

**13th International Symposium on
Solid Oxide Fuel Cells
(SOFC-XIII)**

~ Revised Program ~

Co-organized by:

The SOFC Society of Japan
The Electrochemical Society, Inc.

Supported by: (in alphabetical order)

The Ceramic Society of Japan
The Chemical Society of Japan
The Electrochemical Society of Japan
The Institute of Electrical Engineering of Japan
The Japan Institute of Energy
The Japan Institute of Metals and Materials
The Japan Society of Applied Physics
The Japan Society of Mechanical Engineers
Society of Computer Chemistry, Japan
The Solid State Ionics Society of Japan

Financial Supports from: (in alphabetical order)

Commemorative Organization for the Japan World Exposition '70
The Electrochemical Society, Inc.
The Kajima Foundation
The Murata Science Foundation
Nippon Sheet Glass Foundation for Materials Science and Engineering
Okinawa Convention & Visitors Bureau
The SOFC Society of Japan
Suzuki Foundation
Tokuyama Science Foundation

Oral Program

Tuesday

Tuesday, October 8, 2013

Theater

Plenary session

Co-Chair(s): Tatsuya Kawada and Subhash Singhal

- 9:00 **Opening**
- 9:40 OT-01 **Current Status of National SOFC Projects in Japan**
K. Horiuchi (New Energy and Industrial Technology Development Organization, Japan)
- OT-02 **[CANCELED]SECA Program Overview and Status**
S.D. Vora (U. S. DOE, National Energy Technology Laboratory, USA)
- 10:00 OT-03 **The Status of SOFC R&D in the FCH JU Program**
B. De Colvenaer, M. Atanasiu (Fuel Cells and Hydrogen Joint Undertaking, Belgium)
- 10:20-10:40 Coffee Break

Theater

Stacks and Systems III

Co-Chair(s): Massimo Santarelli and Robert Steinberger-Wilckens

- 10:40 OT-18 **AVL SOFC Systems on the Way of Industrialization**
J. Rechberger, M. Reissig, M. Hauth (AVL List GmbH, Austria)
- 11:00 XX-XX **Status and Perspective of the SOFC Center at the University of South Carolina**
X.-D. Zhou (University of South Carolina, USA)
- OT-19 **[CANCELED]Alternative Fuels and Perspectives Solid Oxide Fuel Cells Usage in Air Transport**
L.S. Yanovskiy, A.V. Baykov, V.V. Raznoschikov, I.S. Averkov (Central Institute of Aviation Motors, Russia)
- 11:20 OT-20 **Eneramic[®] Power Generator – A Reliable and Cycleable 100W SOFC System**
S. Reuber, A. Pönicke, C. Wunderlich, A. Michaelis (Fraunhofer Institute for Ceramic Technologies and Systems, Germany)
- 11:40 OT-21 **SOFC System Using a Hot Gas Ejector for Offgas Recycling for High Efficient Power Generation from Propane**
R.-U. Dietrich, A. Lindermeir, C. Immisch (CUTEC Institut GmbH, Germany), C. Spieker, C. Spitta (Zentrum für BrennstoffzellenTechnik, Germany), S. Stenger, R. Leithner (TU Braunschweig, Germany), T. Küster, A. Oberland (TU Clausthal, Germany)
- 12:00-13:30 Lunch & Poster Session

New Applications I

Co-Chair(s): Alan Atkinson and Tohru Yamamoto

- 13:30 OT-22 **SOFCOM Project: Proof-of-Concept of WWTU Plant Feeding a SOFC CHP System Integrated with CO₂ Removal**
M. Santarelli (Politecnico di Torino, Italy), J. Kiviaho (Technologian Tutkimuskeskus VTT, Finland), L. Meucci (Società Metropolitana Acque Torino, Italy), L. Vega (MATGAS 2000 A.I.E., Spain), V. Chiodo (CNR-ITAE, Italy), J. Jevulski (Instytut Energetyki, Poland), H. Spliethoff (Technical University of Munich, Germany)
- 13:50 OT-23 **SOFC Operation: Direct Fuel Utilization, Pressurization and Reversibility**
N.Q. Minh (University of California, San Diego, USA)
- 14:10 OT-24 **Stack Temperature Estimation in System Environment by Utilizing the Design of Experiments Methodology**
M. Halinen, A. Pohjoranta, J. Pennanen, J. Kiviaho (VTT Technical Research Centre of

- Finland, Finland)
- 14:30 OT-25 **Pressurized Solid Oxide Fuel Cells: Measurements of Impedance Spectra and Anodic Concentration Polarization**
P.C. Wu, H.S. Jheng, S.S. Shy (National Central University, Taiwan)
- 14:50-15:10 Coffee Break
- 15:10 OT-26 **An Innovative SOFC Hybrid Based Prime Supply for Telecom Applications**
M. Ferraro, G. Brunaccini, G. Napoli, F. Sergi, G. Dispenza, N. Randazzo, V. Antonucci (National Research Council of Italy, Italy)
- 15:30 OT-27 **2-D Simulation of Heat and Mass Transfer Effects on Charge/Discharge Characteristics of a Solid Oxide Redox Flow Battery**
H. Ohmori (Konica Minolta, Inc., Japan), H. Iwai (Kyoto University, Japan)
- 15:50 OT-28 **Coupling and Modeling an SOFC System with a High-Performing Metal Hydride Storage**
A. Mossadegh pour, R. Steinberger-Wilckens, A. Dhir (University of Birmingham, UK)
- 16:10 OT-08 **Development of Solid Oxide Fuel Cells at Versa Power Systems and FuelCell Energy**
B. Borglum (Versa Power Systems, Canada), H. Ghezal-Ayagh (FuelCell Energy, Inc., USA)
- OT-29 **[CANCELED] Power-to-Storage – The Use of an Anode-Supported Solid Oxide Fuel Cell as a High-Temperature Battery**
N.H. Menzler, A. Hospach, L. Niewolak, M. Bram, O. Tokariev, C. Berger, P. Orzessek, W.J. Quadackers, Q. Fang, H.P. Buchkremer (Forschungszentrum Jülich, Germany)
- 16:30 OT-14 **Saint-Gobain's All Ceramic SOFC Stack: Architecture and Performance**
S. Giles, G. Lin, A. Mohanram, Y. Narendar, J. Pietras, F.C. Qi, W.R. Robbins, R.J. Sliwoski (Saint-Gobain NRDC, USA)
- 16:50 OT-15 **Development of a New Concept SOFC at Murata**
Y. Tomoshige, N. Mori, M. Iha, T. Takada, T. Konoike (Murata Manufacturing Co., Ltd, Japan)
- 17:10-19:30 Poster Session (Co-Chairs: Fumitada Iguchi and Bilge Yildiz)

