

8th European SOFC Forum

Oral Presentations

Opening Session

Welcome by the Organizer

Ulf Bossel
European Fuel Cell Forum, Oberrohrdorf / Switzerland

Welcome to Lucerne

Representative of Town or Canton of Lucerne
Lucerne / Switzerland

Welcome to Switzerland

Representative of the Swiss Federal Office of Energy
Berne / Switzerland

The Chairman's Welcome to the 8th European SOFC Forum

Robert Steinberger-Wilckens
Forschungszentrum Jülich GmbH, Jülich / Germany

SOFC Development in Europe

Bert Rietveld
Energy Research Center of the Netherlands, Petten / The Netherlands

SOFC Development in the USA

Wayne Surdoval
US Department of Energy (DOE), Pittsburgh, PA / USA

SOFC Development in Japan

Teruhiro Sakurai
New Energy and Industrial Technology Development Organization (NEDO)
Kawasaki / Japan

Modeling

SOFC Modeling - from Micro-Kinetics to Stacks

Olaf Deutschmann, Vinod Janardhanan, Steffen Tischer, Vincent Heuveline
University of Karlsruhe, Chemical Technology & Polymer Chemistry, Karlsruhe / Germany

Study of TPB Distribution and Percolation in Composite Electrodes

Joshua Golbert (1), Claire S. Adjiman(1), Nigel P. Brandon (2)
Imperial College London / United Kingdom

(1) Department of Chemical Engineering, (2) Earth Science and Engineering Department

Modeling Segmented-in-Series SOFCs with Distributed Charge Transfer and Internal Reforming

Robert J. Kee (1), Huayang Zhu (1), Sander van Veldhuizen (2)

(1) Colorado School of Mines, Engineering Division, Golden, CO / USA

(2) Delft University of Technology, Applied Mathematics, Delft / The Netherlands

GenFC in the Role of Experimental Validation

Dieter Froning, Stefanie Berns, Daniel Krötz, Uwe Reimer

Forschungszentrum Jülich GmbH, IEF-3, Jülich / Germany

Numerical Study of an SOFC with Direct Internal Reforming Using Charge Diffusion-Based Model

Thinh X Ho, Pawel Kosinski, Alex C. Hoffmann, Arild Vik

University of Bergen, Department of Physics and Technology, Bergen / Norway

Mechanisms of Hydrogen Oxidation in Ni-YSZ Pattern Anodes: A Quantitative Modeling Study

David Goodwin

California Institute of Technology, Engineering & Applied Science, Pasadena, CA / USA

Analysis and Methods

The Application of Laser Topography in SOFC Development

Robert Mücke, Norbert H. Menzler, Frank Kemnitzer, Karl Blöchl

Forschungszentrum Jülich GmbH, IEF-1, Jülich / Germany

Advanced Characterisation of Mechanical SOFC Behaviour

Jürgen Malzbender, R.W. Steinbrech, L. Singheiser

Forschungszentrum Jülich GmbH, IEF-2, Jülich / Germany

3D Reconstruction of SOFC Electrodes Using Focussed Ion Beam Techniques

Paul R. Shearing, Richard J. Chater, Nigel P. Brandon

Imperial College London, Earth Science and Engineering, London / United Kingdom

A0304 FIB/TEM Investigation of Si Accumulation in the Active Layer of Solid Oxide Electrolyser Cells

Christian Soltmann, A. Hauch, D. Wiedenmann, U. Vogt, M. Mogensen

EMPA, High-Performance Ceramics, Dübendorf / Switzerland

Neutron and X-Ray Methods for the Characterization of Solid Oxide Fuel Cell Materials, Cells, and Stacks

