
# 24th International Conference on Solid State Ionics (SSI24)

## Fundamentals: Experiment and simulation

**London, United Kingdom, 2024 July 14th - 19th**
**Conference Chairs: John Kilner and Stephen Skinner**

### Conference Program

| | |
|---|---|
| **July 14th - Day 1 (Sunday)** | |
| 10:00 - 17:00 | **Tutorials - See the program on the "Tutorials" tab** |
| 18:00 - 20:00 | **Welcome Reception at the QEII** |
| **July 15th - Day 2 (Monday)** | |
| 07:30 - 08:30 | **Registration** |
| 08:30 - 08:50 | **Opening Session: Prof. Yildiz and Baroness Brown. Room: Fleming** |
| | **Plenary Session 1. Room: Fleming**<br>Chair: John Kilner |
| 08:50 - 09:40<br>Fleming-T1 | Roger De Souza *(Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany)*<br>Look Both Ways Before Crossing: Views from the Intersection of Experiment and Simulation |
| 09:40 - 10:00 | **Session Change** |
| | **2A1 Lithium Conductors. Room: Fleming**<br>Chair: Alex Morata |
| 10:00 - 10:30<br>Fleming-K1 | H. Martin R. Wilkening *(Institute for Chemistry and Technology of Materials, NAWI, Graz University of Technology, Graz, Austria)*<br>NMR at cryogenic temperatures to study lithium ion dynamics in electrolytes with ultrafast charge carriers |
| 10:30 - 10:45<br>Fleming-O1 | Arianna Pesce *(Center for Cooperative Research on Alternative Energies (CIC energiGUNE), Basque Research and Technology Alliance (BRTA), Parque Tecnológico de Álava, Albert Einstein, 48, 01510, Vitoria-Gasteiz, Spain)*, Nico Zamperlin, Ander Orue, Pedro López-Aranguren<br>Exploring the Interfacial Dynamics and Ion Transport of Sulfide Electrolytes in Solid-State Batteries |
| | **2A2 Anion Conductors. Room: Westminster**<br>Chair: Stephen Skinner |
| 10:00 - 10:30<br>Westminster-K1 | John Irvine *(School of Chemistry, University of St Andrews, St Andrews, Fife KY16 9ST, UK)*, Shuoshuo Zhang<br>Manipulating Short Range Order/Disorder in Scandia Zirconias to Optimise Ionic Conductivity and its Stability |
| 10:30 - 10:45<br>Westminster-O1 | Ahmad Shaur *(MESA+ Institute for Nanotechnology, University of Twente, Enschede 7500 AE, The Netherlands)*, Henny J.M. Bouwmeester<br>Impact of defect interactions on the electrical conductivity of gadolinium-doped ceria |
| | **2A3 Protonic Conductors. Room: St.James**<br>Chair: Kang Taek Lee |
| 10:00 - 10:30<br>St.James-K1 | Sandrine Ricote *(Colorado School of Mines)*, Huayang Zhu, Robert Kee<br>Recent Progress and Challenges in Protonic Ceramic Electrolysis Cells |
| 10:30 - 10:45<br>St.James-O1 | Melanie Anstiss *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Maximilian Weiss, Matthias Weil, Alexander K. Opitz<br>Proton Uptake in Perovskite Structures: Insights from In-situ Techniques on BaFe0.8Y0.2O3-δ |
| | **2A4 Advanced Techniques. Room: Moore**<br>Chair: Monica Burriel |
| 10:00 - 10:30<br>Moore-K1 | Ryan O'Hayre *(Colorado School of Mines)*, Jake Huang, Neal Sullivan, Andriy Zakutayev<br>Electrochemistry Meets Big Data: Multi-Dimensional Electrochemical “Mapping” of Fuel Cells and Batteries Enabled by Rapid Acquisition and Analysis of >20,000 Impedance Measurements via a Novel Hybrid Electrochemical Impedance Spectroscopy (HEIS) Method. |