Room A Anode I

Co-Chair(s): Ellen Ivers-Tiffée and Yusuke Shiratori

- 10:40 OA-18 **Improving the Performance of SOFC Anodes by Decorating Perovskite with Ni Nanoparticles**
S. Boulfrad (King Abdullah University of Science and Technology, Saudi Arabia), M. Cassidy (University of St Andrews, UK), E. Traversa (King Abdullah University of Science and Technology, Saudi Arabia), J.T.S. Irvine (University of St Andrews, UK)
- 11:00 OA-19 **Effects of Metal Additives on Power Generating Property of Direct Hydrocarbon Type SOFC Using LaGaO₃ Electrolyte**
T. Ishihara, T.H. Shin, S. Ida (Kyushu University, Japan)
- 11:20 OA-20 **Capabilities and Challenges for Tungsten Carbide Anodes**
A. Torabi (University of Toronto, Canada), T.H. Etsell (University of Alberta, Canada)
- 11:40 OA-21 **Ni-Zr_{0.75}Ce_{0.25}O_{2-δ} Composite as Steam Methane Reformable SOFC Anode**
S. Biswas, A.D. Sharma (CSIR-Central Glass & Ceramic Research Institute, India), A. Buragohain, C.V. Stayanarayana (CSIR-National Chemical Laboratory, India), R.N. Basu (CSIR-Central Glass & Ceramic Research Institute, India)
- 12:00-13:30 Lunch & Poster Session

Anode II

Co-Chair(s): Min-Fang Han and John Irvine

- 13:30 OA-22 **Development of Redox Resistant Infiltrated Tubular SOFCs**
A.R. Hanifi, X. Chen, J. Seens (University of Alberta, Canada), P. Sarkar (Alberta Innovates-Technology Futures, Canada), T.H. Etsell (University of Alberta, Canada)
- 13:50 OA-23 **Carbon-Resistant Micro Tubular SOFCs Fabricated by Co-Spinning Process Based on a Phase-Inversion Method**
X. Meng (Shanghai Jiao Tong University, China), X. Gong, N. Yang, X. Tan (Shandong University of Technology, China), Y. Yin, Z.-F. Ma (Shanghai Jiao Tong University, China)
- 14:10 OA-24 ***In Situ* Spectroscopic Studies of Carbon Formation in SOFCs Operating with Syn-Gas**
M.D. McIntyre, J.D. Kirtley, D.M. Halat, K.W. Reeping, R.A. Walker (Montana State University, USA)
- 14:30 OA-25 **Beneficial Effects of Low ppm Levels of H₂S on the Performance of Ni-YSZ SOFC Anodes in Syngas Fuels**
A. Singh, S. Paulson, J.M. Hill, V. Birss (University of Calgary, Canada)
- 14:50-15:10 Coffee Break

Alternative Fuels

Co-Chair(s): Min-Fang Han and John Irvine

- 15:10 OA-26 **Fuel-Flex SOFC Running on Internal Gradual Reforming**
S.D. Nobrega, F.C. Fonseca (Instituto de Pesquisas Energéticas, Brazil), P. Gelin (CNRS-Université de Lyon, France), F.B. Noronha (Instituto Nacional de Tecnologia, Brazil), S. Georges, M.C. Steil (CNRS-Université de Grenoble, France)
- 15:30 OA-27 **Biomass Gasifier-SOFC Systems: From Electrode Studies to the Development of Integrated Systems and New Applications**
P.V. Aravind, M. Liu, L. Fan, E. Promes, S.Y. Giraldo, T. Woudstra (Delft University of Technology, Netherlands)
- 15:50 OA-28 **[CANCELED] Methanol as an Oxygenated SOFC Fuel: An *In Situ* Optical Analysis of the Fuel Utilization Chemical Mechanism**
M.B. Pomfret (U.S. Naval Research Laboratory, USA), D.A. Steinhurst (Nova Research, Inc., USA), J.C. Owrutsky (U.S. Naval Research Laboratory, USA)
- 16:10 OA-29 **Performance Characteristics of Liquid Antimony Anode Direct Carbon Fuel Cell**
H. Wang, Y. Shi (Tsinghua University, China), W. Yuan (Shenhua Ningxia Coal Industry Group Co. Ltd., China), T. Cao, N. Cai, X. Liang (Tsinghua University, China)
- 16:30 OA-14 **Full Ceramic Fuel Cells Based on Strontium Titanate Anodes, an Approach towards More Robust SOFCs**
P. Holtappels (Technical University of Denmark, Denmark), J.T.S. Irvine (University of St Andrews, UK), B. Iwanschitz (Hexis AG, Switzerland), L.T. Kuhn (Technical University of Denmark, Denmark), L.Y. Lu (University of St Andrews, UK), Q. Ma, J. Malzbender (Forschungszentrum Jülich, Germany), A. Mai (Hexis AG, Switzerland), T. Ramos (Technical University of Denmark, Denmark), J. Rass-Hansen (Topsoe Fuel Cell A/S, Denmark), B.R. Sudireddy (Technical University of Denmark, Denmark), F. Tietz, V. Vasechko (Forschungszentrum Jülich, Germany), S. Veltzé (Technical University of Denmark, Denmark), M.C. Verbraeken (University of St Andrews, UK)
- 16:50 OA-15 **Investigation of Microstructure of Sr-Doped Lanthanum Vanadium Oxide Anode Based on SDC Electrolyte**
K. Tamm, R. Raudsepp, R. Kanarbik, P. Möller, G. Nurk, E. Lust (University of Tartu, Estonia)
- 17:10-19:30 Poster Session (Co-Chairs: Fumitada Iguchi and Bilge Yildiz)

Electrolyte/Thin Film II

Co-Chair(s): Haruo Kishimoto and Nigel Sammes

- OB-16 **[CANCELED] Novel Multilayered PVD-Coating in a Roll to Roll Mass Production Process**
M.W. Lundberg, R. Berger, J. Westlinder, N. Folkesson, H. Holmberg (AB Sandvik Materials Technology, Sweden)
- 10:40 OT-07 **Recent Progress of SOFC Combined Cycle System with Segmented-in-Series Tubular Type Cell Stack at MHI**
Y. Kobayashi, Y. Ando, M. Nishiura, H. Kishizawa, M. Iwata, N. Mataka, K. Tomida (Mitsubishi Heavy Industries, Ltd., Japan)
- OB-18 **[CANCELED] Sol-Gel Thin-Film Electrolyte Anode-Supported SOFC – From Layer Development to Stack Testing**
N.H. Menzler, F. Han, D. Sebold, Q. Fang, L. Blum, H.P. Buchkremer (Forschungszentrum Jülich, Germany)
- 11:00 OB-19 **Ultimate Performance of Anode-Supported SOFC by Realizing Thin-Film Electrolyte and Nano-Structure Electrode**
H.-S. Noh, K.J. Yoon, B.-K. Kim, H.-J. Je, H.-W. Lee, J.-H. Lee, J.-W. Son (KIST, Korea)
- 11:20 OB-20 **YSZ Films Prepared by Reactive Magnetron Sputtering: Effect of the Thickness on the Electrical Properties**
P. Briois (IRTES-LERMPS, UTBM, France), L. Yu (LEPMI, INPG-ENSEEG, France), M.A.P. Yazdi (IRTES-LERMPS, UTBM, France), S. Georges (LEPMI, INPG-ENSEEG, France), A. Billard (IRTES-LERMPS, UTBM, France)
- 11:40 OB-21 **Atomic Layer Deposition, a Key Technique for Processing Thin-Layered SOFC Materials - Case of Epitaxial Thin Layers of CeO₂ Catalyst**
A. Marizy, T. Désaunay, D. Chery (CNRS, ENSCP Chimie-Paristech, PSL, France), P. Roussel (CNRS, Ecole Nationale Supérieure de Chimie de Lille, France), A. Ringuedé, M. Cassir (CNRS, ENSCP Chimie-Paristech, PSL, France)
- 12:00-13:30 Lunch & Poster Session