Artur Braun, Peter Holtappels, Thomas Graule, Eberhard Lehmann

EMPA, High-Performance Ceramics, Dübendorf / Switzerland

Spatial Distribution of Electrochemical Performance in a Planar Segmented SOFC

Günter Schiller, Caroline Willich, Nicolas Bayer Botero, Wolfgang G. Bessler

German Aerospace Center (DLR), Technische Thermodynamik, Stuttgart / Germany

Low Temperature SOFC

Charge Transport and Oxygen Reduction Mechanism at IT-SOFC Cathode

Janina Molenda, J. Marzec, K. Swierczek, W. Zając
AGH University of Science and Technology, Materials Science and Ceramics,
Kraków / Poland

The Action of Nano-Particles in SOFC Electrodes

Mogens Mogensen, Martin Søgaard, Peter Blennow, Kent Kammer Hansen
Risø National Laboratory – DTU, Roskilde / Denmark

Potential of Nanoscaled LSC Thin Film Cathodes: Modelling and Experimental Verification

Ellen Ivers-Tiffée, U. Guntow, J. Hayd, B. Rürger
Universität Karlsruhe (TH), Werkstoffe der Elektrotechnik IWE, Karlsruhe / Germany

Investigation of IT-SOFCs with Zirconia and Ceria Electrolytes

Masashi Mori, Shin-ichi Hashimoto, Yu Liu
Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka / Japan

A Study of CO Oxidation in Intermediate Temperature SOFCs

Gregory J. Offer, Nigel P. Brandon
Imperial College London, Earth Science Engineering, London / United Kingdom

Oxygen Exchange Kinetics and Transport Properties of $\text{La}_{0.58}\text{Sr}_{0.4}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ for IT-SOFC Cathodes

Werner Sitte, Edith Bucher, George B. Caraman, Andreas Egger
University of Leoben, Physical Chemistry, Leoben / Austria

Anodes

Performance Limiting Factors in Anode-Supported SOFC

André Leonide, N. H. Menzler, V. A. C. Haanappel, E. Ivers-Tiffée
Universität Karlsruhe (TH), Werkstoffe der Elektrotechnik (IWE), Karlsruhe / Germany

A Study of the Impact of Sulphur on the Performance of Intermediate Temperature Solid Oxide Fuel Cells with Nickel–Gadolinium Doped Ceria Anodes

Dan Brett, Pattaraporn Lohsoontorn, Nigel Brandon
University College and Imperial College London / United Kingdom

Trends in Catalytic Activity for SOFC Anode Materials

Jan Rossmeisl, Wolfgang G. Bessler
Center of Atomic-Scale Materials Design
Technical University of Denmark, Lyngby / Denmark

Development and Evaluation of Redox Tolerant Anodes

Jan Pieter Ouweltjes, Frans van Berkel, Bert Rietveld
ECN Energy Research Centre of the Netherlands, Petten / The Netherlands

The Development of Surface-Modified La_{0.2} Sr_{0.7} Ti O₃ as Anode Current Collector for IT-SOFC

Cristian-Daniel Savaniu, J.T.S. Irvine

University of St Andrews, School of Chemistry, St. Andrews / United Kingdom

Cermet Anodes Fully Desensitized to Sulfur

K. Ravindranathan Thampi, A. J. McEvoy, B. El-Roustrom

EPFL, ISIC-LPI, Lausanne / Switzerland

Cathodes

Performance, Degradation and Microstructure of LSCF/CGO Composite Cathodes

Marie Wandel, Jacob R. Bowen, Mogens Mogensen

Risø National Laboratory – DTU, Roskilde / Denmark

Enhanced ASC Performance (600-800°C) by Cathode-Electrolyte Interface Engineering

Frans van Berkel, Guillaume Schoemakers, Ye Zhang-Steenwinkel, Bert Rietveld

ECN Energy Research Centre of the Netherlands, Petten / The Netherlands

Applicability of BSCF as IT-SOFC Cathode in CO₂-Containing Atmospheres

Edith Bucher, George B. Caraman, Werner Sitte

University of Leoben, Physical Chemistry, Leoben / Austria

The Effect of A-Site Parameters in the Properties of AFeO_{3-δ} Perovskites

Lide M. Rodriguez-Martinez, Karmele Vidal, Luis Ortega-San-Martin, Teofilo Rojo, María I. Arriortua