| 10:30 - 10:45<br>Moore-O1 | Janis K. Eckhardt *(Institute of Theoretical Physics, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany)*, Till Fuchs, Simon Burkhardt, Peter J. Klar, Jürgen Janek, Christian Heiliger<br>Challenges in the Impedance Analysis of Solid-State Systems – Current Constriction at the Li\|LLZO Interface |
| | **2A5 Batteries. Room: Abbey**<br>Chair: Nuria Garcia-Araez |
| 10:00 - 10:30<br>Abbey-K1 | Wolfgang Zeier *(University of Muenster)*<br>Pressure effects and transport limitations solid-state battery composites |
| 10:30 - 10:45<br>Abbey-O1 | Ruijie Zheng *(School of Materials and Chemical Technology, Tokyo Institute of Technology, Tokyo 152-8552, Japan.)*, Shigeru Kobayashi, Yuki Watanabe, Jun Deng, Ryo Nakayama, Kazunori Nishio, Ryota Shimizu, Makoto Moriya, Taro Hitosugi<br>5 V-class All-solid-state Battery Operation Using Li(FSA)(SN)2 Molecular Crystal Solid Electrolyte |
| | **2A6 Solid Oxide Cells. Room: Gielgud**<br>Chair: Alodia Orera |
| 10:00 - 10:30<br>Gielgud-K1 | Peter Vang Hendriksen *(Department of Energy Conversion and Storage, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark)*, Peyman Khajavi, Henrik Lund Frandsen, Shu Wang, Morten Phan Klitkou, Mohamad Khoshkalam, Veronica Humlebæk Jensen, Sade Ahmed Sheik Mohammed Aw-Ali, Javier Zamudio Garcia, Anke Hagen, Bhaskar Reddy Sudireddy<br>SOEC materials; opportunities and challenges |
| 10:30 - 10:45<br>Gielgud-O1 | Bowen Li *(Department of Energy Conversion and Storage, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark)*, Anders Bogh Jacobsen, Peter Blennow, Ming Chen<br>Impact of Si and Al impurities on the degradation of Ni/YSZ fuel electrode supported solid oxide electrolysis cells |
| 10:45 - 11:15 | **Coffee Break** |

| | |
|---|---|
| | **3A1 Lithium Conductors. Room: Fleming**<br>Chair: H. Martin R. Wilkening |
| 11:15 - 11:35<br>Fleming-I1 | Alex Morata *(Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.)*, Juan Carlos Gonzalez-Rosillo, Fernanda Monteiro, Francesco Chiabrera, Apostolos Panagiotopoulos, David Diercks, Ainara Aguadero, John Kilner, Albert Tarancon<br>Improving the Interfaces in Ceramic Thin-film Solid State Li Ion Batteries: Materials Exploration and Devices |
| 11:35 - 11:50<br>Fleming-O1 | Shogo Miyoshi *(National Institute for Materials Science (NIMS))*, Yoshihiko Nishihara, Fumihiko Ichihara, Takahisa Ohno, Kazutaka Mitsuishi, Naoaki Kuwata, Takuya Masuda, Kazunori Takada<br>Effect of Cobalt-substitution on Phase Relation and Sinterability of Lithium-ion Conductor Based on Lithium Titanium Orthophosphate |
| 11:50 - 12:05<br>Fleming-O2 | Subhash Chandra *(Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, United States)*, Iradwikanari Waluyo, Adrian Hunt, Joshua T. Wright, Cole D. Fincher, Yet-Ming Chiang, Carlo U. Segre, Bilge Yildiz<br>Electrochemically induced local structure change impedes Li-ion mobility in garnet-type lithium solid-electrolyte |
| 12:05 - 12:20<br>Fleming-O3 | Pedram Ghorbanzade *(Centre for Cooperative Research on Alternative Energies (CIC energiGUNE), Basque Research and Technology Alliance (BRTA), Alava Technology Park, Albert Einstein 48, Vitoria-Gasteiz 01510, Spain)*, Juan Miguel López del Amo<br>Application of solid-state NMR in the design and characterization of LLZO-based polymer Composite electrolytes |
