy Technologies for Next-Generation Transportation Energy Systems (A1504)
Whitney G. Colella (1,2); (1) Gaia Energy Research Institute, Arlington/VA/USA, (2) The Johns Hopkins University, Whiting School of Engineering, Baltimore/USA

14:30 Solid Oxide Electrolysis Development at Versa Power Systems (A1505)
Tony Wood, Hongpeng He, Tahir Joia, Mark Krivy, Dale Steedman, Eric Tang, Casey Brown
Versa Power Systems, Calgary/Canada

14:45 SOEC Enabled Biogas Upgrading (A1506)
John Bøgild Hansen, Majken Holstebroe, Michael Ulrik Borg Jensen, Jeppe Rass-Hansen, Thomas Heiredal-Clausen
Haldor Topsøe A/S, Kongens Lyngby/Denmark

15:00 5 Min to change from B15 Session to Luzerner Saal for A16 Plenary Session

B15 Auditorium — S-Chair: Stephen Skinner, Jong Shik Chung (tbc)

13:30 Cathodes: State-of-the-art & novel materials (B15)

13:30 Oxygen Exchange on Real Electrode Surfaces; experimentally-guided computational insight (B1501)
John Kilner (1,2), Aleksandar Staykov (1), John Druce (1), Helena Téllez (1), Taner Akbay (3), Tatsumi Ishihara (1,3)
(1) International Institute for Carbon-neutral Energy Research (WPI-I2CNER), Kyushu University, Fukuoka/Japan, (2) Department of Materials, Imperial College London, London/UK, (3) Advanced Research Centre for Electric Energy StorageKyushu University, Fukuoka/Japan

13:45 High-Performance Cathode/Electrolyte Interfaces for SOFC (B1502)
Julian Szasz (1), Florian Wankmüller (1), Virginia Wilde (2), Heike Störmer (2), Dagmar Gerthsen (2), Ellen Ivers-Tiffée (1)
(1) Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany, (2) Laboratory for Electron Microscopy (LEM), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

14:00 Manufacturing Solid Oxide Fuel Cell Cathodes by Electroless Co-Deposition (B1503)
Callum Wilson, Alan Davidson; Edinburgh Napier University, Edinburgh/Scotland/UK

14:15 Effect of microstructural parameters on a performant SOFC cathode: Modelling vs Experiments (B1504)
Özden Çelikbilek (1,2,4), David Jauffres (2,4), Laurent Dessemond (1,4), Monica Burriel (3,4), Christophe L. Martin (2,4), Elisabeth Djurado (1,4)
(1) Univ. Grenoble Alpes, LEPMI, Grenoble/France, (2) Univ. Grenoble Alpes, Grenoble/France, (3) Univ. Grenoble Alpes, LMGP, Grenoble/France, (4) CNRS, Grenoble/France

14:30 Quantifying the surface exchange coefficient of cathode materials in an ambient atmospheres (B1505)
Sam Cooper, Mathew Niania, John Kilner; Dept. of Materials, Royal School of Mines, Imperial College London, London/UK

14:45 SOFC Cathode degradation studies using Impedance Spectroscopy Genetic Program (ISGP) (B1506)
Boxun Hu (1), Yoed Tsur (2), Prabhakar Singh (1)
(1) University of Connecticut, Storrs/USA, (2) Technion, Israel Institute of Technology, Haifa/Israel

A16 Luzerner Saal

S-Chair: Nigel Brandon, M. Spirig, O. Bucheli

15:05 P4: Closing Ceremony with Keynote by the Gold Medal of Honour Winner 2016 (A16)

15:05 **Summary by the Chair (A1601)**
Nigel Brandon
Imperial College London, London/UK

15:20 **Information on Next EFCF: 6th PEFC and H_2 Forum 2017 & 13th European SOFC and SOE Forum 2018 (A1602)**
Michael Spirig, Olivier Bucheli
European Fuel Cell Forum, Luzern/Switzerland

15:30 **Friedrich Schönbein Award 2016 for the Best Poster (Bronze), the Best Science Contribution (Silver) and a recognized Lifetime Work (Gold) (A1603)**
Nigel Brandon (1) , Olivier Bucheli (2), Michael Spirig (2)
(1) Imperial College London, London/UK, (2) European Fuel Cell Forum

15:40 **Gold Medal Winner Keynote 2016**
New materials, structures and concepts for Solid Oxide Cells (A1604)
John TS Irvine
School of Chemistry, University of St Andrews, St Andrews/UK

16:05 **Thank you and Closing by the Organizers (A1605)**
Olivier Bucheli, Michael Spirig
European Fuel Cell Forum, Luzern/Switzerland

16:15 End of Sessions – End of Conference Conference Good by coffee and travel refreshment in front of the Luzerner Saal

A4 Poster Session I covering All Oral Session Topics — Wednesday, July 6, 2016 — Afternoon 13:15–15:00
A10 Poster Session II covering All Oral Session Topics — Thursday, July 7, 2016 — Afternoon 13:15–15:00

Companies & Major groups development status I+II — A01 + A05

Connected hydrogen storage for energy efficient buildings (A0507)
Caroline Rozain, Nicolas Bardi; Sylfen, Grenoble/France

MK235-stack – ready for mass market (A0508)
Danilo Schimanke, Thomas Strohbach, Frank Mittmann, Martin Pötschke, Christian Geipel; sunfire GmbH, Dresden/Germany

R&D at institutions - Overviews and status — A06

Solid Oxide Fuel Cell Technology Path: An investigation over the contribution of the Japanese and American Innovation Systems (A0607)
Marina Domingues Fernandes (1), Victor Bistritzki (1), Rosana Domingues (1), Tulio Matencio (1), Márcia Rapini (2), Rubén Sinisterra (1); Federal University of Minas Gerais: (1) Faculty of Chemistry, (2) Faculty of Economics, Belo Horizonte/Brazil

Implementation of hydrogen technologies in European regions on the example Czech Republic (A0608)
Karin Stehlík (1), Martin Tkáč (2), Aleš Doucek (3,4); (1) Research Center Rez, (2) University of Chemistry and Technology Prague, (3) ÚJV Rez, (4) Czech Hydrogen Technology Platform, Prague/Czech Republic

A Strategic Energy Technology Development Plan In Case of Low Oil Prices and Additional Nuclear Plant Construction Comparing with Multi-criteria Decision Making Approaches (A0609)
Seongkon Lee, Jongwook Kim; Energy Policy Research Team, Korea Institute of Energy Research, Daejeon/Republic of Korea

Lifetime: Cells & Stacks — A08

Cr Poisoning of $(La,Sr)(Co,Fe)O_{3-\delta}$ SOFC Cathodes at the Micrometre to Nanometre Scale (A0807)
Na Ni, Samuel Cooper, Stephen Skinner; Imperial College London, London/UK

SOFC Operation on Biogas- Threshold Impurity level (A0808)
Hossein Madi (1), Christian Ludwig (2), Jan Van herle (1); (1) FUELMAT Group, Faculty of Engineering Sciences (STI), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne/Switzerland, (2) Paul Scherrer Institut, General Energy Research Department, Bioenergy and Catalysis Laboratory, Villigen/Switzerland

State of the art & novel processing routes — B03

THERMONO for a larger surface cell temperature distribution in-situ monitoring (B0309)
Manoj Ranaweera, Erdogan Guk, Vijay Venkatesan, Jung-Sik Kim
Department of Aeronautical & Automotive Engineering Department, Loughborough University, Loughborough/UK

Development and characterization of electroless- electrodeposited SOFC anodes with engineered microstructures (B0310)
Zadariana Jamil (1,2), Enrique Ruiz-Trejo (1), Nigel P Brandon (1); (1) Department of Earth Science and Engineering, Imperial College London, London/UK, (2) Faculty of Civil Engineering, Universiti Teknologi MARA Pahang, Pahang/Malaysia

Aqueous Tape Casting for Multilayer and Co-sintered Ni/8YSZ Substrates for SOFC (B0312)
Nor Arifin (1), Robert Steinberger-Wilckens (1), Tim Button (2)
(1) Centre of Fuel Cell and Hydrogen Research, Chemical Engineering Department,University of Birmingham, Birmingham/UK, (2) School of Metallurgy and Material, University of Birmingham, Edgbaston/Birmingham/UK

A Novel Method of Manufacturing Copper Anodes for Solid Oxide Fuel Cells (B0313)
Neil Shearer, Callum Wilson; Edinburgh Napier University, Edinburgh/Scotland/UK

Development Solid Oxide Fuel Cell Electrolyte Coating Process using YSZ solution (B0314)
Kunho Lee, Juhyun Kang, Sanghun Lee, Joongmyeon Bae
Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Daejeon/Republic of Korea

Tape Casting of Lanthanum Chromite (B0315)
Diego Rubio (1,2), Crina Suciu (1), Alex C. Hoffmann (2)
(1) Prototech AS, Bergen/Norway, (2) Faculty of Physics and Technology, Bergen/Norway

Characterization and testing of the SOECs prepared from water based slurries by the tape casting method (B0316)
Filip Karas, Martin Paidar, Karel Bouzek
University of Chemistry and Technology Prague, Department of Inorganic Technology, Praha/Czech Republic

$La_2NiO_{4+\delta}$ as SOEC anode material (A0809)
Andreas Egger, Nina Schrödl, Werner Sitte; Montanuniversitaet Leoben, Chair of Physical Chemistry, Leoben/Austria

Chromium and silicon poisoning of $La_{0.6}Sr_{0.4}CoO_{3-\delta}$ IT-SOFC cathodes at 800°C (A0810)
E. Bucher (1), N. Schrödl (1), C. Gspan (2), T. Höschen (3), F. Hofer (2), W. Sitte (1)
(1) Chair of Physical Chemistry, Montanuniversitaet Leoben, Leoben/Austria, (2) Institute for Electron Microscopy and Nanoanalysis (FELMI), Graz University of Technology & Graz Center for Electron Microscopy (ZFE), Austrian Cooperative Research (ACR), Graz/Austria, (3) Max Planck Institute for Plasma Physics, Boltzmannstraße 2, Garching/Germany