Electrolyte/Thin Film III

Co-Chair(s): Enrico Traversa and Shaorong Wang

- 13:30 OB-22 **Performance of Ultra-Thin Film Solid Oxide Fuel Cells in Methane and Natural Gas Fuels: The Role of Electrode Microstructure**
Y. Takagi, K. Kerman, S. Ramanathan (Harvard University, USA)
- 13:50 OB-23 **Electrical Characterization of YSZ Thin Films Using a Calibrated Platinum Micro-Electrode**
S. Georges, N. Bailly, E. Djurado (LEPMI, CNRS-Grenoble INP-Université de Savoie-Université Joseph Fourier, France)

Proton Conducting Fuel Cells

Co-Chair(s): Enrico Traversa and Shaorong Wang

- 14:10 OB-24 **Advanced Electrodes for Intermediate Temperature Proton Conducting Fuel Cell**
G. Taillades, P. Pers, P. Batocchi, M. Taillades (Université Montpellier 2, France)
- 14:30 OB-25 **Micro-Protonic Ceramic Fuel Cells with Y:BaZrO₃ Electrolyte Prepared by Pulsed Laser Deposition (PLD)**
K. Bae, D.Y. Jang, H. Jung, J.W. Kim (Korea University, Korea), J.-W. Son (KIST, Korea), J.H. Shim (Korea University, Korea)
- 14:50-15:10 Coffee Break

Sealing

Co-Chair(s): Enrico Traversa and Shaorong Wang

- 15:10 OB-26 **Effect of Ceramic Filler Particles on the Sealing Capability of a SrO-Based Glass Seal**
H.-J. Je, K.J. Yoon, J.-W. Son, J.-H. Lee, B.-K. Kim, H.-W. Lee (KIST, Korea)
- 15:30 OB-27 **SOFC Sealing with Thermiculite 866 and Thermiculite 866 LS**
J.R. Hoyes (Flexitallic Ltd., UK), M. Rautanen (VTT, Finland)
- 15:50 OB-28 **Long Term Behavior of Viscous High-Temperature Sealing Glasses**
J. Suffner, C. Dobler (Schott AG, Germany)
- 16:10 OB-29 **Glass Ceramic Seal for Electrochemical Devices**
S.T. Reis (Saint-Gobain Innovative Materials, USA), M. Schwartz (Saint-Gobain Recherche, France)
- 16:30 OB-14 **Effect of Thermal-Sprayed $Mn_{1.5}Co_{1.5}O_4$ Coating on Oxidation Suppression of Metallic Interconnects**
K.-Z. Fung, S.-Y. Tsai, H.-C. Ho (National Cheng Kung University, China)
- 16:50 OB-15 **Electrodeposition Method for SOFC Interconnector Coating**
S. Inoue, H. Nonaka, T. Saito, M. Yoda, Y. Takuwa (Osaka Gas Co, Ltd., Japan)
- 17:10-19:30 Poster Session (Co-Chairs: Fumitada Iguchi and Bilge Yildiz)

Oral Program
Wednesday

Wednesday, October 9, 2013

Theater

New Applications II

Co-Chair(s): Koichi Eguchi and Gyeong Man Choi

- 9:00 OT-30 **300 W SOFC-Generator with Endothermic Reforming of Propane and Other Innovative Concepts**
C. Szepanski, A. Lindermeir, R.-U. Dietrich (CUTEC Institut GmbH, Germany), S. Stenger, R. Leithner (TU Braunschweig, Germany), R. Deichmann, L. Dörrer, G. Borchardt (TU Clausthal, Germany)
- 9:20 OT-31 **Direct Flame Fuel Cell Performance Using a Multi-Element Diffusion Flame Burner**
Y.Q. Wang, Y.X. Shi, X.K. Yu, N.S. Cai, S.Q. Li (Tsinghua University, China)

Cell Design and Performance I

Co-Chair(s): Koichi Eguchi and Gyeong Man Choi

- 9:40 OT-32 **Development of Medium-Temperature Solid Oxide Fuel Cell Materials and Single Cells in Estonia**
E. Lust, G. Nurk, P. Möller, I. Kivi, R. Kanarbik, K. Tamm, A. Heinsaar (University of Tartu, Estonia)
- 10:00 OT-33 **Performance of Tubular Direct Carbon Fuel Cell Based On an Anode Support Solid Oxide Fuel Cell**
T.-H. Lim, J.-W. Lee, S.-B. Lee, S.-J. Park, R.-H. Song (KIER, Korea)
- 10:20-10:40 Coffee Break
- 10:40 OT-34 **“Evolved Materials and Innovative Design for High Performance, Durable and Reliable SOFC Cell and Stack” Presentation and Status of the European Project EVOLVE**
R. Costa, A. Ansar (German Aerospace Center, Germany)
- 11:00 OT-35 **Fabrication of Laminate-Type SOFC; Printed Fuel Cell**
S. Suda (Shizuoka University, Japan), J.P. Wiff, S. Shimada (FCO Power Inc., Japan)
- 11:20 OT-36 **Fabrication and Performance of Ceramic Anode-Supported Solid Oxide Fuel Cells**
Z. Yang, Z. Pang, T. Zhu, Z. Zheng, M. Han (China University of Mining and Technology, China)
- 11:40 OT-37 **Cathode Supports of SOFCs with a Hierarchical Pore Structure**
D.H. Dong, X. Shao, Z.T. Wang, G.M. Parkinson, C.-Z. Li (Curtin University of Technology, Australia)

Stacks and Systems

Co-Chair(s): Koichi Eguchi and Gyeong Man Choi

- 12:00 OT-16 **Microtubular Solid Oxide Fuel Cells (mSOFCs)**
M. Kendall (Adelan Ltd., UK), A.D. Meadowcroft, K. Kendall (University of Birmingham, UK)
- 12:20 OT-17 **Development of Microtubular SOFCs for Portable Power Sources**
H. Sumi, T. Yamaguchi, K. Hamamoto, T. Suzuki, Y. Fujishiro (AIST, Japan)