| | **3A2 Anion Conductors. Room: Westminster**<br>Chair: John Irvine |
| 11:15 - 11:35<br>Westminster-I1 | Lucia Corti, Dinu Iuga, Amrit Venkatesh, Ivan Hung, Zhehong Gan, John B. Claridge, Matthew J. Rosseinsky, Frédéric Blanc *(Department of Chemistry, University of Liverpool, UK)*<br>Oxide Ion Diffusion Mechanism in Melilite and other Phases |
| 11:35 - 11:50<br>Westminster-O1 | Kevin Huang *(University of South Carolina, US)*<br>Fast Ion Conductors Based on Cubic Perovskite Structure |
| 11:50 - 12:05<br>Westminster-O2 | Carsten Korte *(Institute of Energy- and Climate Research (IEK-14), Forschungszentrum Jülich, DE)*, Christian Rodenbücher, Dominik Wrana, Benedykt Jany, Adam Kruk, Franciszek Krok<br>Electrochemically Driven Redox Phenomena in Oxide Ion Conducting Solid Electrolytes |
| 12:05 - 12:20<br>Westminster-O3 | Dennis Kemp *(Institute of Physical Chemistry, RWTH Aachen University)*, Roger A. De Souza<br>One Stone, Two Birds: Using High Electric Fields to Enhance the Mobility and the Concentration of Point Defects in Ion-Conducting Solids |
| | **3A3 Protonic Conductors. Room: St.James**<br>Chair: Sandrine Ricote |
| 11:15 - 11:35<br>St.James-I1 | Kang Taek Lee *(Korea Advanced Institute of Science and Technology (KAIST), South Korea)*<br>Innovative Approaches and Enhanced Materials for Protonic Ceramic Electrochemical Cells |
| 11:35 - 11:50<br>St.James-O1 | Stine Roen *(University of Oslo (UiO))*, Truls Norby, Ragnar Strandbakke, Jonathan M. Polfus<br>Electrochemical Characterization of Ba0.95La0.05(Fe1-x-yNixZny)O3-δ as Steam Electrode in Proton Ceramic Electrochemical Cells |
| 11:50 - 12:05<br>St.James-O2 | Jónína Björg Guðmundsdóttir *(University of Oslo (UiO))*, Einar Vøllestad, Reidar Haugsrud, Jonathan Polfus<br>Oxygen Exchange Kinetics of BaGd0.3La0.7Co2O6-d Air/Steam Electrode for Proton Ceramic Electrochemical Cells |
| 12:05 - 12:20<br>St.James-O3 | Natalia Stankiewicz *(Polymat, University of the Basque Country UPV/EHU, 20018 Donostia-San Sebastian, Spain)*, Leon Focks, Mengyang Cui, Francisco Bonilla, Ivan Bobrikov, Gillian Goward, Irune Villaluenga<br>The Effect of Non-conducting Polymers on the Transport Properties of Hybrid Electrolytes |
| | **3A4 Advanced Techniques. Room: Moore**<br>Chair: Ryan O'Hayre |
| 11:15 - 11:35<br>Moore-I1 | Monica BURRIEL *(Université Grenoble Alpes, CNRS, Grenoble INP, LMGP, Grenoble, France)*<br>Isotope Exchange Raman Spectroscopy (IERS): A powerful and versatile technique to measure oxygen-ion transport kinetics in situ |
| 11:35 - 11:50<br>Moore-O1 | Zhongtao Ma *(Department of Energy Conversion and Storage, Technical University of Denmark (DTU))*, Christodoulos Chatzichristodoulou, Kristian Speranza Mølhave, Søren Bredmose Simonsen<br>Electrochemical ETEM impedance study on solid oxide cells |
| 11:50 - 12:05<br>Moore-O2 | Stanislaus Breitwieser *(TU Wien)*, Andreas Nenning, Jürgen Fleig<br>Combined coulometry and XPS measurements for linking bulk to surface defect chemistry in mixed conductors |
| 12:05 - 12:20<br>Moore-O3 | Kirsten Rath *(Institute of Chemical Technologies and Analytics, Technische Universität Wien, 1060 Vienna, Austria)*, Christian Melcher, Paul W. Hoffrogge, Daniel Schneider, Britta Nestler, Alexander K. Opitz<br>Beyond the Surface: Probing the Dynamics of Fluorite-Based Solid Oxide Electrolysis Cathodes Through Advanced Multi-Analytical Techniques |