Ikerlan, S. Coop. and Basque Country University, Alava / Spain

Infiltration of SOFC Cathodes

Martin Søgaaard, Tal Sholklipper, Marie Wandel, Mogens Mogensen

Risø National Laboratory – DTU, Roskilde / Denmark

Investigation of Sr-Doped Layered Perovskites for SOFC Cathode Applications

Jung Hyun Kim, Mark Cassidy, John T. S. Irvine

University of St Andrews, School of Chemistry, St. Andrews / United Kingdom

Electrolytes

Study of Apatite-Type Lanthanum Silicate Electrolyte Materials

Stéphanie Guillot, Beaudet-Savignat S., Lambert S., Vannier R.N.

CEA Le Ripault, Monts / France

Study of YSZ Coatings Reactively Sputter Deposited on Ni/YSZ and NiO/YSZ Cermet for SOFC Application

Pierre-Laurent Coddet, Marie-Cécile Pera, Alain Billard

LERMPS / UTBM, Belfort / France

Densification Behaviour of Screen Printed Gadolinia-Doped Ceria Films: Effect of CuO

Alessandra Sanson, Patrizia Mangifesta, Edoardo Roncari, Simona Barison
CNR-ISTEC, Faenza (RA) / Italy

Combustion Synthesis of Doped Ceria Multioxide for Use as an Electrolyte for SOFCs

Sumittra Charojrochkul, Waraporn Nualpang, Uthaiwan Injarean, Pipat Pichestapong
National Metal and Materials Technology Center, Pathumthani / Thailand

Grain Boundaries in Gadolinium Doped-Ceria

Alex Jasper, J. A. Kilner, D. W. McComb
Imperial College London, Materials, London / United Kingdom

On Influence of Impurities on Sinterability of 10Sc1CeSZ Powders, Conductivity and Mechanical Behavior of Their Electrolytes

Oleksandr Vasylyev, Victor Vereschak, Mykola Brychevskyi, Kost' Nosov
Frantcevyh Institute for Problems of Materials Science, Kyiv / Ukraine

Interconnects and Coatings

Coatings on Crofer22APU Interconnect for Protecting La_{0.8}Sr_{0.2}FeO₃ Cathode in Solid Oxide Fuel Cells

Xabier Montero (1), Frank Tietz (2), H.P. Buchkremer (2), Igor Villarreal (1), Ander Laresgoiti (1), Armelle Ringuede (3), Michel Cassir (3)
(1) Ikerlan, Miñano / Spain, (2) Forschungszentrum Juelich GmbH, (3) ENSCP

Development of Effective Protective Materials for SOFC Metallic Interconnects

Viktar Sauchuk, Mihails Kusnezoff, Nikolai Trofimenko, Stefan Megel, Hans-Peter Baldus, Andreas Reinert
Fraunhofer IKTS Dresden, Dresden / Germany

Development of Interconnect/Coating Combinations for Low-Temperature SOFC

Ye Zhang-Steenwinkel, Guillaume Schoemakers, Arno Janssen, Bert Rietveld
Energy Research Centre of the Netherlands, Petten / The Netherlands

Thin Cobalt Films for Reducing Chromium Evaporation from a 22%Cr Steel at High Temperature

Jan Erik Svensson, Hannes Falk Windisch, Lars Gunnar Johansson, Mikael Schuisky, Ulf Bexell
Chalmers University of Technology, Chemical and Biological Eng'g, Gothenburg / Sweden

Interface Resistance Between FeCr Interconnects and Ni/YSZ

Lars Mikkelsen, Jens Høgh, P.V. Hendriksen
Risø National Laboratory - DTU, Roskilde / Denmark

Recent Progress in Powdermetallurgical "Ready to Stack" Interconnect Components for Various SOFC Applications

Andreas Venskutonis(1), Georg Kunschert(1), Marco Brandner(1), Thomas Franco(1) and Franz Jansen(2)
(1) Plansee SE, Reutte / Austria