Metal Supported Cells

Co-Chair(s): Koichi Eguchi and Gyeong Man Choi

- 12:40 OA-04 **Low-Cost, REDOX-Stable, Low-Temperature SOFC Developed by Ceres Power for Multiple Applications: Latest Development Update**
R. Leah, A. Bone, M. Lankin, A. Selcuk, R. Pierce, L. Rees, D. Corcoran, P. Muhl, Z. Dehaney-Steven, C. Brackenbury, M. Selby, S. Mukerjee (Ceres Power Ltd., UK)

13:00-18:30 Excursion (optional)
18:30-21:00 Banquet

Room A Processing

Co-Chair(s): Jean-Marc Bassat and San Ping Jiang

- 9:00 OA-30 **Microstructural Engineering of SOFC and SOEC Electrode Interfaces**
J.T.S. Irvine (University of St Andrews, UK)
- 9:20 OA-31 **SOFC Anode Fabricated by Magnetically Aligning of Ni Particles**
K. Nagato, N. Shikazono (The University of Tokyo, Japan), A. Weber, D. Klotz (Karlsruher Institut für Technologie, Germany), M. Nakao (The University of Tokyo, Japan), E. Ivers-Tiffée (Karlsruher Institut für Technologie, Germany)
- 9:40 OA-32 **Core-Shell Structured $\text{Sr}_{0.88}\text{Y}_{0.08}\text{TiO}_3\text{-Ce}_{0.8}\text{Sm}_{0.2}\text{O}_{1.9}$ Composite as an Anode for Solid Oxide Fuel Cells Operating with CH_4**
W. Yang, Z. Ma, C. Sun, L. Chen (Key Laboratory for Renewable Energy, Chinese Academy of Sciences, China)
- 10:00 OA-33 **Novel In-Situ Sintering Spinel Composite Cathodes for Metal Supported SOFCs**
E. Dietzen, N. Trofimenko, M. Kusnezoff, V. Sauchuk, C. Belda, A. Michaelis (Fraunhofer Institute of Ceramic Technologies and Systems, Germany)
- 10:20-10:40 Coffee Break

Cathode I

Co-Chair(s): Jean-Marc Bassat and San Ping Jiang

- 10:40 OA-34 **Oxygen Electrode Kinetics and Surface Composition of Dense $(\text{La}_{0.75}\text{Sr}_{0.25})_{0.95}\text{MnO}_3$ on YSZ**
Y. Wu, K.V. Hansen, K. Norrman, T. Jacobsen, M.B. Mogensen (Technical University of Denmark, Denmark)
- 11:00 OA-35 **Impact of Chemical Composition of Strontium-Doped Lanthanum Manganite Cathode on Microstructural Change and Performance during Long-Term Operation of SOFCs**
T. Matsui, Y. Mikami, H. Muroyama, K. Eguchi (Kyoto University, Japan)
- 11:20 OA-36 **Equivalent Circuit Model Analysis of LSM/ScSZ Composite Cathodes Prepared by Impregnating LSM/ScSZ Powder Slurry into a Prefabricated Porous ScSZ Layer**
H. Shimada (Tokyo Institute of Technology, Japan), A. Hagiwara (Tokyo Electric Power Company Inc., Japan), M. Ihara (Tokyo Institute of Technology, Japan)
- 11:40 OA-37 **The Application of Ion Beam Analysis to Mass Transport Studies in Mixed Electronic Ionic Conducting Electrodes**
J.A. Kilner, H.T. Lozano, M. Burriel, S. Cook (Imperial College London, UK), J. Druce (Kyushu University, Japan)

Anode

Co-Chair(s): Jean-Marc Bassat and San Ping Jiang

- 12:00 OA-16 **Performance of LST-GDC Composite Anodes for Solid Oxide Fuel Cells**
L.Q. Fan, Y.W. Wang, H. Huo, Y.P. Xiong (Harbin Institute of Technology, China)
- 12:20 OA-17 **Fabrication of Low Ni-Containing SOFC Anode Using Mixed Ionic and Electronic Conductors**
R. Kikuchi, T. Minami, A. Takagaki, T. Sugawara, S.T. Oyama (The University of Tokyo, Japan)
- 13:00-18:30 Excursion (optional)
18:30-21:00 Banquet

Room B
Modeling and Simulation I
Co-Chair(s): Olaf Deutschmann and Tomofumi Tada

- 9:00 OB-30 **Ab Initio Calculation of the Defect Structure of Ceria**
M. Martin, T. Zacherle, A. Schrieffer, R.A. De Souza, S. Grieshammer (RWTH Aachen University, Germany)
- 9:20 OB-31 **Computational Studies on Ionic and Electronic Conduction of Rare-Earth-Based Oxides Based on Density Functional Theory**
M. Sakaue, H. Kasai (Osaka University, Japan), T. Ishihara (Kyushu University, Japan)
- 9:40 OB-32 **Determining Surface Chemistry and Vibrational Properties of SOFC Anode Materials Through Ab Initio Calculations**
M. Parkes (Imperial College London, UK), K. Refson (Rutherford Appleton Laboratory, UK), M. d'Avezac (University College London, UK), G. Offer, N. Brandon (Imperial College London, UK), N. Harrison (Rutherford Appleton Laboratory, UK)
- 10:00 OB-33 **First-Principles Calculations of the Anodic Oxidation Reactions of Solid Oxide Fuel Cell: Oxygen Potential Effect on Nickel (111) Surface**
S. Liu, T. Ishimoto, H. Kohno, M. Koyama (Kyushu University, Japan)
- 10:20-10:40 Coffee Break
- 10:40 OB-34 **Parallelized Meso-Scale Kinetic Monte Carlo Simulations for SOFC Characterization**
T. Tada (Tokyo Institute of Technology, Japan), N. Watanabe (Mizuho Information and Research Institute, Inc., Japan)
- 11:00 OB-35 **Coverage Dependent Thermodynamics for Sulfur Poisoning of Ni Based Anodes**
D.S. Monder (IIT Hyderabad, India), K. Karan (University of Calgary, Canada)
- 11:20 OB-36 **Theoretical Study on the Effect of Three-Dimensional Porous Structure on the Sintering of Nickel Nanoparticles in the Ni/YSZ Anode**
J. Xu, Y. Higuchi, N. Ozawa, K. Sato, T. Hashida, M. Kubo (Tohoku University, Japan)
- 11:40 OB-37 **Cellular Automata Modelling of Microstructure Evolution of Ni Cermet Anode**
X. Wang, A. Atkinson (Imperial College London, UK)