Strength enhancement of porous Ni(O)-YSZ supports by optimization of stabilizer content and by cutting method (A0811)
Peyman Khajavi, Jonas Gurauskis, Peter Vang Hendriksen, Kawai Kwok, Henrik Lund Frandsen
Technical University of Denmark, Roskilde/Denmark

Study of variables for accelerating lifetime testing of SOFCs (A0812)
Alexandra Ploner, Anke Hagen, Anne Hauch
Technical University of Denmark, Department of Energy Conversion and Storage, Roskilde/Denmark

SOFC Anode Protection Using Electrolysis Mode during Thermal Cycling (A0813)
Young Jin Kim, Seon Young Bae, Hyung-Tae Lim
School of Materials Science and Engineering, Changwon National University, Gyeongnam/South Korea

Degradation analysis of SOFC performance (A0814)
Tohru Yamamoto, Kenji Yasumoto, Hiroshi Morita, Masahiro Yoshikawa, Yoshihiro Mugikura
Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka/Kanagawa/Japan

Development of protective coatings on SOFC metallic interconnects fabricated by powder metallurgy (A0815)
V. Miguel-Pérez (1), M. Torrell (1), B. Colldeforns (1), A. Morata (1), M.C. Monterde (2), J.A. Calero (2), A. Tarancón (1)
(1) IREC, Catalonia Institute for Energy Research, Dept of Advanced Materials for Energy Applications, Barcelona/Spain, (2) AMES Carrer de Laureà Miró, Sant Feliu de Llobregat/Barcelona

SOFC methane direct feeding: carbon deposition prevention via oxygen-bearers addition to fuel (A0816)
Arianna Baldinelli, Linda Barelli, Gianni Bidini; Università di Perugia - Dipartimento di Ingegneria, Perugia/Italia

Degradation of the SOFC anode by contaminants in biogenic gaseous fuels (A0817)
Michael Geis, Stephan Herrmann, Stephan Fendt, Hartmut Spliethoff
Institute for Energy Systems, Technische Universität München, Garching/Germany

Mechanical properties of $La_{0.58}Sr_{0.4}M_{0.1}Fe_{0.9}O_{3-\delta}$ (M: Co and Ni) perovskites as electrod material for SOFCs (A0818)
Ali Akbari-Fakhrabadi, Marcelo Orellana, Viviana Meruane
Advanced Materials Laboratory, Department of Mechanical Engineering, University of Chile, Santiago/Chile

Cellulose as a Pore Former in Electroless Co-Deposited Anodes for Solid Oxide Fuel Cells (B0317)
Rob Turnbull, Alan Davidson, Neil Shearer, Callum Wilson; Edinburgh Napier University , Edinburgh/Scotland/UK

Optimization of ultrasonic-assisted electroless plating process for Ni-YSZ anode fabrication for SOFCs (B0318)
Juhyun Kang, Hoyong Shin, Kunho Lee, Joongmyeon Bae
Korea Advanced Institute of Science and Technology (KAIST), Daehak-ro/Yuseong-gu/Daejeon

Micro-structured, Multi-channel Hollow Fibers for Micro-tubular Solid Oxide Fuel Cells (MT-SOFCs) (B0319)
Tao Li (1), Xuekun Lu (2), Paul Shearing (2), Kang Li (1); (1) Department of Chemical Engineering, Imperial College London, London/UK, (2) Electrochemical Innovation Lab, Department of Chemical Engineering, University College London, London/UK

Prospect of Electrochemical Deposition Technique for Fuel Cell and Electrolysis Cell Applications (B0320)
Mark K. King Jr.(1), Nik Jindal (1), Manoj K. Mahapatra, (1), Prabhakar Singh (2)
(1) Department of Materials Science and Engineering, University of Alabama at Birmingham, Birmingham/Alabama/USA, (2) Center for Clean Energy Engineering, Materials Science and Engineering, University of Connecticut, Storrs/USA

Scalable synthetic method for IT-SOFCs compounds (B0321)
A. Wain, A. Morán-Ruiz, K. Vidal, A. Larrañaga, M. I. Arriortua
Universidad del País Vasco/ Euskal Herriko Unibertsitatea (UPV/EHU). Facultad de Ciencia y Tecnología, Bilbao/Spain

Characterisation of Porous Anode for Solid Oxide Fuel Cells Fabricated by Powder Injection Moulding (B0322)
Nutthita Chuankrerkkul (1), Sirima Chauoon (2), Rojana Pornprasertsuk (2)
(1) Metallurgy and Materials Science Research Institute, Chulalongkorn University, Bangkok/Thailand, (2) Department of Materials Science, Faculty of Science, Chulalongkorn University, Bangkok/Thailand

Lifetime: Materials and cells B05

Sulfur-Tolerance of Ceria-based Anodes (B0507)
André Weber, Thorsten Dickel, Ellen Ivers-Tiffée
Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

Carbon removal from the fuel electrode of ASC-SOFC and regeneration of the cell performance (B0508)
Vanja Suboti (1), Christoph Schluckner (1), Hartmuth Schroettner (2), Christoph Hochenauer (1)
(1) Institute of Thermal Engineering, Graz University of Technology, Graz/Austria, (2) Institute for Electron Microscopy and Nanoanalysis of the TU Graz (FELMI), Graz University of Technology, Graz/Austria

Quantitative correlation of Cr-deposition from the gas phase with chemical origin of cathodes and electrolytes in SOFCs (B0509)
Elena Konysheva, Wei Liu, Yushan Hou, Xiaomei Zhang
Department of Chemistry, Xi'an Jiaotong-Liverpool University, Suzhou/China

Electrochemical and microstructural characterization of Micro-Tubular SOFC: The effect of the operation mode (A0907)
M. Torrell (1), A. Hornés (1), A. Morata (1), J. Newton (2), K. Kendall (2), A. Tarancón(1)
(1) Catalonia Institute for Energy Research (IREC), Barcelona/Spain, (2) Adelan, Birmingham/UK

CFY-Stacks: Progress in Development (A0908)
S. Megel (1), M. Kusnezoff (1), W. Beckert (1), N. Trofimenko(1), C. Dosch (1), A. Michaelis (1), C. Bienert (2), M. Brandner (2), S. Skrabs (2), A. Venskutonis (2), L. S. Sigl (2)
(1) Fraunhofer Institute for Ceramic Technologies and Systems, Dresden/Germany, (2) Plansee SE, Reutte/Austria

New all-European high-performance stack (NELLHI): Experimental evaluation of an 1 kW SOFC stack (A0909)
Christoph Immisch (1), Andreas Lindermeir (1), Matti Noponen (2), Jukka Göös (2)
(1) Clausthaler Umwelttechnik-Institut GmbH, Clausthal-Zellerfeld/Germany, (2) Elcogen Oy, Vantaa/Finland

Triode Solid Oxide Fuel Cell operation under carbon deposition and Sulphur poisoning conditions (A0910)
Priscilla Caliandro, Stefan Diethelm, Jan Van herle; FUELMAT, École Polytechnique fédérale de Lausanne, Sion/Switzerland

Pressurized Operation of a 10 Layer Solid Oxide Electrolysis Stack (A0911)
Marc Riedel, Marc P. Heddrich, Moritz Henke, K. Andreas Friedrich
German Aerospace Center (DLR), Institute of Engineering Thermodynamics, Stuttgart/Germany

Evaluation of Zr doped $BaCe_{0.85}Y_{0.15}O_{3-\delta}$ as PCFC electrolyte (A0912)
Ha-Ni Im, Dae-Kwang Lim, Jae-Woon Hong, In-Ho Kim, Sun-Ju Song
Chonnam National University, Ionics Laboratory, School of Materials Science and Engineering, Gwang-Ju/Republic of Korea

Homogenization of the thermo-elastic properties of SOFC stacks operating for 1900 and 4700h. Volume and grid independence study of SOFC stacks (A0913)
Toni Vešovi (1,2), Arata Nakajo (2), Fabio Greco (2), Jan Van Herle (2), Frano Barbir (1), Pierre Burdet (2,3); (1) Institute of Thermodynamics, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture FESB, Split/Croatia, (2) Fuelmat Group, Faculty of Engineering Sciences and Technology STI, Ecole Polytechnique Fédérale de Lausanne,
(3) Interdisciplinary Centre for Electron Microscopy, Ecole Polytechnique Fédérale de Lausanne, Lausanne/Switzerland

Evaluation of H_2O/CO_2 co-electrolysis of LSCF6428-GDC Electrode SOFC on microstructural parameters (A0914)
Sang-Yun Jeon (1), Young-Sung Yoo (1), Mihwa Choi (1), Ha-Ni Im (2), Jae-Woon Hong (2), Sun-Ju Song (2)
(1) Fusion Energy Group, Future Technology Research Lab., Korea Electric Power Research Institute (KEPRI), Korea Electric Power Corporation (KEPCO), Munji-Ro/Yuseong-Gu/Daejeon/Republic of Korea, (2) Ionics Lab, School of Materials Science and Engineering, Chonnam National University, Buk-gu/Gwang-Ju/Republic of Korea

Single Chamber Solid Oxide Fuel Cell as an Air-Fuel Ratio Sensor for methane-air mixtures (A0916)
Vijay Venkatesan,Yunus Sayan, Manoj Ranaweera, Erdogan Guk, Jung-Sik Kim
Department of Aeronautical and Automotive Engineering, Loughborough University, Loughborough/UK

New challenges for steel interconnects: lower temperature, higher steam content and dual atmosphere effect (B0510)
Patrik Alnegren, Swathi Kiranmayee Manchili, Jan-Erik Svensson, Jan Froitzheim
Energy and Materials, Chalmers University of Technology, Gothenburg/Sweden