Sealings and Flows

Mechanical Characterization of Brazed Ceramic/Metal Joints for SOFC Stacks

Bernd Josef Kuhn(1), R.W. Steinbrech(2), J. Malzbender(2), L. Singheiser(2)

(1) BMW Group, München / Germany

(2) IEF-2 Forschungszentrum Jülich GmbH, Jülich / Germany

Long-Term Thermal Cycle Stability of an Ultra-Thermal Stable Sealing Glass Seal

Qingshan Zhu, Lian Peng and Tao Zhang

Chinese Academy of Sciences, Institute of Process Engineering, Beijing / China

Multi-Component System Based on BaO-MgO-SiO₂ Used as Sealant Materials for Solid Oxide Fuel Cells (SOFC)

Eric Wanko, S. Groß, U. Reisgen, R. Conradt

Forschungszentrum Jülich GmbH, Jülich / Germany

Institut für Gesteinhüttenkunde, RWTH-Aachen, Aachen / Germany

Investigation of Reactive Air Brazing with Silver-Based Brazing Filler Metals to Improve the Joining Technology for the High Temperature Solid Oxide Fuel Cell (SOFC)

Michael Stefan Reichle, Uwe Reisgen, Thomas Koppitz, Dirk Federmann

Forschungszentrum Jülich GmbH, ZAT, Jülich / Germany

High Temperature Mechanical Properties of a BaO-B₂O₃-Al₂O₃-SiO₂ Glass for SOFC

Hsiu-Tao Chang, Chih-Kuang Lin, Chien-Kuo Liu

National Central University, Mechanical Engineering, Jhong / Taiwan

Flow Distribution and Pressure Variation in the Manifolds of SOFC Stack

Zuopeng Qu, PV Aravind, Nico Woudstra, Nico Dekker¹

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¹ECN, Petten / The Netherlands

Electrolysis and Proton Conductors

Hydrogen Production by High Temperature Water Electrolysis

Josef Schefold, Maria Jose Garcia, A. Brisse, D. Perednis, M. Zahid

European Institute for Energy Research (EIFER), Karlsruhe / Germany

High Temperature Coelectrolysis for Direct Syngas Production Using Solid Oxide Cells

Carl Stoots, James O'Brien, J. Stephen Herring, Joseph Hartvigsen

Idaho National Laboratory, Idaho Falls, ID / USA

Diffusion of NiO in BaCe_{0.9}Y_{0.1}O_{2.95} during the Fabrication of an Anode/Electrolyte Half Cell for Protonic Ceramic Fuel Cell (PCFC)

Rémi Costa, Marie-Hélène Berger, Alain Thorel

Paristech, Centre des Matériaux, CNRS UMR, Evry / France

Solid Oxide Proton Conducting Steam Electrolyser

Paul Stuart, John Kilner, Stephen Skinner
Imperial College London, Materials, London / United Kingdom

BaCe_{1-x-y}Zr_xY_yO_{3-δ} Proton Conductors as Electrolytes for Intermediate Temperature SOFCs

Simona Barison (1), L. Doubova (1), M. Fabrizio (1), C. Mortalò (1), S. Boldrini (2),
(1) IENI-CNR, (2) ISIB-CNR, Padova / Italy

Development of Proton Conductor-Based Reversible SOFCs

Yeong Yoo, Nguon Lim
National Research Council Canada (NRCC)-ICPET, Ottawa, Ontario / Canada

SOFC Solutions

Solid Oxide Fuel Cell Research and Development at Topsoe Fuel Cell A/S and Risø

Niels Christiansen, J.B. Hansen, H. Holm-Larsen, M.J. Jørgensen, P. Larsen, P.
Hendriksen, A. Hagen, S. Linderøth
Topsoe Fuel Cell A/S, Lyngby / Denmark