Metal Supported Cells
Co-Chair(s): Olaf Deutschmann and Tomofumi Tada

- 12:00 OA-05 **The Status of Metal-Supported SOFC Development and Industrialization at Plansee**
T. Franco, M. Haydn (Plansee SE, Austria), A. Weber (Karlsruhe Institute of Technology, Germany), W. Schafbauer (Plansee SE, Austria), L. Blum, U. Packbier, D. Roehrens, N.H. Menzler (Forschungszentrum Jülich, Germany), J. Rechberger (AVL List GmbH, Austria), A. Venskutonis, L.S. Sigl (Plansee SE, Austria), H.-P. Buchkremer (Forschungszentrum Jülich, Germany)
- 12:20 OA-13 **Long Term Performance of Stacks with Chromium-Based Interconnects (CFY)**
M. Brandner, C. Bienert (Plansee SE, Austria), S. Megel, M. Kusnezoff, N. Trofimenko, V. Sauchuk (Fraunhofer Institute of Ceramic Technologies and Systems, Germany), A. Venskutonis, W. Kraussler (Plansee SE, Austria), A. Michaelis (Fraunhofer Institute of Ceramic Technologies and Systems, Germany), L.S. Sigl (Plansee SE, Austria)

Electrolyte
Co-Chair(s): Olaf Deutschmann and Tomofumi Tada

- 12:40 OB-17 **Evaluation of Stress Condition of Operated Anode Supported-Type SOFC under Operating Conditions Based on Raman Scattering Spectroscopy**
S. Onuki, S. Onodera, F. Iguchi, M Shimizu, T. Kawada, H. Yugami (Tohoku University, Japan)
- 13:00-18:30 Excursion (optional)
- 18:30-21:00 Banquet

Oral Program
Thursday

Thursday, October 10, 2013

Theater

Stacks and Systems

Co-Chair(s): Karl Föger and Nguyen Minh

- 9:00 OT-05 **Introduction of Solid Oxide Fuel Cell Research in SICCAS**
S.R. Wang, Z.L. Zhan, T.L. Wen (Shanghai Institute of Ceramics, Chinese Academy of Sciences, China)
Deputy: Yixiang Shi (Tsinghua University)
- 9:20 OT-06 **Status of the Solid Oxide Fuel Cell Development at Topsoe Fuel Cell A/S and DTU Energy Conversion**
N. Christiansen, S. Primdahl (Topsoe Fuel Cell A/S, Denmark), M. Wandel, S. Ramousse, A. Hagen (Danish Technical University, Denmark)
- 9:40 OT-09 **Solid Oxide Fuel Cell – Gas Turbine Hybrid Power Plant**
M. Henke, C. Willich, M. Steilen, J. Kallo, K.A. Friedrich (German Aerospace Center, Germany)
- 10:00 OT-10 **Hexis' SOFC System Galileo 1000 N – Lab and Field Test Experiences**
A. Mai, B. Iwanschitz, J.A. Schuler, R. Denzler, V. Nerlich, A. Schuler (Hexis Ltd., Switzerland)
- 10:20-10:40 Coffee Break
- 10:40 OT-11 **Development and Manufacturing of SOFC-Based Products at SOFCpower SpA**
O. Bucheli (HTceramix SA, Switzerland), M. Bertoldi, S. Modena, A.V. Ravagni (SOFCpower SpA, Italy)
- 11:00 OT-12 **CFY-Stacks for Use in Stationary SOFC and SOEC Applications**
S. Meigel, C. Dosch, S. Rothe, M. Kusnezoff, N. Trofimenko, V. Sauchuk, A. Michaelis (Fraunhofer Institute for Ceramic Technologies and Systems, Germany), C. Bienert, M. Brandner, A. Venskutonis, W. Kraussler, L.S. Sigl (Plansee SE, Austria)
- 11:20 OT-13 **Comparative Experimental and Technical-Economic Evaluation of a 1 kW_{el} vs. 2.5 kW_{el} Tubular SOFC System for Residential Applications**
C. Boigues-Muñoz, S.J. McPhail (ENEA, Italy), G. Cinti, D. PENCHINI (Università degli Studi di Perugia, Italy), F. Polonara (Università Politecnica della Marche, Italy)
- (Cathode Materials, Processing and Performance)**
- 11:40 P192 **Microstructural Analysis of an LSCF Cathode Using In-Situ Tomography and Simulation**
S.J. Cooper, M. Kishimoto, F. Tariq (Imperial College London, UK), R.S. Bradley (University of Manchester, UK), A.J. Marquis, N.P. Brandon, J. Kilner (Imperial College London, UK), P.R. Shearing (University College London, UK)
- 12:00-13:30 Lunch & Poster Session

Metal Supported Cells

Co-Chair(s): Sergey Bredikhin and Xiao-Dong Zhou

- 13:30 OA-06 **Metal Supported Solid Oxide Fuel Cells: From Materials Development to Single Cell Performance and Durability Tests**
J. Mougín, A. Brevet (CEA-LITEN, France), J.C. Grenier (CNRS, Université de Bordeaux, ICMCB, France), R. Laucournet (CEA-LITEN, France), P.O. Larsson (HÖGANÄS AB, Sweden), D. Montinaro (SOFCpower, Italy), L.M. Rodriguez-Martinez, M.A. Alvarez (IKERLAN, Spain), M. Stange (SINTEF, Norway), S. Trombert (BAIKOWSKI, France)

- 13:50 OA-07 **Progress in Metal-Supported SOFCs Using Hydrogen and Methane Fuels**
O. Kesler, M. Cuglietta, J. Harris, J. Kuhn, M. Marr, C. Metcalfe (University of Toronto, Canada)
- 14:10 OA-09 **Coating Developments for Metal-Supported Solid Oxide Fuel Cells**
M. Stange, C. Denonville, Y. Larring, C. Haavik (SINTEF, Norway), A. Brevet, A. Montani, O. Sicardy, J. Mougín (CEA-LITEN, France), P.O. Larsson (HÖGANÄS AB, Sweden)
- 14:30 OA-10 **Oxidation Behavior of Fe-Cr Ferritic Alloy for SOFC Interconnects ZMG232G10 in Air and H₂/H₂O**
K. Yamamura, T. Uehara, S. Tanaka, N. Yasuda (Hitachi Metals, Ltd., Japan)
- 14:50-15:10 Coffee Break
- 15:10 OA-11 **Nano Coated Interconnects for SOFC (NaCoSOFC)**
J. Froitzheim (Chalmers University of Technology, Sweden), A. Magraso (University of Oslo, Norway), T. Holt (Topsoe Fuel Cells, Denmark), M.W. Lundberg (AB Sandvik Materials Technology, Sweden), H.F. Windisch (Chalmers University of Technology, Sweden), R. Berger (Sandvik Materials Technology, Sweden), R. Sachitanand (Chalmers University of Technology, Sweden), J. Westlinder (Sandvik Materials Technology, Sweden), J.E. Svensson (Chalmers University of Technology, Sweden), R. Haugrud (University of Oslo, Norway)
- 15:30 OA-12 **Improvement of Oxidation Resistance of Crofer 22 APU with Modified Surface for Solid Oxide Fuel Cell Interconnects**
N. Demeneva, S. Bredikhin (ISSP RAS, Russia)
- (Cell Design, Processing, Performance and Durability)**
- 15:50 P048 **Redox Anode Supported Cell Performances Tested with Different Cathode Materials**
G.D. Domenicantonio, R. Ihringer (Fiaxell Sàrl, Switzerland)
- 16:30-19:00 Poster Session (Co-Chairs: Shin-ichi Hashimoto and Yueping Xiong)