Assessment of limiting steps and degradation processes of an advanced metals supported cell with LST based anode (B0511)
Vitaliy Yurkiv (1), Laurent Dessemond (2,3), Feng Han (1), Patric Szabo (1), Robert Semerad (4), Rémi Costa (1)
(1) German Aerospace Center (DLR), Stuttgart/Germany, (2) Université Grenoble Alpes, Laboratoire d'Electrochimie et de Physico-Chimie des Matériaux et des Interfaces, (3) CNRS, Laboratoire d'Electrochimie et de Physico-Chimie des Matériaux et des Interfaces, Grenoble/France, (4) Ceraco Ceramic Coating GmbH, Ismaning/Germany

The effect of polarization on SOFC seal ageing (B0512)
Stéphane Poitel (1,3), Yannik Antonnetti (2), Zacharie Wuillemin (2), Jan Van Herle (1), Cécile Hébert (3)
(1) SCI-STI-JVH FUELMAT Group, Faculty of Engineering Sciences (STI), Ecole Polytechnique Fédérale de Lausanne (EPFL), Sion/Switzerland, (2) SOLIDpower, Yverdon-Les-Bains/Switzerland, (3) Interdisciplinary Centre for Electron Microscopy (CIME), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne/Switzerland

Long-term test of commercial alloys for SOFC interconnect in dry and wet air (B0513)
Manuel Bianco, Maxime Auchlin, Stefan Diethelm, Jan Van herle
FUELMAT group, École Polytechnique Fédérale de Lausanne, Sion/Switzerland

Experiments on metal-Glass-metal samples simulating the fuel inlet/outlet manifolds in SOFC stacks (B0514)
Paolo Piccardo (1,2), Maria Paola Carpanese (3), Andrea Pecunia (1), Roberto Spotorno (1,2), Simone Anelli (1)
(1) Laboratory of Metallurgy and Materials, DCCI, University of Genoa, Genoa/Italy, (2) Institute for Energetics and Interphases, National Council of Research, Genoa/Italy, (3) Dept. of Civil, Chemical and Environmental Engineering, University of Genoa, Genoa/Italy

Silver as current collector for SOFC (B0515)
Artur J. Majewski, Aman Dhir; School of Chemical Engineering, The University of Birmingham, Birmingham/UK

Improvement of interface between electrolyte and electrodes in solid oxide electrolysis cell (B0516)
Nikolai Trofimenko, Mihails Kusnezoff, Alexander Michaelis; Fraunhofer IKTS, Dresden/Germany

Local Evolution of Three-dimensional Microstructure of Ni-YSZ Anode in Solid Oxide Fuel Cell Stack after Long-term Operation (B0517)
Grzegorz Brus (1), Hiroshi Iwai (2), Yuki Otani (2), Motohiro Saito (2), Hideo Yoshida (2), Janusz S. Szmyd (1)
(1) AGH University of Science and Technology, Krakow/Poland, (2) Kyoto University, Kyoto/Japan

Characterization of the performance and long term degradation of anode supported multilayered tape cast Solid Oxide Cells (A0917)
M. Torrell (1), D. Rodríguez (2), B. Colldeforns (2), M. Blanes (2), A. Morata (1), F. Ramos (2), A. Tarancón (1)
(1) IREC, Catalonia Institute for Energy Research, Dept of Advanced Materials for Energy Applications, Barcelona/Spain, (2) FAE, L'Hospitalet de Llobregat/Spain

Hydrogen membrane fuel cell using Ni-Zr alloy membrane (A0918)
SungBum Park, Sung Gwan Hong, Yong-il Park; Kumoh National Institute of Technology, Gumi/Gyeongbuk/Korea

Lifetime: Stacks & systems A11

Performance Modelling of anode supported cells on a SOFC stack layer level (A1107)
Helge Geisler, Jochen Joos, André Weber, Ellen Ivers-Tiffée
Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

An environmental and energetic performance assessment of an integrated power-to-gas concept system (A1108)
Dimitrios Giannopoulos (1), Marianna Stamatiadou (1), Manuel Gruber (2), Maria Founti (1), Dimosthenis Trimis (2)
(1) Laboratory of Heterogeneous Mixtures and Combustion Systems, Thermal Engineering Section, School of Mechanical Engineering, National Technical University of Athens, Athens/Greece, (2) Karlsruhe Institute of Technology, Engler-Bunte-Institute, Karlsruhe/Germany

Stack design and characterisation A12

Process identification of IT-SOFCs fed with simulated syngas (A1207)
Davide Pumiglia (1,2), Carlos Boigues-Muñoz (1,3), Andrea Masi (1,2), Stephen McPhail (1), Maurizio Carlini (2), Gabriele Comodi (3); (1) ENEA CR Casaccia, Rome/Italy, (2) DAFNE, University of Tuscia, Viterbo/Italy, (3) Dipartimento di Ingegneria Industriale e Scienze Matematiche, Università Politecnica delle Marche, Ancona/Italy

Potential for critically-high electrical efficiency of multi-stage SOFCs with proton-conducting solid electrolyte (A1208)
Yoshio Matsuzaki (1,2), Yuya Tachikawa (3), Takaaki Somekawa (1,4), Kouki Sato (2), Hiroshige Matsumoto (5), Shunsuke Taniguchi (2,3,6), Kazunari Sasaki (2,3,4,5,6); (1) Fundamental Technology Department, Tokyo Gas Co. Ltd., Yokohama City/Kanagawa/Japan, (2) Next-generation Fuel Cell Research Center, Kyushu University, Fukuoka/Japan, (3) Center for Co-Evolutional Social Systems (CESS), Kyushu University, Fukuoka/Japan, (4) Faculty of Engineering, Kyushu University, Fukuoka/Japan, (5) International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Fukuoka/Japan, (6) International Research Center for Hydrogen Energy, Kyushu University, Fukuoka/Japan

Fuel heterogeneity in solid oxide carbon fuel cells: according to the internal gasification of carbon (B0518)
Hansaem Jang (1), Youngeun Park (1), Jaeyoung Lee (1,2); (1) Electrochemical Reaction and Technology Laboratory, School of Environmental Science and Engineering, Gwangju Institute of Science and Technology (GIST), (2) Ertl Center for Electrochemistry and Catalysis, Research Institute for Solar and Sustainable Energies, Gwangju/South Korea

Anomalous Shrinkage of Ni-YSZ Cermet during Low Temperature Oxidation (B0519) – Keiji Yashiro, Fei Zhao, Shinichi Hashimoto, Tatsuya Kawada Graduate School of Environmental Studies, Tohoku University, Sendai/Japan

Temperature and time dependent degradation of nickel-infiltrated ScSZ anode (B0520)
J. Chen, X. Wang, A. Atkinson, N. P Brandon; Imperial College London, London/UK

Impact of redox cycling on microstructure related mechanical property change in Ni-YSZ Solid Oxide Fuel Cell anodes (B0521) – Bowen Song, Enrique Ruiz Trejo, Farid Tariq, Kristina Maria Kareh, Nigel P Brandon
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Hee Lak Lee (1), Hyeong Cheol Shin (1), Ji Haeng Yu (2), Su Jeong Lee (1), Kyoung Tae Lim (1); (1) KCeraCell Co., Ltd., Geumsan-gun/Chungcheongnam-do/Republic of Korea, (2) Korea Institute of Energy Research (KIER), Daejeon/Republic of Korea

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Stefano Frangini (1), Andrea Masi (1,2), Manuel Bianco (3), Jong-Eun Hong (4), Maurizio Carlini (2), Jan Van Herle (3), obert Steinberger-Wilckens (4); (1) ENEA CR Casaccia, Rome/Italy, (2) DAFNE, University of Tuscia, Viterbo/Italy, (3) FUEL-MAT Group, Inst. Mech. Eng., Ecole Polytechnique Fédérale de Lausanne Valais (EPFL Valais), Sion/Switzerland, (4) Centre for Fuel Cell and Hydrogen Research, School of Chemical Engineering, University of Birmingham, Birmingham/England

Mechanical stability aspects of SOFC sealants (B0609)
J. Wei, G. Pe anac, S. M. Gross-Barsnick, D. Federmann, J. Malzbender; Forschungszentrum Jülich GmbH, IEK-2, Jülich/Germany

A combined microstructural and ionic conductivity study of multiple aliovalent doping in ceria electrolytes (B0610) – Alice V. Coles-Aldridge, Richard T. Baker; School of Chemistry, University of St. Andrews, St Andrews/UK

Multi-layered metallic coating on steel interconnects: oxidation and evaporation of chromic species (B0611)
Maria Nikumaa, Jan-Erik Svensson, Jan Froitzheim; Energy and Materials, Chalmers University of Technology, Gothenburg/Sweden

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Jae-Woon Hong, Ha-Ni Im, In-Ho Kim, Sun-Ju Song
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Ruey-Yi Lee (1), How-Ming Lee (1), Ching-Tsung Yu (1), Yung-Neng Cheng (1), Szu-Han Wu (1), Chien-Kuo Liu (1), Chun-Hsiu Wang (2), and Chun-Da Chen (2)
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Patrick H. Wagner (1), Vaibhav Singh (1), Zacharie Wuillemin (2), Stefan Diethelm (1,2), Jan Van herle (1), Jürg A. Schiffmann (1); (1) School of Engineering, École Polytechnique Fédérale de Lausanne, Lausanne/Switzerland, (2) HTceramix SA, Yverdon-les-Bains/Switzerland

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Moritz Henke (1), Mike Steilen (1), Ralf Näke (2), Marc Heddrich (1), K. Andreas Friedrich (1)
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Klaus Taube (1), Giovanni Capurso (1), Anselm Strauch (1), José Bellosta von Colbe (1), Julian Jepsen (1), Claudio Pistidda (1), Andreas Yiotis (2), Michael Kainourgakis (2), Athanassios Stubos (2), Deniz Yigit (3), Henning Zoz (3), Thomas Klassen (1), Martin Dornheim (1); (1) Helmholtz-Zentrum Geesthacht, Geesthacht/Germany, (2) National Centre for Scientific Research „Demokritos", Athens/Greece, (3) Zoz GmbH, Wenden/Germany