SOFC Micro-CHP of Ceramic Fuel Cells Ltd. - Products for Today

Karl Foeger
Ceramic Fuel Cells Ltd., Noble Park, Victoria / Australia

Commercializing Solid Oxide Fuel Cells into Portable Markets

Timothy LaBreche and Aaron
Adaptive Materials Incorporated, Ann Arbor, MI / USA

Latest Info about Operation of the Siemens SOFC Generators CHP100 and SFC5 in a Factory

Gianmichele Orsello (1), A. Casanova (2), J. Hoffmann (2)
(1) TurboCare SpA, Torino / Italy
(2) Siemens Power Generation, Pittsburgh, PA / USA

Large-Scale Hybrid SOFC Power Generators from Rolls-Royce Fuel Cell Systems

Gerry Agnew
Rolls-Royce Fuel Cell Systems Ltd, Loughborough / United Kingdom

Galileo 1000 N from Hexis – Cogeneration with SOFC for Residential Application

Volker Nerlich, Alexander Schuler
Hexis AG, Winterthur / Switzerland

Industrial Experience

A New Business Partnership to Commercialize Compact SOFC Systems

Christian Wunderlich
Staxera GmbH, Dresden / Germany

Commercialisation of SOFC Technology at H.C. Starck

Rolf Huiberts, Karl Hermann Buchner, Hans-Peter Baldus
H.C. Starck Ceramics GmbH & Co. KG, Selb / Germany

Development of Solid Oxide Fuel Cells at Versa Power Systems

Brian Borglum
Versa Power Systems, Calgary, Alberta / Canada

Residential CHP Program by Osaka Gas Company and KYOCERA Corporation

Yoshitaka Kayahara
Osaka Gas Co., Ltd, Osaka / Japan

Delphi's Solid Oxide Fuel Cell Technology Development for Transportation and Stationary Applications

Subhasish Mukerjee, Steven Shaffer
Delphi Corporation, Technical Center, Rochester, NY / USA

Current Trends of SOFC Development at Forschungszentrum Juelich

Ludger Blum, Hans-Peter Buchkremer, Rolf W. Steinbrech, Bert de Haart, Uwe Reisgen,
Robert Steinberger-Wilckens
Research Centre Juelich, Juelich / Germany

Innovative Applications and Designs

Reference System for a Power Plant Based on Biomass Gasification and SOFC

Richard Toonssen, Nico Woudstra, Adrian H.M. Verkooijen
TU-Delft, Delft, Process and Energy, Delft / The Netherlands

Long-Term Tests of a Complete Biomass Integrated Gasification Fuel Cell System (B-IGFC)

Serge Biollaz, F. P. Nagel, M. Jenne, A. Schuler
Paul Scherrer Institut PSI, CH-5232 Villigen PSI / Switzerland

Development and Operating Experience with a SOFC-CHP System for Biogas

Matthias Jahn, Michael Stelter, Marc Heddrich, Eberhard Friedrich, Mihails Kusnezoff
Fraunhofer IKTS, Dresden / Germany

SOFC Research and Development at NIMTE

Wei Guo Wang
Ningbo Institute of Material Technology and Engineering, Ningbo / PR China

Customer-Oriented Design, Manufacturing and Thermal Integration of SOFC Stacks at SOFCpower Srl

Olivier Bucheli (1), Thomas Zähringer (1), Massimo Bertoldi (2), Jan Van herle (3)
(1) HTceramix SA, Yverdon-les-Bains / Switzerland
(2) SOFCpower Srl, Ciré di Pergine (TN) / Italy
(3) EPFL, Lausanne / Switzerland

Progress of the Wärtsilä Fuel Cell Program

Erkko Fontell, Tero Hottinen, Timo Lehtinen
Wärtsilä Corporation, Espoo / Finland

Manufacturing

Development and Manufacturing of Electrolyte- Supported Cells with High Power Density and Durability

Marco Kellner (1), Thomas Betz (1), Mihails Kusnezoff (2), Nikolai Trofimenko (2), Sindy Mosch (2)