Room A

Durability and Reliability I

Co-Chair(s): Mark Williams and Harumi Yokokawa

- 9:00 OT-38 **[CANCELED] A Global Framework for Examination of Degradation in SOFC**
K. Gerdes (U.S. DOE, NETL, USA), M.C. Williams (URS Corp., USA), R. Gemmen, B. White (U.S. DOE, NETL, USA)
- 9:20 OT-39 **Report of Five-Year NEDO Project on Durability/Reliability of SOFC Stacks**
H. Yokokawa (AIST / The University of Tokyo, Japan)
- 9:40 OT-40 **Durability Verification of Residential SOFC CHP System**
M. Suzuki, Y. Takuwa, S. Inoue, K. Higaki (Osaka Gas Co., Ltd., Japan)
- 10:00 OT-41 **Chemical Degradation of SOFCs: External Impurity Poisoning and Internal Diffusion-Related Phenomena**
K. Sasaki, T. Yoshizumi, K. Haga, H. Yoshitomi, T. Hosoi, Y. Shiratori, S. Taniguchi (Kyushu University, Japan)
- 10:20-10:40 Coffee Break
- 10:40 OT-42 **Multimodal Assessment of Durability and Reliability of Flattened Tubular SIS Stacks**
Y. Matsuzaki, K. Nakamura, T. Somekawa, K. Fujita (Tokyo Gas Co., Ltd., Japan), T. Horita, K. Yamaji, H. Kishimoto (AIST, Japan), M. Yoshikawa, T. Yamamoto, Y. Mugikura (Central Research Institute of Electric Power Industry, Japan), H. Yokokawa, N. Shikazono (The University of Tokyo, Japan), K. Eguchi, T. Matsui (Kyoto University, Japan), S. Watanabe, K. Sato, T. Hashida, T. Kawada (Tohoku University, Japan), K. Sasaki, S. Taniguchi (Kyushu University, Japan)

- 11:00 OT-43 **Durability Testing of a Short SOFC Stack under Direct Internal Steam Reforming of Methane**
Q. Fu (European Institute for Energy Research, Germany), P. Freundt (ElringKlinger AG, Germany), J. Bomhard (European Institute for Energy Research, Germany), F. Hauler (ElringKlinger AG, Germany)
- 11:20 OT-44 **Local Activation and Degradation of Electrochemical Processes in a SOFC**
Z. Wuillemin, Y. Antonetti, C. Beetschen, O. Millioud (HTceramix SA, Switzerland), S. Ceschini (SOFCpower SpA, Italy), H. Madi, J. Van herle (Ecole Polytechnique Fédérale de Lausanne, Switzerland)
- 11:40 OT-45 **Intelligent Analysis for Evaluating Physical Degradation using Acoustic Emission**
K. Fukui (Osaka University, Japan), K. Sato, T. Hashida, J. Mizusaki (Tohoku University, Japan), M. Numao (Osaka University, Japan)
- 12:00-13:30 Lunch & Poster Session

Durability and Reliability II

Co-Chair(s): Viola Birss and Jong-Ho Lee

- 13:30 OT-46 **Application of FIB-TOF-SIMS and FIB-SEM-EDX Methods for the Analysis of Element Mobility in Solid Oxide Fuel Cells**
R. Kanarbik, P. Möller, I. Kivi, E. Lust (University of Tartu, Estonia)
- 13:50 OT-47 **Microstructural Change of Ni-YSZ Anode under Thermal Cycles with Redox Treatments**
M. Kubota, H. Muroyama, T. Matsui, K. Eguchi (Kyoto University, Japan)
- 14:10 OT-48 **Surface Segregation and Chromium Deposition and Poisoning on $\text{La}_{0.6}\text{Sr}_{0.4}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ Cathodes of Solid Oxide Fuel Cells**
L. Zhao (Curtin University, Australia), J. Drennan (The University of Queensland, Australia), C. Kong (The University of New South Wales, Australia), S. Amarasinghe (Ceramic Fuel Cells Ltd., Australia), S.P. Jiang (Curtin University, Australia)
- 14:30 OT-49 **Chromium Poisoning of $\text{La}_2\text{NiO}_{4+\delta}$ Cathodes**
S.-N. Lee, A. Atkinson, J. Kilner (Imperial College London, UK)
- 14:50-15:10 Coffee Break
- 15:10 OT-50 **Sulfur Poisoning of Ni/Stabilized-Zirconia Anodes – Effect on Long-Term Durability**
A. Hauch, A. Hagen, J. Hjelm, T. Ramos (Technical University of Denmark, Denmark)
- 15:30 OT-51 **Cubic-Tetragonal Phase Transformation of YSZ Electrolyte in SOFCs**
T. Shimonosono, H. Kishimoto, M. Nishi, M.E. Brito, K. Yamaji, H. Yokokawa, T. Horita (AIST, Japan)
- 15:50 OT-52 **The Effect of Ferroelasticity of $\text{La}_{1-x}\text{Sr}_x\text{Co}_{1-y}\text{Fe}_y\text{O}_{3-\delta}$ on the Mechanical Stability of Solid Oxide Fuel Cells**
Y. Kimura (Tohoku University, Japan), J. Tolchard, M.-A. Einarsrud, T. Grande (Norwegian University of Science and Technology, Norway), K. Amezawa, S. Hashimoto, T. Kawada (Tohoku University, Japan)
- 16:10 OT-53 **Chemical Expansion in SOFC Materials: Ramifications, Origins, and Mitigation**
S.R. Bishop (Kyushu University, Japan), D. Marrocchelli (Massachusetts Institute of Technology, USA), N. Perry (Kyushu University, Japan), H.L. Tuller (Massachusetts Institute of Technology, USA), G. Watson (Trinity College Dublin, Ireland), B. Yildiz (Massachusetts Institute of Technology, USA), K. Amezawa (Tohoku University, Japan), J. Kilner (Imperial College London, UK)
- 16:30-19:00 Poster Session (Co-Chairs: Shin-ichi Hashimoto and Yueping Xiong)