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Manoj Ranaweera, Jung-Sik Kim
Department of Aeronautical and Automotive Engineering, Loughborough University, Loughborough/UK

rSOC plant concept for renewable energy storage (A1312)
Matthias Frank, Roland Peters, Robert Deja, Van Nhu Nguyen, Ludger Blum, Detlef Stolten
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Investigation of a novel catalytic partial oxidation and pre-reforming radial reactor of a micro-CHP SOFC-system with anode off-gas recycle (A1313)
Timo Bosch (1), Maxime Carré (1), Angelika Heinzel (2), Michael Steffen (2), François Lapicque (3)
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Nitriding influence on SOFC ferritic steel interconnects (B0613)
Manuel Bianco (1), Shicai Yang (2), Johan Tallgren (3), Jong-Eun Hong (4), Olli Himanen (3), Kevin Cooke (2), Robert Steinberger-Wilckens (4), Jan Van herle (1)
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Precoated EN 1.4622 and EN 1.4509 For SOFC Interconnect Steel (B0614)
Mats W Lundberg, Robert Berger, Jörgen Westlinder; AB Sandvik Materials Technology, Sandviken/Sweden

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Ha-Ni Im, Dae-Kwang Lim, Jae-Woon Hong, In-Ho Kim, Sun-Ju Song
Chonnam National University, Ionics Laboratory, School of Materials Science and Engineering, Gwang-Ju/Republic of Korea

Characterization of Porous Stainless Steel 430L for Low Temperatures Solid Oxide Fuel Cell Application (B0616)
Kyung Sil Chung, Lingyi Gu, Sannan Toor, Eric Croiset; Chemical Engineering, University of Waterloo, Ontario/Canada

Synthesis of $La_{10}Bi_{2x}Si_{6-2x}O_{27-x}$ as electrolyte materials for IT-SOFCs (B0617)
Hidayatul Qayyimah Hj Hairul Absah (1), Muhammad Saifullah Abu Bakar (1), Juliana Hj Zaini (1), Ahmed Afif bin Abedin (1), Afizul Hakem bin Karim (1), Lim Chee Ming (2), Abul kalam Azad (1)
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Eric Marsalha Garcia (1), Hosane Aparecida Taroco (1), Rubens Moreira de Almeida (2), Antonio de Padua Lima Fernandes (2), Rosana Zacarias Domingues (2), Tulio Matencio (2); (1) Federal University of São João del Rei, Sete Lagoas/Minas Gerais/Brazil, (2) Federal University of Minas Gerais-Departamento de Química, Minas Gerais/Brazil

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Johan Tallgren (1), Manuel Bianco (2), Jyrki Mikkola (1), Olli Himanen (1), Markus Rautanen (1), Jari Kiviaho (1), Jan Van herle (2); (1) VTT Technical Research Centre of Finland Ltd, Fuel Cells, Helsinki/Finland,
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La-Fe Perovskite Thin Film Coatings of Ferritic Stainless Steels by Surface Chemical Conversion: Dual Atmosphere Oxidation Testing (B0620)
Andrea Masi (1,2), Davide Pumiglia (1,2), Maurizio Carlini (2), Amedeo Masci (1), Stephen McPhail (1), Stefano Frangini (1)
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High efficient combined heat and power SOFC-system for residential power applications: experimental performance data and lifetime-efficiency-simulations using AspenPlusTM (A1314)
Carsten Spieker (1), Christian Spitta (1), Michael Steffen (1), Matti Noponen (2), Paul Hallanoro (2), Thomas Rütten (3)
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Performance evaluation of solid oxide carbon fuel cells operating on steam gasified carbon fuels (A1315)
Tak-Hyoung Lim, Jong-Won Lee, Seung-Bok Lee, Seok-Joo Park, Rak-Hyun Song
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Methane Steam Reforming Reaction over Ni/CeO_2-ZrO_2 Catalysts Loaded on Metallic Monolith (A1316)
Jong Dae Lee; Department of Chemical Engineering, Chungbuk National University, Seowon-gu Cheong-ju/Chungbuk/Korea

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Shih-Kun Lo, Wen-Tang Hong, Hsueh-I Tan, Huan-Chan Ting, Ting-Wei Liu, Ruey-Yi Lee
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Christian Spitta (1), Alexander Kvasnicka (1), Michael Steffen (1), Matthias Boltze (2), Gregor Holstermann (2), Robert van Dorst (3), Yves de Vos (4), Jean-Paul Janssens (4)
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A Global Reaction Model of Carbon Gasification with K_2CO_3 in the External Anode Media of a DCFC (A1319)
Shinae Song, Jun Ho Yu, Kyungtae Kang, Jun Young Hwang; Korea Institute of Industrial Technology, Ansan/South Korea

Experimental study on the fuel ejector for solid oxide fuel cell system (A1320)
Kanghun Lee (1), Sanggyu Kang (1, 2), Youngduk Lee (1), Kook-Young Ahn (1,2); (1) Korea Institute of Machinery and Materials (KIMM), (2) University of Science and Technology (UST), Yuseong-Gu/Daejeon/Republic of Korea

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Transport properties of LSCrF-ScSZ based mixed conducting ceramic composites (A1408)
Zonghao Shen, Stephen Skinner, John Kilner; Department of Materials, Imperial College London, London/UK

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Vijay Venkatesan, Yunus Sayan, Manoj Ranaweera, Erdogan Guk, Jung-sik Kim
Department of Aeronautical and Automotive Engineering, Loughborough University, Loughborough/UK

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Jong-Eun Hong (1), Andrea Masi (1, 2), Manuel Bianco (3), Jan Van herle (3), Robert Steinberger-Wilckens (1)
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Mustafa Anwar (1,2), M. Ali S. A (1), M. R. Somalu (1), Andanastuti Muchtar (1,3), Abdalla M. Abdalla (4), Nigel P. Brandon (5)
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Shambhu Nath Maity, Debasish Das, Biswajoy Bagchi, Rajendra N. Basu
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Shahzad Hossain, Juliana Hj Zaini, Abul Kalam Azad
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Ka-Young Park, Jun-Young Park
Department of Nanotechnology and Advanced Materials Engineering, Sejong University, Seoul/Korea

Joint strength of an SOFC glass-ceramic sealant with LSM-coated metallic interconnect (B0627)
Chih-Kuang Lin (1), Fan-Lin Hou (1), Atsushi Sugeta (2), Hiroyuki Akebono (2), Szu-Han Wu (3), Peng Yang (3)
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S. Elango Elangovan (1), Dennis Larsen (1), Evan Mitchell (1), Joseph Hartvigsen (1), James Mosby (1), Byron Miller (1), Jessica Elwell (1), Pieter Billen (2), Sabrina Spatari (2)
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M. Lang, S. Kurz, M. Braig, C. Auer
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Mélanie Rolland (1), Dario Montinaro (2), Vincenzo Maria Sglavo (1)
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Sarika Tyagi, Delia Muñoz; Abengoa Hidrogeno, Energía Solar nº1, Seville/Spain

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Saffet Yildiz, Isabell Loll, Venkatesh Sarda, Izaak Vinke, Bert de Haart, Rüdiger Eichel
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Guoping Xiao, Chengzhi Guan, Xinbing Chen, Jian-Qiang Wang; Center for Thorium Molten Salt Reactor System, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shangha/China

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Andrea Masi (1,2), Ivan Davoli (3), Massimiliano Lucci (3), Maurizio Carlini (2), Amedeo Masci (1), Stephen McPhail (1), Stefano Frangini (1); (1) ENEA CR Casaccia, Rome/Italy, (2) DAFNE, University of Tuscia, Viterbo/Italy, (3) Department of Physics, University of Rome Tor Vergata, Roma/Italy

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Patric Szabo (1), Remi Costa (1), Manho Park (2), Bumsoo Kim (2), Insung Lee (3)
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Co-deposition of rare earths along with $(Mn,Co)_3O_4$ spinel as a protective coating for SOFC metallic interconnects (B0630)
Vinothini Venkatachalam, Sebastian Molin, Wolf-Ragnar Kiebach, Ming Chen, Peter Vang Hendriksen
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Cu-Fe substituted Mn-Co spinels by High Energy Ball Milling for interconnect coatings: insight on sintering properties (B0631)
Andrea Masi (1,2), Jong-Eun Hong (3), Robert Steinberger-Wilckens (3), Maurizio Carlini (2), Mariangela Bellusci (1), Franco Padella (1), Priscilla Reale (1); (1) ENEA CR Casaccia, Rome/Italy, (2) DAFNE, University of Tuscia, Viterbo/Italy, (3) Centre for Fuel Cell and Hydrogen Research, School of Chemical Engineering, University of Birmingham Edgbaston, Birmingham/UK

Electrolyte supported cells with thin electrolytes (B0632)
Hendrik Pöpke, Franz-Martin Fuchs; Kerafol GmbH, Eschenbach i. d. Opf./Germany

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Hassan Javed (1), Danilo Schimanke (2), Milena Salvo (1), Federico Smeacetto (1); (1) Department of Applied Science and Technology (DISAT), Politecnico di Torino, Torino/Italy, (2) Sunfire GmbH, Dresden/Germany

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Srikanth Santhanam, Marc P. Heddrich, K.A. Friedrich
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Analysis of temperature profiles in SOECs during startup and shutdown periods (B0808)
Filip Karas, Roman Kodým, Martin Paidar, Karel Bouzek
University of Chemistry and Technology Prague, Department of Inorganic Technology, Praha/Czech Republic

A Physical Model to Interpret Electrochemical Impedance Spectra for LSM/YSZ Composite Cathodes (B0809)
Aayan Banerjee, Olaf Deutschmann; Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

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Jeppe Rass-Hansen, Peter Blennow, Thomas Heiredal-Clausen, Rainer Küngas, Tobias Holt Nørby, Søren Primdahl
Haldor Topsoe A/S, Kgs. Lyngby/Denmark

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Seyedehmina Tonekabonimoghadam (1), Yashar S. Hajimolana (1,2), Mohammed Harun Chakrabarti (2), Jelle Nicolas Stam (3), Mohd Azlan Hussain (1), Nigel Brandon (3), Mohd Ali Hashim (1), P.V. Aravind (2)
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Sanggyu Kang (1, 2), Kanghun Lee (1), Keunwon Choi (1), Youngduk Lee (1), Kook-Young Ahn (1,2); (1) Korea Institute of Machinery and Materials (KIMM), (2) University of Science and Technology (UST), Yuseong-Gu/Daejeon/Republic of Korea