(1) KERAFOL - Keramische Folien GmbH, DE-92676 Eschenbach / Germany

(2) FhG IKTS Dresden / Germany

Nanoscale Perovskite Powders for SOFC Cathodes by Means of Flame Spray Synthesis

Andre Heel, Peter Holtappels, Thomas Graule

EMPA, High Performance Ceramics, Dübendorf / Switzerland

Advanced Thermal Spray Functional Coatings for SOFC Components Using LPPS-Thin Film and APS-Triplex Technology

Malko Gindrat, A. Refke, T. Franco, M. Brandner, G. Kunschert

Sulzer Metco AG, Wohlen / Switzerland

Fabrication and Characterization of Tape-Casted Anode-Supported Solid Oxide Fuel Cell

Seung-Wook Baek, Joongmyeon Bae

Korea Advanced Institute of Science and Technology (KAIST), Daejeon / Republic of Korea

Integration of Oxide Anodes into the Rolls-Royce IP-SOFC Concept

Mark Cassidy, Samir Boulfrad, Charissa Chung, Michael Jorger, John Irvine

University of St Andrews, School of Chemistry, St Andrews / United Kingdom

Aspects on Mechanical Properties of Anode-Supported Cells (ASC) - A Manufacturer's Point of View

Stefan Stolz, Johannes Ernst, Claus Peter Kluge

CeramTec AG, Marktrechwitz / Germany

Stack and Cell Design

Overview of Metal-Supported SOFCs

Tal Sholklapper, Michael C. Tucker, Craig P. Jacobson, Lutgard C. Dejonghe and Steven J. Visco

Lawrence Berkeley National Laboratory, Berkeley, CA / USA

Optimization of Solid Oxide Fuel Cell Materials by Experimental Design

Enn Lust, Rainer Küngas, Gunnar Nurk, Indrek Kivi

University of Tartu, Chemistry, Tartu / Estonia

Status and Progress in Development of Metal-Supported Light-Weight SOFC for Mobile Application

Patric Szabo, Asif Ansar, Michael Lang, Thomas Franco, Marco Brandner, Georg Kunschert, Arno Refke, Malko Gindrat, Armin Zagst
German Aerospace Center (DLR), Stuttgart / Germany

High Performance Metal-Supported SOFCs

Rob Hui, Jorg. Oberste Berghaus, C. Decès-Petit, W. Qu
National Research Council of Canada, Vancouver, BC / Canada

Performance of (Ba,Sr)(Co,Fe)O₃ Cathode of Solid Oxide Fuel Cells with Metallic Interconnect

Yongda Zhen, Yiing Mei Wu, San Ping Jiang
Institute of Chemical and Engineering Sciences, Jurong Island / Singapore

Micro-Solid Oxide Fuel Cells: From Thin Film Membranes to a Micro-Fuel Cell System

Anja Bieberle-Hütter, Daniel Beckel, Henning Galinski, Anna Infortuna, Ulrich P. Muecke, Jennifer L.M. Rupp, Thomas Ryll, Barbara Scherrer, Rene Tölke, Ludwig J. Gauckler, Samuel Rey-Mermet, Paul Muralt, Nicole R. Bieri, Nico Hotz, Michael J. Stutz, Dimos Poulikakos, Peter Heeb, Patrik Müller, André Bernard, Roman Gmür, Thomas Hocker
ETH Zurich, Zürich / Switzerland

Micro-SOFC

Micro-Solid Oxide Fuel Cells: From Thin Films to Power Delivering Membranes

Jennifer L. M. Rupp, Daniel Beckel, Henning Galinski, Ashley Harvey, Anja Bieberle-Hütter, Thomas Ryll, Barbara Scherrer, Rene Tölke, Ulrich P. Mücke, Daniel Yesudas, Ludwig J. Gauckler
ETH Zurich, Nonmetallic Inorganic Materials, Zurich, Switzerland

Mechanical Properties of Micro-Tubular SOFCs

Brycen Roy, Nigel Sammes
Colorado School of Mines, Material Science, Golden, CO / USA