Room B Cathode II

Co-Chair(s): John Kilner and Keiji Yashiro

- 9:00 OA-38 **Defect Structure of $\text{BaCo}_{0.7}\text{Fe}_{0.22}\text{Nb}_{0.08}\text{O}_{3-\delta}$**
T. Lee, H.-I. Yoo (Seoul National University, Korea)
- 9:20 OA-39 **Influence of Donor Doping on Cathode Performance: $(\text{La,Sr})(\text{Ti,Fe})\text{O}_{3-\delta}$ Case Study**
N.H. Perry (Kyushu University, Japan), D. Pergolesi (Paul Scherrer Institut, Switzerland),
K. Sasaki, S.R. Bishop, H.L. Tuller (Kyushu University, Japan)
- 9:40 OA-40 **[CANCELED] Electrochemical Properties of $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{1-x}\text{Nb}_x\text{O}_{3-\delta}$ ($x = 0, 0.1$) as Cathode Materials in Intermediate Temperature-Solid Oxide Fuel Cells**
S. Yoo, A. Jun (Ulsan National Institute of Science and Technology, Korea), J. Shin (Dong-Eui University, Korea), G. Kim (Ulsan National Institute of Science and Technology, Korea)
- 10:00 OA-41 **$\text{Tb}_x\text{Ce}_{0.95-x}\text{Gd}_{0.05}\text{O}_{2-\delta}$ ($0.15 \leq x \leq 0.40$) Cathode Materials Prepared through Solid State Route for Low Temperature SOFC**
R. Chockalingam, S. Basu (IIT Delhi, India)
- 10:20-10:40 Coffee Break
- 10:40 OA-42 **Surface Chemistry and Non-Stoichiometry of $\text{Nd}_2\text{NiO}_{4+\delta}$ Epitaxial Thin Films with Different Orientation and Strain**
N. Tsvetkov, Q. Lu, Y. Chen, B. Yildiz (Massachusetts Institute of Technology, USA)
- 11:00 OA-43 **Highlights on the Anisotropic Oxygen Transport Properties of Nickelates with K_2NiF_4 -Type Structure: Links with the Electrochemical Properties of the Corresponding IT-SOFC's Cathodes**
J.M. Bassat (CNRS, Université de Bordeaux, ICMCB, France), M. Burriel (Imperial College London, UK), M. Ceretti (Institut Charles Gerhardt, France), P. Veber, J.C. Grenier (CNRS, Université de Bordeaux, ICMCB, France), W. Paulus (Institut Charles Gerhardt, France), J.A. Kilner (Imperial College London, UK)
- 11:20 OA-44 **Compatibility of Praseodymium Nickelates with Various Cathode Current Collectors and Electrolytes**
E. Dogdibegovic (University of South Carolina, USA), J. Templeton (Pacific Northwest National Laboratory, USA), J. Yan (University of South Carolina, USA), J.W. Stevenson (Pacific Northwest National Laboratory, USA), X.-D. Zhou (University of South Carolina, USA)
- 11:40 OA-45 **Lanthanide Nickelates $\text{Ln}_2\text{NiO}_{4+\delta}$ ($\text{Ln} = \text{La, Pr or Nd}$): Promising Cathode Materials for Metal Supported Cells**
J.C. Grenier, A. Flura, S. Dru, C. Nicollet, V. Vibhu, S. Fourcade, A. Rougier, J.M. Bassat (CNRS-Univ. Bordeaux, ICMCB, France), A. Brevet, J. Mougín (CEA-Grenoble, France)
- 12:00-13:30 Lunch & Poster Session

Cathode III

Co-Chair(s): Jean-Claude Grenier and Naoki Shikazono

- 13:30 OA-46 **Electronic Activation at Oxide Hetero-Structure at Elevated Temperatures – Source of Markedly Accelerated Oxygen Reduction Kinetics**
Y. Chen, Z. Cai, Y. Kuru, H.L. Tuller, B. Yildiz (Massachusetts Institute of Technology, USA)
- 13:50 OA-47 **$(\text{La,Ba})\text{CoO}_3$ and $\text{Pr}_{1.9}(\text{Ni,Cu,Ga})\text{O}_4$ Composite Oxide as Active Cathode for Intermediate Temperature Solid Oxide Fuel Cells Using Doped LaGaO_3 Electrolyte Films**
J.-E. Hong, J. Xie, S. Ida, T. Ishihara (Kyushu University, Japan)
- 14:10 OA-48 **Effect of Cation Nonstoichiometry on Surface Reactivity of LaCoO_3 -Based Cathode**
A. Takeshita, S. Miyoshi, S. Yamaguchi (The University of Tokyo, Japan), T. Kudo, Y. Sato (JX Nippon Oil & Energy Corporation, Japan)
- 14:30 OA-49 **The Effect of Cation Substitution on Chemical Stability of $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$ -Based**

Mixed Conductors

F. Wang, T. Nakamura, K. Yashiro, J. Mizusaki, K. Amezawa (Tohoku University, Japan)

14:50-15:10 Coffee Break

Modeling and Simulation II

Co-Chair(s): Jean-Claude Grenier and Naoki Shikazono

- 15:10 OA-50 **Internal Multi-Physics Phenomena of SOFC with Direct Internal Reforming**
V. Menon (Karlsruhe Institute of Technology, Germany), V.M. Janardhanan (IIT Hyderabad, India), S. Tischer, O. Deutschmann (Karlsruhe Institute of Technology, Germany)
- 15:30 OA-51 **Three-Dimensional Design Optimization of an Anode-Supported SOFC Using FEM**
M. Andersson, J. Yuan, B. Sundén (Lund University, Sweden)
- 15:50 OA-52 **Impact of Manifolding on Performance of a Solid Oxide Fuel Cell Stack**
R.T. Nishida (Queen's-RMC Fuel Cell Research Centre, Canada), S.B. Beale (National Research Council, Canada), J.G. Pharoah (Queen's-RMC Fuel Cell Research Centre, Canada)
- 16:10 OA-53 **Three-Dimensional Numerical Simulations of Heat and Mass Transfer and Degradation in a SOFC Cell Stack**
T. Mori, K. Nishimura, M. Suzuki (Osaka Gas Co., Ltd., Japan)
- 16:30-19:00 Poster Session (Co-Chairs: Shin-ichi Hashimoto and Yueping Xiong)