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Mayra Recalde, Theo Wousdtra, P.V. Aravind; Process and Energy, Delft University of Technology, Delft/The Netherlands

Design and simulation of reversible solid oxide cell systems for energy storage (B1110)
Evan Reznicek, Robert Braun; Department of Mechanical Engineering, Colorado School of Mines, Golden/USA

Thermochemical and Kinetic Modelling of Chromium- Rich Alloys (B1111)
Mélissa Oum, Jong-Eun Hong, Robert Steinberger-Wilckens
Centre for Fuel Cell & Hydrogen Research, School of Chemical Engineering, Birmingham/UK

Modelling of gas diffusion limitations in Ni/YSZ electrode material in CO_2 and co-electrolysis (B0810)
Jakob Dragsbæk Duhn (1), Anker Degn Jensen (1), Stig Wedel (1), Christian Wix (2)
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Evaluation of Solid Oxide Cell (SOC) performance and degradation: Combined experimental and modeling study (B0811)
Vitaliy Yurkiv, Michael P. Hoerlein, Günter Schiller, K. Andreas Friedrich
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Detailed two-dimensional mechanistic modelling of SOFC button cell with carbon deposition prediction (B0812)
Jingde Li, Eric Croiset; Department of Chemical Engineering, University of Waterloo, Waterloo/Canada

Nonlinear Model Predictive Control (NMPC) for SOFC (B0813)
Yousif Al-sagheer, Vikrant Venkataraman, Robert Steinberger-Wilckens
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Analysis of equilibrium and kinetic models of internal reforming on SOFC anodes: effect on voltage, current and temperature distribution (B0814)
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FEA analysis and modelling of thermal stress in SOFCs (B0815)
Dr Harald Schlegl, Dr Richard Dawson; Lancaster University Engineering Dept., Lancaster/UK

Numerical investigation of fuel starvation effect at high current in novel planar SOFC design (B0816)
Tomasz Zinko, Paulina Pianko-Oprych, Zdzisław Jaworski; Faculty of Chemical Technology and Engineering, Institute of Chemical Engineering and Environmental Protection – Processes, West Pomeranian University of Technology, Szczecin/Poland

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Amirpiran Amiri, Moses Tadé
Centre for Process Systems Computations, Department of Chemical Engineering, Curtin University, Bentley/Australia

Numerical surface coverage condition analysis of a porous Ni/YSZ anode during internal reforming (B0818)
Christoph Schluckner, Vanja Subotić , Christoph Hochenauer
Institute of Thermal Engineering, Graz University of Technology, Graz/Austria

Geometric modeling of infiltrated solid oxide fuel cell electrodes with directional backbones (B0819)
Mehdi Tafazoli (1), Majid Baniassadi (2), Alireza Babaei (3), Mohsen Shakeri (1); (1) Department of Mechanical Engineering, Babol University of Technology, Babol/Iran, (2) School of Mechanical Engineering, College of Engineering, University of Tehran, Tehran/Iran, (3) School of Metallurgy and Materials Eng. College of Engineering, University of Tehran, Tehran/Iran

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Özgür Aydın (1), Hironori Nakajima (2), Tatsumi Kitahara (2); (1) Department of Hydrogen Energy Systems, Graduate School of Engineering, Kyushu University, Fukuoka/Japan, (2) Department of Mechanical Engineering, Kyushu University, Fukuoka/Japan

Multi-stage highly-efficient SOFC system using proton and oxide-ion conducting electrolyte (B1112)
Yuya Tachikawa (1), Yoshio Matsuzaki (2,3), Takaaki Somekawa (2,4), Shunsuke Taniguchi (1,3,6), Kazunari Sasaki (1,3,4,5,6); (1) Center for Co-Evolutional Social Systems (CESS), Kyushu University, Fukuoka/Japan, (2) Fundamental Technology Department, Tokyo Gas Co., Ltd., Yokohama City/Kanagawa/Japan, (3) Next-Generation Fuel Cell Research Center (NEXT-FC), Kyushu University, Fukuoka/Japan, (4) Faculty of Engineering, Kyushu University, Fukuoka/Japan, (5) International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Fukuoka/Japan, (6) International Research Center for Hydrogen Energy, Kyushu University, Fukuoka/Japan

Effects of Operating Conditions on the Performance of 10kW SOFC System (B1113)
Yulho Lee (1), Chanwook Yang (1), Choongmo Yang (2), Sanghyun Park (2), Sungjin Park (1)
(1) Power & Energy Science Laboratory, Hong-ik Univ., Seoul/Korea, (2) POSCO ENERGY, Pohang City/Gyeongbuk/Korea

Solid Oxide Fuel Cells Operating on Methane with Anode Off-Gas Recirculation (B1114)
Tsang-I Tsai, Robert Steinberger-Wilckens; School of Chemical Engineering, University of Birmingham, Edgbaston/UK

Model development of integrated CPO_x reformer and SOFC stack system (B1115)
Paulina Pianko-Oprych, Mehdi Hosseini, Zdzislaw Jaworski; Faculty of Chemical Technology and Engineering, Institute of Chemical Engineering and Environmental Protection Processes, West Pomeranian University of Technology, Szczecin/Poland

Stationary, Polygenerative Electrochemical Systems (B1116)
Whitney G. Colella (1,2); (1) Gaia Energy Research Institute, Arlington/VA/USA, (2) The Johns Hopkins University, Whiting School of Engineering, Baltimore/USA

Development of BoP model of the SOFC sub-system with CPOx reforming (B1117)
Barbara Zakrzewska, Paulina Pianko-Oprych; West Pomeranian University of Technology, Szczecin, Institute of Chemical Engineering and Environmental Protection Processes, Szczecin/Poland

Electrochemical Impedance Spectroscopy model for a symmetric cell as an SOFC application (B1118)
Oktay Demircan, Gulsun Demirezen, Aysenur Eslem Kisa
Alternative Energy Lab., Boğaziçi University, Department of Chemistry, Istanbul/Turkey

SOFC simplified performance prediction model (B1119) **Late contribution see below

Advanced characterisation tools and techniques **B12**

Determining the Oxygen Transport Kinetics of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$ by a Detailed Electrochemical Study (B1207)
Laura Almar, Julian Szász, André Weber, Ellen Ivers-Tiffée
Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

Evaluation of Total Harmonic Distortion tool for SOFC diagnostics (B1208)
Bertrand Morel, André Chatroux; French Alternative Energies and Atomic Energy Commission CEA-LITEN, Grenoble/France

** **SOFC simplified performance prediction model (B1119);** Irad Brandys (1,2), Yedidia Haim (3), Yaniv Gelbstein (4); (1) NRCN, Beer Sheva, Ben Gurion University of the Negev: (2) Faculty of Engineering, Beer Sheva, (3) Dept. of Mechnical Engineering, Beer Sheva, (4) Dept. of Energy, Beer Sheva/Israel

Evaluation of SOFC anode polarization characteristics with pillar-based YSZ structure (B0821)
Takaaki Shimura (1), Lei Wang (2), Keisuke Nagato (2,3) and Naoki Shikazono (1,4)
(1) Institute of Industrial Science, The University of Tokyo, Tokyo/Japan, (2) Department of Mechanical Engineering, Graduate School of Engineering, Tokyo/Japan, (3) JST PRESTO, Tokyo/Japan, (4) JST CREST, Tokyo/Japan

Local reacting environment within SOFC stacks examined by three-dimensional numerical simulations (B0822)
Sanghyeok Lee (1,2), Hyoungchul Kim (1), Kyung Joong Yoon (1), Ji-Won Son (1), Jong-Ho Lee (1), Byung-Kook Kim (1), Wonjoon Choi (2), Jongsup Hong (1); (1) High-temperature Energy Materials Research Center, Korea Institute of Science and Technology (KIST) , Seoul/South Korea, (2) Department of Mechanical Engineering, Korea University, Seoul/South Korea

Geometric characterisation and performance improvement of IT-SOFCs in highly efficient CHP systems (B0823)
Luca Mastropasqua (1), Stefano Campanari (1), Paolo Iora (2); (1) Department of Energy, Politecnico di Milano, Milano/Italy, (2) Department of Mechanical and Industrial Engineering, Università di Brescia, Brescia/Italy

3D simulation of a patterned LSM cathode considering reaction on LSM/pore double-phase boundary (B0824)
Takuma Miyamae, Hiroshi Iwai, Motohiro Saito, Masashi Kishimoto, Hideo Yoshida
Department of Aeronautics and Astronautics, Kyoto University, Nishikyo-ku/Kyoto/Japan

Numerical Evaluation of Direct Internal Reforming SOFC Operated with Biogas (B0826)
Tran Dang Long (1), Tran Quang Tuyen (2), Yusuke Shiratori (1,2); (1) Department of Hydrogen Energy Systems, Faculty of Engineering, (2) International Research Center for Hydrogen Energy - Kyushu University, Fukuoka/Japan

Harvesting Big Data in SOFC Short Stacks – A Step Beyond Contemporary Characterization Techniques (B0827)
Carlos Boigues Muñoz (1,2), Davide Pumiglia (1,3), Francesca Santoni (1,4), Stephen J. McPhail (1), Gabriele Comodi (2)
(1) DTE-PCU-SPCT, ENEA C.R. Casaccia, Rome/Italy, (2) Dipartimento di Ingegneria Industriale e Scienze Matematiche, Università Politecnica delle Marche, Ancona/Italy, (3) DAFNE, Università degli Studi della Tuscia, Viterbo/Italy, (4) Department of Science and Technology, Parthenope University, Naples/Italy

Numerical study on the SOFC characteristics variation with various internal reforming ratio (B0828)
Sanggyu Kang (1, 2), Youngduk Lee (1), Kook-Young Ahn (1,2), Jacob Brouwer (3)
(1) Korea Institute of Machinery and Materials (KIMM), (2) University of Science and Technology (UST), (3) National Fuel Cell Research Center (NFCRC), Yuseong-Gu/Daejeon/KoreaYuseong-Gu Daejeon/Republic of Korea