Characterization of Electrochemical Properties of Micro-Tubular SOFCs

Kevin V. Galloway (1), Giulio Restuccia (2), Jung-Hoon Song (1), Nigel M. Sammes (1)
(1) Colorado School of Mines, Material Science, Golden, CO / USA
(2) University of Naples, DETEC, Naples / ITALY

Performance of Block-Shaped SOFC Bundle with Anode-Supported Micro Tubular Cells

Takanori Otake (1), Kohki Nagai (1), Yasunobu Mizutani (1), Yoshihiro Funahashi (2), Toshio Suzuki (3), Yoshinobu Fujishiro (3)
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(2) Fine Ceramics Research Association (FCRA), Nagoya / Japan
(3) National Institute of Advanced Industrial Science and Technology (AIST), Nagoya / Japan

Investigation of the Thermal Cycling Behaviour of Micro-Tubular SOFC

Chinnan M. Dikwal, W. Bujalski, K. Kendall

University of Birmingham, Chemical Engineering, Edgbaston / United Kingdom

Electrochemical and Thermal Analysis of a Micro Tubular SOFC

Mustafa Fazil Serincan, Ugur Pasogullari, Nigel M. Sammes

University of Connecticut, Connecticut Global Fuel Cell Center, Storrs, CT / USA

Testing

Application of Non-Destructive Testing to Analyse SOFC Cells and Stacks

Peter Holtappels, Artur Braun, Peter Wyss, Erwin Hack

EMPA, High Performance Ceramics, Dübendorf / Switzerland

Characterization of SOFC Short Stacks and Stacks for Mobile Applications

Michael Lang, Corinna Auer, Stefan Schaarschmitt, Patric Szabo, Andreas Friedrich

German Aerospace Center (DLR), Technical Thermodynamics, Stuttgart / Germany

SOFC Component Testing in a System Context

Mihail Kusnezoff, T. Pfeifer, M. Jahn, C. Lorenz, M. Stelter, W. Urban, S. Thomas, A. Pomarenke, A. Herrmann

Fraunhofer IKTS, Dresden / Germany

Development of Measurement Technologies to Estimate SOFC Electrical Efficiency

Yohei Tanaka, Tohru Kato, Akihiko Momma, Akira Negishi, Ken Kato, Kiyonami Takano, Ken Nozaki

National Institution of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki / Japan

Aspects in Cell Testing of Anode Supported Planar SOFC

Wan Bing Guan, Jin Wang, Le Jin, Ya Nan Wu

Ningbo Institute of Material Technology and Engineering, Ningbo / PR China

Long-Term Endurance Tests of Single Cells and Defining Degradation

Vincent A.C. Haanappel, Britta Röwekamp, Claudia Tropartz, Hartmut Wesemeyer, Martin J. Smith, and L.G.J. (Bert) de Haart

Forschungszentrum Jülich GmbH, IEF-3, Jülich / Germany

Durability and Integrity

Nature of Electrode Degradation in SOFCs

Dimitry Bronin, Boris Kuzin, Denis Osinkin, Igor Yaroslavtsev

Institute of High Temperature Electrochemistry, Ekaterinburg / Russia

Stack Degradation in Dependence of Operation Parameters; the Real-SOFC Sensitivity Analysis

L.G.J. (Bert) de Haart

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Impurity Poisoning of SOFCs: Towards Understanding Chemical Degradation Mechanisms

Kazunari Sasaki, Kengo Haga, Junya Yamamoto, and Kaori Dobuchi
Technology Research Center, Kyushu University, Fukuoka-shi / Japan

Effect of Contamination on the Durability of SOFC Stacks and Modules in Real Operation Condition

Harumi Yokokawa, Teruhisa Horita, Katsuhiko Yamaji, Haruo Kishimoto, Y. P. Xiong, Manuel E. Brito
National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki / Japan

Degradation in Ionic Conductivity of Ni/YSZ Anode Cermets

Volker Sonn, Ellen Ivers-Tiffée
Universität Karlsruhe (TH), IWE, Karlsruhe / Germany