Oral Program

Friday

Friday, October 11, 2013

Theater Electrolysis

Co-Chair(s): Mogens Mogensen and Rak-Hyun Song

- 9:00 OT-54 **Biogas Upgrading: By Steam Electrolysis or Co-Electrolysis of Biogas and Steam?**
J.B. Hansen (Haldor Topsøe A/S, Denmark), F. Fock, H.H. Lindboe (Ea Energianalyse A/S, Denmark)
- 9:20 OT-55 **Performance and Stability of High Temperature Solid Oxide Electrolysis Cells (SOECs) for Hydrogen Production**
K.J. Yoon, J.-W. Son, J.-H. Lee, B.-K. Kim, H.-J. Je, H.-W. Lee (KIST, Korea)
- 9:40 OT-56 **Performances of Doped Ceria Hydrogen Electrodes with Highly Dispersed Ni-Based Nanoparticles for Solid Oxide Electrolysis Cells**
H. Uchida, P. Puengjinda, K. Miyano, H. Nishino, K. Kakinuma, S. Deki, M. Watanabe (University of Yamanashi, Japan)
- 10:00 OT-57 ***In-Operando* Raman Spectroscopy Study of Passivation Effects on Ni-CGO Electrodes in CO₂ Electrolysis Conditions**
V. Duboviks, R.C. Maher, G. Offer, L.F. Cohen, N.P. Brandon (Imperial College London, UK)
- 10:20-10:40 Coffee Break
- 10:40 OT-58 **Carbon Deposits and Pt/YSZ Overpotentials in CO/CO₂ Solid Oxide Electrochemical Cells**
Y. Yu, A. Geller (University of Maryland, USA), B. Mao, R. Chang, Z. Liu (Lawrence Berkeley National Laboratory, USA), B.W. Eichhorn (University of Maryland, USA)
- 11:00 OT-59 **Reversing and Repairing Microstructure Degradation in Solid Oxide Cells during Operation**
C. Graves (Technical University of Denmark, Denmark)
- 11:20 OT-60 **Stability of Interface between YSZ Electrolyte and GDC Interlayer in Solid Oxide Electrolysis Cell**
S.J. Kim, G.M. Choi (POSTECH, Korea)
- 11:40 OT-61 **Innovative Dual Membrane Architecture for Reversible Fuel Cells**
M. Viviani (CNR-IENI, Italy), A.S. Thorel (Mines-Paris Tech, France), A. Barbucci (University of Genoa, Italy), D. Vladikova (IEES-BAS, Bulgaria), A. Chesnaud (Mines-Paris Tech, France), I. Genov, G. Raikova (IEES-BAS, Bulgaria), E. Mercadelli, A. Sanson (CNR-ISTEC, Italy), M.P. Carpanese (University of Genoa, Italy), Z. Stoynov (IEES-BAS, Bulgaria), S. Presto (CNR-IENI, Italy), P. Piccardo (University of Genoa, Italy)
- 12:00-12:20 **Closing** (Tatsuya Kawada and Subhash Singhal)

Room A

Modeling and Simulation III

Co-Chair(s): Toshiaki Matsui and Steven Shy

- 9:00 OA-54 **Characteristic Length of Oxide-Ion Conduction for Prediction of Active Thickness in SOFC Anode**
M. Kishimoto, H. Iwai, M. Saito, H. Yoshida (Kyoto University, Japan)
- 9:20 OA-55 **Microstructural Modeling and Effective Properties of Infiltrated SOFC Electrodes**
A. Bertei (University of Pisa, Italy), J.G. Pharoah, D.A.W. Gawel (Queen's-RMC Fuel Cell Research Centre, Canada), C. Nicolella (University of Pisa, Italy)
- 9:40 OA-56 **Recent Developments of 3D Coupled Multiphysics SOFC Modelling at Forschungszentrum Jülich**
M. Peksen, A. Al-Masri, R. Peters, L. Blum, D. Stolten (Forschungszentrum Jülich, Germany)

- 10:00 OA-57 **Three-Dimensional Performance Model for Oxygen Transport Membranes**
A. Häffelin, C. Niedrig, S. Wagner, A. Weber, E. Ivers-Tiffée (Karlsruhe Institute of Technology, Germany)
- 10:20-10:40 Coffee Break
- 10:40 OA-58 **Advanced 3D Imaging and Analysis of SOFC Electrodes**
F. Tariq, M. Kishimoto, S.J. Cooper (Imperial College London, UK), P. Shearing (University College London, UK), N. Brandon (Imperial College London, UK)
- 11:00 OA-59 **Electrode Reoxidation in Solid-Oxide Cells: Detailed Modeling of Nickel Oxide Film Growth**
J.P. Neidhardt (German Aerospace Center, Germany), R.J. Kee (Colorado School of Mines, USA), W.G. Bessler (Offenburg University of Applied Sciences, Germany)
- 11:20 OA-60 **Enhancing SOFC-Stack Performance by Model-Based Adaptation of Cathode Gas Transport Conditions**
H. Geisler, M. Kornely, A. Weber, E. Ivers-Tiffée (Karlsruhe Institute of Technology, Germany)
- 11:40 OA-61 **Developing 3-D Model of Intermediate-Temperature SOFC with GDC Electrolyte**
L. Wang (University of Maryland, USA), G.S. Jackson (Colorado School of Mines, USA), B.M. Blackburn (Redox Power Systems LLC, USA)

Poster Session

	Stacks & Systems Design, Performance & Durability	Cell Design, Processing, Performance & Durability	Electrolyte Materials, Processing & Performance	Anode Materials, Processing & Performance	Cathode Materials, Processing & Performance	Interconnection & Sealing	Modeling & Simulation	Operation on Alternative Fuels	Solid Oxide Electrolysis
Oct.8 (Tue.)	P002	P016	P051	P070	P112	P154	P169	P200	P218
	P005	P019	P054	P072	P115	P157	P172	P203	P220
	P008	P021	P057	P075	P118	P162	P175	P206	P223
	P011	P024	P060	P078	P121	P167	P178	P208	P225
	P001	P027	P063	P081	P124	P153	P181	P211	P228
	P007	P029	P067	P084	P127	P159	P184	P215	P230
	P013	P032	P049	P087	P130	P164	P187	P198	P222
		P035	P056	P090	P133		P190	P205	
		P037	P062	P093	P136		P193	P210	
		P040		P096	P139		P196	P213	
		P043		P099	P142		P168		
		P045		P102	P145		P174		
		P048		P105	P150		P180		
		P018		P109	P111		P186		
		P023		P069	P117		P192		
		P028		P071	P123				
		P034		P074	P129				
		P039		P080	P135				
		P044		P086	P141				
				P092	P147				
				P098	P152				
				P104					
Oct.10 (Thu.)	P003	P017	P050	P073	P113	P155	P170	P199	P219
	P006	P022	P052	P076	P116	P158	P173	P201	P221
	P009	P025	P055	P079	P119	P160	P176	P204	P224
	P012	P030	P058	P082	P122	P163	P179	P207	P226
	P014	P033	P061	P085	P125	P165	P182	P212	P229
	P004	P038	P064	P088	P128	P156	P185	P214	P217
	P010	P041	P066	P091	P131	P161	P188	P216	P227
		P046	P068	P094	P134	P166	P191	P202	
		P015	P053	P097	P137		P194	P209	
		P020	P059	P100	P140		P197		
		P026	P065	P103	P143		P171		
		P031		P106	P146		P177		
		P036		P108	P148		P183		
		P042		P110	P151		P189		
		P047		P077	P114		P195		
				P083	P120				
				P089	P126				
				P095	P132				
				P101	P138				
				P107	P144				
					P149				