Numerical study of solid oxide electrolyzer cell (B0829)
Sanggyu Kang (1, 2), Kook-Young Ahn (1, 2); (1) Korea Institute of Machinery and Materials (KIMM), (2) University of Science and Technology (UST), Yuseong-Gu/Daejeon/Republic of Korea

Anodes: State-of-the-art & novel materials I + II **B13 + 14**

Recent advancements in the utilization of dry biofuel for SOFCs (B1307)
Massimiliano Lo Faro (1), Sabrina C. Zignani (1), Stefano Trocino (1), R. M. Reis (2), G.G.A. Saglietti (2), E.A. Ticianelli (2), Antonino S. Aricò (1); (1) CNR-ITAE, Messina/Italy, (2) USP-IQSC, São Carlos/Brasil

High spatial resolution monitoring of the temperature distribution from an operating SOFC (B1209)
Manoj Ranaweera, Vijay Venkatesan, Erdogan Guk, Jung-Sik Kim
Department of Aeronautical and Automotive Engineering, Loughborough University, Loughborough/UK

Spatially Resolved Characterization of Anode Supported Solid Oxide Fuel Cells (B1210)
Patric Szabo (1), Günter Schiller (1), Dario Montinaro (2), Jan Pieter Ouweltjes (3); (1) German Aerospace Center (DLR), Stuttgart/Germany, (2) SOLIDPower SpA, Trento/Italy, (3) SOLIDpower SA, Yverdon-les-Bains/Switzerland

Increase of the quality assurance of SOFC stacks by electrochemical methods (B1211)
C. Auer(1), M. Braig(1), M. Lang(1), S. Kurz(1), K. Couturier(2), E.R. Nielsen(3), Q. Fu(4), Q. Liu(5)
(1) German Aerospace Center (DLR), Institute for Technical Thermodynamics, Stuttgart/Germany, (2) CEA, Grenoble/France, (3) DTU, Roskilde/Denmark, (4) EIFER, Karlsruhe/Germany, (5) NTU, Singapore/Singapore

Model-based design and 3D characterization of a SOFC electrode microstructure (B1212)
Kristina Maria Kareh (1), Enrique Ruiz Trejo (1), Antonio Bertei (1), Farid Tariq (1,2), Vladimir Yufit (1,2), Nigel Brandon (1,2)
(1) Imperial College London, London/UK, (2) IQM Elements Ltd, Quantitative Imaging Division, London/UK

Four-point bending testing: estimation of the accuracy and identification of the mechanical properties (B1213)
Fabio Greco, Arata Nakajo, Jan Van herle; FUELMAT Group, Institute of Mechanical Engineering, Faculty of Engineering Sciences and Technology, EPFL, Sion/Switzerland

Analysis and improvement on DRT reconstruction from Electrochemical Impedance Spectroscopy data (B1214)
Tommaso Ferrari (1), Roberto Spotorno (2,3), Paolo Piccardo (2,3), Cristiano Nicolella (1); (1) Department of Civil and Industrial Engineering, University of Pisa, Pisa/Italy, (2) Laboratory of Metallurgy and Materials, DCCI, University of Genoa, Genoa/Italy, (3) Institute for Energetics and Interphases, National Council of Research, Genoa/Italy

Thin Film THERMONO for Cathode Temperature Gradient of SOFC (B1215)
Erdogan Guk, Manoj Ranaweera, Vijay Venkatesan, Jung-Sik Kim
Department of Aeronautical & Automotive Engineering Department, Loughborough University, Loughborough/UK

Influence of Working Parameters and Degradation on Anode-Supported Cells studied by Electrochemical Impedance Spectroscopy (B1216)
Roberto Spotorno (1,2), Tommaso Ferrari (3), Cristiano Nicolella (3), Paolo Piccardo (1,2); (1) Laboratory of Metallurgy and Materials, DCCI, University of Genoa, Genoa/Italy, (2) Institute for Energetics and Interphases, National Council of Research, Genoa/Italy, (3) Department of Civil and Industrial Engineering, University of Pisa, Pisa/Italy

Nucleation and crystallization processes of glass-ceramic sealants for SOFCs (B1217)
Jeerawan Brendt, Sonja M. Gross-Barsnick, Carole Babelot, Ghaleb Natour; Forschungszentrum Jülich, Central Institute of Engineering, Electronics and Analytics (ZEA) - Engineering and Technology (ZEA-1), Jülich/Germany

New full ceramic kit for gas analysis and integrated steamer for SOEC (B1218)
Pierre Coquoz, André Pappas, Raphael Ihringer; Fiaxell Sàrl, Lausanne/Switzerland

Changing the TPB Length through Alternation of Calcination Temperature, and its Influence to the Microstructure, Electrochemical Performance and Carbon Resistance of Ni Infiltrated CGO as the Anode of SOFC (B1308)
Mengzheng Ouyang, Paul Boldrin, Nigel P. Brandon
Department of Earth Science and Engineering, Imperial College London, London/UK

Fracture toughness and creep of SOFC anode substrates (B1309)
Jianping Wei, Goran Pećanac, Jürgen Malzbender; Forschungszentrum Jülich GmbH, IEK-2, Jülich/Germany

High Performance Solid Oxide Electrolyzer Cell with $Ba_{0.9}Co_{0.7}Fe_{0.2}Nb_{0.1}O_{3-\delta}$ Anode Based on YSZ/GDC Bilayer Electrolyte (B1310)
Zehua Pan (1,2), Qinglin Liu (2), Siew Hwa Chan (1,2)
(1) School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore/Singapore, (2) Energy Research Institute at NTU (ERIAN), Nanyang Technological University, Singapore/Singapore

Engineering Ceramic Scaffold Electrodes for SOFCs and SOECs (B1311)
Graham R Stevenson, Nigel P Brandon, Enrique Ruiz-Trejo; Imperial College London, London/UK

Exploring oxygen-deficient Ruddlesden-Popper $La_{1-x}Sr_{1+x}NiO_{4-d}$ nickelates as oxygen electrode materials for SOFC/SOEC (B1312)
Aleksey Yaremchenko (1), Ekaterina Kravchenko (1,2), Kiryl Zakharchuk (1), Jekabs Grins (3), Gunnar Svensson (3), Vladimir Pankov (2); (1) CICECO, Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro/Portugal, (2) Department of Chemistry, Belarusian State University, Minsk/Belarus, (3) Department of Materials and Environmental Chemistry, Stockholm University, Stockholm/Sweden

Properties of perovskite with high value of A-site cation size mismatch obtained under different synthetic conditions (B1313)
K. Vidal (1), A. Morán-Ruiz (1), A. Larrañaga (1), M. A. Laguna-Bercero (2), R. Baker (3), M. I. Arriortua (1)
(1) Universidad del País Vasco/ Euskal Herriko Unibertsitatea (UPV/EHU), Facultad de Ciencia y Tecnología, Bilbao/Spain, (2) Instituto de Ciencia de Materiales de Aragón (ICMA), CSIC-Universidad de Zaragoza, Zaragoza/Spain, (3) School of Chemistry, University of St Andrews, Fife/UK

Cerium-Cobalt-Copper oxide based SOFC anodes for the direct utilisation of methane as fuel (B1314)
Bernardo J. M. Sarruf (1,2), Jong-Eun Hong (1), Robert Steinberger-Wilckens (1), Paulo Emílio V. de Miranda (2); (1) Centre for Fuel Cell and Hydrogen research - School of Chemical Engineering, University of Birmingham, Birmingham/UK, (2) Hydrogen Laboratory COPPE, Metallurgical and Materials Engineering, Federal University of Rio de Janeiro , Rio de Janeiro/Brazil

Local geometric structure effects on the stability of LSM and LSF electrodes (B1315)
Cheng-Zhi Guan (1), Xin-Bing Chen (1), Hong-Liang Bao (1), Jing Zhou(1), Guo-Ping Xiao(1), Cheng Peng(1), Jian-Qiang Wang(1), Zhi-Yuan Zhu(1,2)

Impedance insight into Ceres Power's Steel Cell technology: latest results (B1219)
Gavin Reade (2), André Weber (1), Adam Bone (2), Subhasish Mukerjee (2), Mark Selby (2); (1) Institute for Applied Materials (IAM-WET), Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany, (2) Ceres Power Ltd. , Horsham/UK

Cathodes: State-of-the-art & novel materials B15

Synthesis through electrospinning of $La_{1-x}Sr_xCo_{1-y}FeyO_{3-\delta}$ ceramic fibers for IT-SOFC electrodes (B1507)
Anna Enrico (1), Bahar Aliakbarian (1), Alberto Lagazzo (1), Alessandro Donazzi (2), Rodolfo Botter (1), Patrizia Perego (1), Paola Costamagna (1); (1) Department of Civil, Chemical and Environmental Engineering, University of Genoa, Genoa/Italy, (2) Energy Department, Politecnico di Milano, Milan/Italy

High-throughput screening of SOFC cathode materials (B1508)
Aitor Hornés, Aruppukottai Bhupathi Saranya, Alex Morata, Albert Tarancón
Catalonia Institute for Energy Research (IREC), Department of Advanced Materials for Energy, Barcelona/Spain

Chrome Poisoning of Non-Manganiferous Cathode Materials for Solid Oxide Fuel Cells (B1509)
Kevin Schiemann, Izaak C. Vinke, L.G.J de Haart, Rüdiger-A. Eichel; Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Fundamental Electrochemistry (IEK-9), Jülich/Germany

Development of LCFCN system perovskites as interconnect and cathode materials for SOFCs (B1510)
Abhigna Kolisetty, Zhezhen Fu, Rasit Koc
Department of Mechanical Engineering and Energy Processes, Southern Illinois University Carbondale, Carbondale/USA