Evaluation of the Performance and Degradation of a SOFC Fed with Biosyngas

Julie Mougín, Benoit Sommacal, Pierre Castelli, Marie Petitjean
LITEN/DTH/LEV, CEA-Grenoble, Grenoble / France

SOFC Fuels and Reforming

Hydrocarbon Direct Oxidation or Internal Reforming? A Critical Discussion from an Elementary Kinetic Viewpoint

Wolfgang G. Bessler
Universität Heidelberg, Interdisciplinary Center for Scientific Computing, Heidelberg / Germany

The Impact and Mitigation of Carbon Formation on Ni-YSZ Anodes from Biomass Gasification Tars

Joshua Mermelstein, Marcos Millan-Agorio, Nigel Brandon
Imperial College of London, Chemical Engineering and Chemical Technology, London / United Kingdom

Numerical Investigation of a Cell-Based Indirect Internal Reforming Tubular Solid Oxide Fuel Cell Operating with Biogas

Takafumi Nishino, Janusz S. Szmyd
AGH University of Science and Technology, Process Engineering, Krakow / Poland

Operation of a Staxera SOFC Stack Fuelled with Cleaned Gas from a Gasifier

Nico Dekker, Bram van der Drift, Luc Rabou, Hans van Wees and Bert Rietveld
ECN Energy Research Centre of the Netherlands, Petten / The Netherlands

SOFC Stack Performance Using Pure Oxygen and Reformate Gas Streams

A. Alan Burke and Louis G. Carreiro
Naval Undersea Warfare Center, Division Newport, Newport, RI / USA

Removal of Hydrogen Sulphide (H₂S) from the Hydrogen Generated by Partial Dehydrogenation Process.

Agata Godula-Jopek, Walter Jehle and Helmut Oberpriller

EADS Deutschland GmbH, EADS Innovation Works Germany, Munich / Germany

Systems and General Topics

European Integrated Project Large-SOFC

Rolf Rosenberg, Ludger Blum (FZJ), Joachim Jacobsen (TOFC), Jari Kiviaho (VTT), Jerri Laine (Wärtsilä), Olivier Tarnowski (RRFCS)

VTT Technical Research Centre of Finland, Espoo / Finland

Disk-Type Seal-Less IT-SOFC CHP System Development

Takashi Miyazawa(1), Kei Hosoi(1), Satoru Yamasaki(2), and Futoshi Nishiwaki(2)

(1) Mitsubishi Materials Corporation, Naka / Japan

(2) The Kansai Electric Power Co., Inc., Amagasaki / Japan

Cost, Performance, and Reliability of SOFC Systems

Nguyen Q. Minh

Minh Consultancy, Fountain Valley, CA / USA

SOFC for m-CHP, APU and Distributed Generation - Application-Driven Development, Testing and Manufacture

Helge Holm-Larsen, John Bøgild Hansen, Joachim Jacobsen, Søren Primdahl, Mette Juhl Jørgensen, Niels Christiansen

Topsoe Fuel Cell A/S, Lyngby / Denmark

Status of SOFC in Series Production and Challenges of System Integration

Jeremy Lawrence, Andreas Reinert, Bjoern Erik Mai, Christian Wunderlich

Staxera GmbH, Dresden / Germany

Plasma Sprayed Oxygen Electrode for Solid Oxide Fuel Cells and High Temperature Electrolyzers

Asif Ansar, G. Schiller, O. Patz, J. B. Gregoire, Z. Ilhan

German Aerospace Center (DLR), Stuttgart / Germany

Closing Session

Solid Oxide Fuel Cells: Where do we stand, where do we have to go, what have we learned at the 8th European SOFC Forum?

Subhash Singhal

Pacific Northwest National Laboratory, Richland, WA / USA

Closing of the 8th European SOFC Forum

Robert Steinberger-Wilckens

Forschungszentrum Jülich GmbH, Jülich / Germany

Closing of the Lucerne Fuel Cell Forum 2008