Evaluation of Cathode performance in co-sintered inert-supported SOFC (B1511)
Eric Matte (1), Piero Lupetin (1), Detlef Stolten (2); (1) Robert Bosch GmbH, Renningen/Germany, (2) Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK), Jülich/Germany

Thermodynamic aspects of Cr poisoning for LSCF cathodes (B1512)
Xiaoyan Yin, Lorenz Singheiser, Robert Spatschek; Forschungszentrum Jülich GmbH, IEK-2, Jülich/Germany

Optimization of GDC interlayer against $SrZrO_3$ formation in LSCF/GDC/YSZ triplets (B1513)
Jeffrey C. De Vero(1), Katherine Develos-Bagarinao (1), Haruo Kishimoto (1); Do-Hyung Cho (1), Katsuhiko Yamaji (1), Teruhisa Horita (1), Harumi Yokokawa (1,2); (1) National Institute of Advanced Industrial Science and Technology Tsukuba, Ibaraki/Japan, (2) Institute of Industrial Science, The University of Tokyo, Tokyo/Japan

(1) Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai/P. R. China, (2) Shanghai Branch, Chinese Academy of Sciences, Shanghai/P. R. China

Synthesis and electrical properties of Ti-doped Sr_2FeMoO_6 as an anode material for solid oxide fuel cells (B1316)
Afizul hakem bin karim (1), Abdalla Mohamed Abdalla (1), Shahzad Hossain (1), Hidayatul Qayyimah Hj Hairul Absah (1), Mohamad Iskandar Petra (2), Abul Kalam Azad(1); (1) Department of chemical and process engineering, Faculty of Integrated Technology, University Brunei Darussalam, Gadong/Brunei Darussalam, (2) Department of systems engineering, Faculty of Integrated Technology, University Brunei Darussalam, Gadong/Brunei Darussalam

Oxygen Anion Diffusion, Nanostructuring and Electrochemical Performance of double perovskite $GdBaCo_2O_{5+\delta}$ Electrode for SOFC (B1317)
Uzma Anjum, M. Ali. Haider; Chemical Engineering, Indian Institute of Technology, Delhi/India

Ni-YSZ anode impregnated with molybdenum for direct use of bio-ethanol in SOFC (B1318)
Rosana Zacarias Domingues, Rubens Moreira, Antônio de Pâdua, Edyth da Silva, Tulio Matencio
Universidade Federal de Minas Gerais - Departamento de Química, Belo Horizonte/Brazil

Single triple-phase-boundary and platinum–yttria stabilized zirconia composite as cathodes for IT-SOFCs (B1319)
Yan Yan (1), Paul Muralt (2); (1) Faculty of Materials and Energy, Southwest University, Chong Qing/China, (2) Ceramics Laboratory, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne/Switzerland

Highly efficient and durable hydrogen production of SOECs using layered perovskite electrodes (B1320)
Guntae Kim; School of Energy and Chemical Engineering, UNIST, Ulsan/Republic of Korea

Role of dopants on ceria-based anodes for IT-SOFCs powered by hydrocarbon fuels (B1321)
Araceli Fuerte, Rita Ximena Valenzuela, María José Escudero; Energy Department, CIEMAT, Madrid/Spain

Operation of ceria-electrolyte solid oxide fuel cell on simulated biogas mixtures (B1322)
M.J. Escudero, A. Fuerte; CIEMAT, Madrid/Spain

Paper-structured catalyst for the stable operation of direct-internal reforming SOFC running on biofuels (B1323)
Taku Kaida (1), Mio Sakamoto (2), Hao Le (1), Tran Tuyen Quang (2), Yusuke Shiratori (1,2)
(1) Department of Hydrogen Energy Systems, Faculty of Engineering, (2) International Research Center for Hydrogen Energy - Kyushu University, Fukuoka/Japan

Enhancement of Long-term Stability of Ni-YSZ based SOFC Anode by Infiltration of Transition Metals (B1324)
Seung-Bok Lee (1,2), Muhammad Shirjeel Khan (1), Rak-Hyun Song (1,2), Jong-Won Lee(1,2), Tak-Hyoung Lim(1,2), Seok-Joo Park(1,2); (1) Fuel Cell Research Center, Korea Institute of Energy Research, Daejeon/Republic of Korea, (2) Department of Advanced Energy Technology, University of Science and Technology, Daejeon/Republic of Korea

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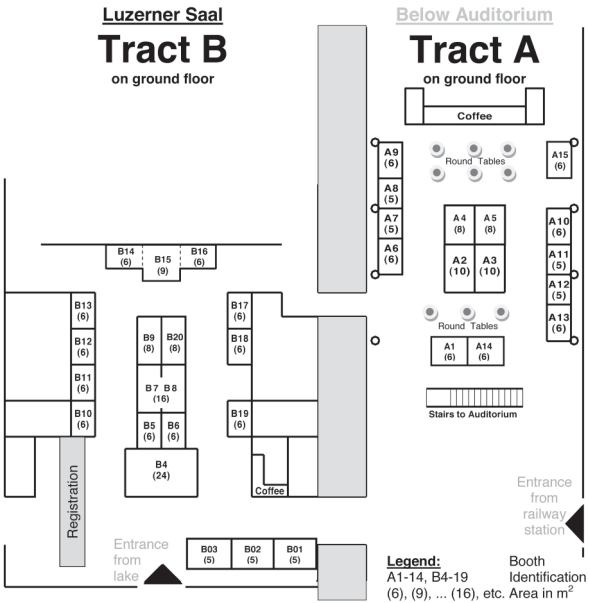
At the time of print of this Final Announcement the following developers, material, measurement tool and component supplies as well as research institutions had registered for the exhibition:



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6th European PEFC & H2 Forum
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Chaired by
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13th European SOFC & SOE Forum
3 – 6 July 2018

Company	Exhibits	Web
Bosal Energy Conversion Industry Vianen / **The Netherlands**	SOFC / SOEC heat exchangers	eci.bosal.com
Bronkhorst (Schweiz) AG Reinach / **Switzerland**	Massflowmeter and controler for gas and liquid, pressure meter and controller, controlled evaporater	bronkhorst.com
CAP CO., Ltd. Yokohama / **Japan**	Anode gas recycle blower	cap-co.jp
CEATECH - LITEN Grenoble / **France**	R&D for SOFC and SOE	liten.cea.fr
CeramTec - The Ceramic Experts Plochingen / **Germany**	Ceramic SOFC components	ceramtec.com/ceramcell
DOWA HD Europe GmbH Nürnberg / **Germany**	Perovskite-type complex oxide powder (SOFC), various oxides that can be used as the materials for electrodes and electrolytes	dowa-electronics.co.jp
Fiaxell Sarl Lausanne / **Switzerland**	Test setup and components for fuelcell	fiaxell.com
FLEXITALLIC Ltd West Yorkshire / **United Kingdom**	Gasket & sealing products - Thermiculite 866	flexitallicsofc.com
Fomenta AG / Temonas Buttikon / **Switzerland**	FCH Services and Technology Monitoring and Assessment	fomenta.ch
Forschungszentrum Jülich GmbH Jülich / **Germany**	R&D for SOFC, SOE and ROB	fz-juelich.de

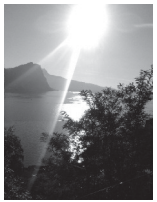
Fraunhofer IKTS Dresden / **Germany**	CFY stacks, eneramic fuel cell system, cerenergy high-temperature battery	ikts.fraunhofer.de
FuelCon AG Magdeburg-Barleben / **Germany**	Testing assembling & diagnostic systems for fuel cells & batteries	fuelcon.com
G. Bopp & Co. AG Zürich / **Switzerland**	High precision woven wire cloth for SOFC anodes made of AISI 304 / AISI 316 / Nickel / Crofer / Inconel etc.	bopp.ch
KCeraCell Co., Ltd. Geumsan-gun / **Republic of Korea**	Electrolyte, cathode, anode and interconnect materials /various SOFC cells	kceracell.com
KERAFOL GmbH Eschenbach i.d.Opf. / Germany	Electrolyte substrates, ceramic fuel cells	kerafol.com
NOVUM engineerING GmbH Dresden / **Germany**	Real time monitoring fuel cell inverter	novum-engineering.biz
PLANSEE SE Reutte / **Austria**	SOFC stack components	plansee.com
Praxair Surface Technologies, Inc. Woodinville, WA / USA	Manufacturer of multi-component oxide powders and shapes specializing in cathode, anode, interconnects, electrolytes and barrier layers for SOFC's and SOE's	praxair.com/specialtyceramics
SOLIDpower S.p.A. Mezzolombardo / **Italy**	BlueGen uCHP system, SOFC&SOE Stacks	solidpower.com
Sulfa Trap LLC Arvada / **USA**	Desulfurization sorbents, sulfur sensors and indicators	sulfatrap.com
Sunfire GmbH Dresden / **Germany**	SOFC	sunfire.de
Swagelok Switzerland c/o ARBOR Fluidtec AG Niederrohrdorf / **Switzerland**	Fluid & gas system components and services	arbor.swagelok.com
Werner Mathis AG Oberhasli / **Switzerland**	Coating, calandering, relaxing machine	mathisag.com

Special Events

www.EFCF.com/Events

Welcome Gathering
Tuesday, 5th July: 18:00, on the terrace of the KKL above the registration area. Meet old friends, find new ones and enjoy the splendid view of lake and historic town – a perfect start to the conference.

20th EFCF Jubilee Swiss Surprise Night (optional, limited to 80 participants)
Wednesday, 6th July: 18:30. A special surprise excursion with bus, traditional cogwheel mountain trains to one of the picturesque showplaces of the region. This is an enjoyable evening with Swiss folklore, music, drinks and Swiss cuisine. Tickets are sold on a first-come-first-served basis for CHF 120.– per person. During your on-line registration please select the option to purchase tickets in advance for you and your guests.



Dinner on the Lake
Thursday, 7th July: 19:30 Pier 6 («Brücke 6») next to Congress Centre: Historic paddle wheel steamers «Stadt Luzern & Uri» (1927, flagship of the fleet) will take us on a tour of the lake, past magnificent landscape and to the «Rütli» glade, birthplace of Switzerland (1291). Enjoy the unique blend of music, drinks and a candle-light dinner while gliding past beautiful scenery. Live music contributes to this unforgettable evening. This event is included in the registration fee. During your online registration please indicate your attendance and feel free to purchase additional tickets for your guests (CHF 120.– per person).

Entertainment for Accompanying Person
During the European Full Cell Forum your guests and yourself have the possibility to explore the beautiful region of Lucerne together with an experienced local guide. Bucher Travel Inc. and the Lucerne Tourist Office are able to organize for you and your guests entertaining trips around local attractions. It is possible to take a tour of Lucerne visiting the medieval part of the city, followed by a tour of the picturesque surrounding area e.g. Mount Pilatus, the Glass Factory & Mount Stanserhorn, etc. The excursions are arranged locally on a daily base depending on weather conditions and requests. To get more information about the programmes and to book an activity, please visit www.EFCF.com – Registration – Spouse Programmes or contact in advance Bucher Travel Inc., Larissa Schelbert, larissa@buchertravel.ch, +41 41 418 55 46 and/or visit www.luzern.com. The EFCF team can support you on-site at the registration desk in finding further offers and opportunities, except during the main registration time (Tuesday afternoon, Wednesday morning). Accompanying persons may participate in the «Swiss Surprise» and «Dinner on the Lake» for CHF 120.– per person as well as in the lunches on the terrace of the KKL. Please purchase guest tickets as long as they are available during your on-line registration. Additional lunch tickets are only sold on site until fully booked. The exhibitions can always be visited for free.

Tutorial Registration

www.EFCF.com/TutReg

The registration for the Fuel Cell Tutorial, given by Dr. Günther G. Scherer (former PSI Villigen) and Mer Dr. Jan Van Herle (EPF Lausanne), covers the lectures with complete documentation of the six hour programme, a starter, a business lunch, sweets, coffees and refreshments. You can register for the Tutorial also without participating at the Scientific Conference.

Please indicate your choice during your on-line registration on www.EFCF.com/TutReg or on the registration form at **www.EFCF.com/Download**. Tutorial Fee is CHF 500.–

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All participants enjoy full conference privileges. Accompanying persons and guests are kindly asked to buy tickets for meals and social events at the registration desk. The following conference privileges are contained in the conference package:

- Participation in the conferences and access to the poster area and the exhibition
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- Download right after conference from www.EFCF.com/Lib of
  – presentations accessible with author permission
  – proceedings of this year and former years.
- Participation in all networking events:
  – Tuesday: Welcome Gathering with drinks and snacks
  – Thursday: Dinner on the Lake with the historical paddle wheel steamers
- Three business lunches (Wednesday to Friday)
- Refreshments and coffee during intermissions, breaks and goodbye close.

Not included: Swiss Surprise on Wednesday night. Please order tickets when registering for the conference.

Conference On-line Registration

www.EFCF.com/Registration

Please register on-line at www.EFCF.com/Registration for all Forum events – conference, tutorial, side events – and pay by Credit Card or via bank, if sufficiently in advance. Please use the on-line registration option also for your hotel reservation. Credit cards are only needed to reserve your hotel room, but hotel bills are paid when you leave Lucerne.

In case you cannot register on-line, please obtain the off-line Registration Form and the Hotel Reservation Form from www.EFCF.com/Download or from forum@EFCF.com. Complete these forms and return them by e-mail or fax to the address shown on the bottom of each form.

Exhibition On-line Registration

www.EFCF.com/ExReg

Companies wishing to participate in the exhibition can register on-line at www.EFCF.com/ExReg or download the Exhibition Package including the Exhibition Registration Form from www.EFCF.com/Download. Please complete and return the form to the address shown on the bottom of the form.

Any questions: Please contact exhibition@efcf.com, Leandra Spirig +41 79 622 02 27

Free Project Meeting Organisation Service Support Service Enquiry

www.EFCF.com (Networking plus)

Stakeholders interested in the Free Organization Support Service for their project-, set-up- or other issue-meetings should view www.EFCF.com – Networking plus and mail to forum@EFCF.com.

The following admission fees apply: www.EFCF.com/Fee

Students, Trainees, Unemployed
Full-time students (age 26 or younger), trainees and no-income persons
Student fee (with valid identification) CHF 700.–

Academic Staff, Government, Consultants
Admission of academic staff etc. CHF 1400.–

Industry, Trade and Commerce
Fuel cell developers, manufacturers and distributors pay an extra CHF 600.– to support the participation of students and trainees. The 12th European SOFC & SOE Forum 2016 will provide an excellent platform for recruitment. Participants from industry and commerce benefit from the student support contribution.
Admission of industry etc. CHF 2000.–

Surcharge for Late Registration
Extra fee for late registration from **15 May 2016** CHF 100.–
Extra fee for on-site registration from 5 July 2016 CHF 250.–

One-Day Tickets
Registration includes one conference proceedings in electronic form and one Forum Agenda as well as all conference privileges of the day plus download of presentations accessible with author permission. Please register on-line at www.EFCF.com/Registration in advance or at the registration desk (extra fee for late registration only applies). CHF 700.–

Tutorial
Incl. lectures, documents, lunch, refreshments, exhibition CHF 500.–

20th Jubilee Swiss Surprise Night (optional)
Tickets for the entertaining evening event "Swiss Surprise" on Wednesday (6 July 2016) night are sold on a first-come-first-serve basis. Participation is limited to 80 persons and is not included in the conference fee. Please order your and your guests tickets on-line at www.EFCF.com/Registration during your registration for the 12th European SOFC & SOE Forum 2016 or ask on-site. CHF 120.– pp incl. 8% VAT

Extra Ticket for Dinner on the Lake
Additional guests tickets for the "Dinner on the Lake" evening event on Thursday (7 July 2016) are sold on a first-come-first-serve basis. Please order your guests tickets on-line at www.EFCF.com/Registration during your registration for the 12th European SOFC & SOE Forum 2016 or ask on-site. CHF 120.– pp incl. 8% VAT

Payments of the Registration Fee

Bucher Travel Inc. handles all On-line conference registrations and hotel reservations. The registration fee can be paid by credit card or via bank transfer if sufficiently ahead of time. Payments are confirmed in writing, institutions and companies may request invoices for registration of employees on company stationery. Please accept all bank charges related to the transfer expenses to your payment. All payments must be made in Swiss Francs (CHF). Foreign currency exchange rates for February 2016: 1 CHF ≈ 0.91 EUR ≈ 0.99 US≈ 115 JPY ≈ 0.70 GBP. Registrations are accepted as long as space is available.

Cancellation of Registration

Written cancellations of confirmed registrations should reach Bucher Travel Inc. before 31 May 2016. Fees already paid will be refunded, however a charge of CHF 300.– is applicable to cover administration expenses and the cost of the Electronic Proceedings that will be mailed to the registrant after the event. No refunds can be made for cancellations received after 31 May 2016. Withdrawing registrants will receive the Electronic Proceedings of the 2016 conference.

The event is endorsed by

www.EFCF.com (Partner)

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TEchnology MONitoring and ASsessment Tool – info@fomenta.ch

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VDI Verein Deutscher Ingenieure
Graf-Recke-Strasse 84
40239 Düsseldorf/Germany

Wiley – VCH Publishers
Boschstrasse 12
69469 Weinheim/Germany

Hotel Reservation

www.EFCF.com/Registration

The hotel can also be booked On-line: www.EFCF.com/Registration Button "Hotels". Bucher Travel Inc. handles all hotel bookings and will confirm the hotel reservations by email and send you information about Lucerne. Hotel expenses can be paid at the hotel to the hotel management. All on-line hotel **bookings made by 15 May 2016** and pre-paid by credit card via Bucher Travel will get an **early booking discount of 5%** on the room rate excl. taxes. Therefore choose the credit card option in the on-line booking / registration form. Pre-paid hotel bookings are non-refundable.

If there are further needs contact Larissa Schelbert, larissa@buchertravel.ch, Phone: +41 41 418 55 46 and/or visit alternative common hotel booking portals. The European Fuel Cell Forum is not responsible for hotel accommodations. Please make sure to book and register ONLY ONCE!

Lucerne

www.EFCF.com/Lucerne

Lucerne is located in the heart of Switzerland on the Lake of Lucerne admired for its beauty and tranquillity. 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 between 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. Lucerne is located in the heart of Western Europe and is an ideal start location for further travels around the continent before or after the conference.

Travel Arrangements

www.EFCF.com/Travel

SWISS
Official Carrier

TRAVEL INFORMATION

Swiss International Air Lines is proud to be the Official Carrier for the 12th European SOFC & SOE Forum 2016 and is offering **special Congress Fares to all participants**. These special fares offer **reductions of up to 10%** depending on the fare type, route and space availability.

These fares are bookable now, and are valid for the travel period 14 days before to 14 days after the event.

Only **registered congress participants and exhibitors** can take advantage of this offer. After successful registration, you **will receive an EVENTCODE** with your registration confirmation. You can then **book your flights** using the following link: **www.swiss.com/event**. When prompted please enter the email address and the EVENTCODE provided on your registration slip.

The special SWISS congress fare is marked with a white triangle and, depending on the chosen fare, allow you to change or cancel your flight with complete ease. Only pay for what you really need.

How to get to Lucerne

www.EFCF.com/Lucerne

By car or train:
The Gotthard trans-alpine autobahn and railway pass through Lucerne and provide easy access by car or train from north or south.

By airplane:
Zurich is the gateway for the annual fuel cell conference of the 12th European SOFC & SOE Forum 2016. Choose Zurich as your destination, the official carrier SWISS offers special conference rates for convenient direct flights to Zurich from all major locations. From here you can take a direct train from Zurich Airport to Lucerne. The train station is below the airport terminal complex. Direct trains leave at 47 minutes past the hour. The pleasant train journey takes a little over 1 hour. A full timetable and further information are available at www.sbb.ch. Most hotels are within walking distance from the Lucerne train station.

We hope you have a pleasant journey!
And we look forward to seeing you in Lucerne!

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