| | **3A5 Batteries. Room: Abbey**<br>Chair: Wolfgang Zeier |
| 11:15 - 11:35<br>Abbey-I1 | Nuria Garcia-Araez *(UNIVERSITY OF SOUTHAMPTON)*<br>Safer Batteries Enabled by Shutdown Ceramics and by Functional Additives for Combining Solid and Liquid Electrolytes |
| 11:35 - 11:50<br>Abbey-O1 | Svetlana Menkin *(Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK)*, Jana B. Fritzke, Rebecca Larner, James Simon, Clare P. Grey<br>Soft Short Circuit-based Degradation of Lithium, Sodium and Zinc Metal Batteries |
| 11:50 - 12:05<br>Abbey-O2 | Yasmine Benabed *(Hydro-Quebec)*, Gabrielle Foran, Steeve Rousselot, Mickaël Dollé<br>Solving the Li7La3Zr2O12 Electrochemical Stability Window Puzzle |
| 12:05 - 12:20<br>Abbey-O3 | Hyejeong Hyun, Hyojung Yoon, Subin Choi, Juri Kim, Tom Regier, Zachary Arthur, SeokKoo Kim, Jongwoo Lim *(Seoul National University, Seoul, South Korea)*<br>Paradoxical role of structural degradation of nickel-rich layered oxides in capacity retention upon storage of lithium-ion batteries |
| | **3A6 Solid Oxide Cells. Room: Gielgud**<br>Chair: Peter Vang Hendriksen |
| 11:15 - 11:35<br>Gielgud-I1 | Miguel Angel Laguna-Bercero, Angel Larrea, Miguel Angel Morales-Zapata, Alodia Orera *(Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, 50009 Zaragoza, Spain)*<br>Solid Oxide Microtubular Cells for the Production of Green Fuels |

| | |
|---|---|
| 11:35 - 11:50<br>Gielgud-O1 | Soomin Choi *(Gwangju institute of science and technology)*, Janghyun Lim, Gyeong Duk Nam, Gahyeon Lee, Young-il Kown, Hyeon Jin Lee, John T.S. Irvine, Tae Ho Shin, Jongsup Hong, Jong Hoon Joo<br>Investigation of Thermo-mechanical Stability in High Temperature Solid Oxide Electrochemical Cell |
| 11:50 - 12:05<br>Gielgud-O2 | Rinlee Butch Cervera *(University of the Philippines Diliman)*<br>Electrode Thin Film and Electrolyte Materials Development and Electrochemical Performance for Intermediate-Temperature Reversible Solid Oxide Electrochemical Cells |
| 12:05 - 12:20<br>Gielgud-O3 | Keiji Yashiro *(Faculty of Materials for Energy, Shimane University)*, Nanako Bisaka, Takashi Sato, Riyan Achmad Budiman, Mina Yamaguchi, Tatsuya Kawada<br>Microstructure Evolution Analysis on Ni/YSZ Fuel Electrode using Cross-Sectional Model Cells |
| | **4A1 Lithium Conductors. Room: Fleming**<br>Chair: Ainara Aguadero |
| 14:00 - 14:30<br>Fleming-K1 | Stefan ADAMS *(Department of Materials Science and Engineering, National University of Singapore)*<br>Compressible Light-Weight Ion-conducting Solids for Durable High Energy Density Batteries |
| 14:30 - 14:50<br>Fleming-I1 | Wakako Araki *(Tokyo Institute of Technology)*, Kiminori Saito, Miao Wembo, Yoshio Arai<br>Deformation and Diffusion Mechanisms of Li-La-Ti-O with Ordered Microstructures Under Mechanical Stress |
| 14:50 - 15:05<br>Fleming-O1 | Pierre Lannelongue *(Center for Cooperative Research on Alternative Energies (CIC energiGUNE), Basque Research and Technology Alliance (BRTA), Parque Tecnológico de Álava, Albert Einstein, 48, 01510, Vitoria-Gasteiz, Spain)*, Simon Lindberg, Andrey Golov, Elena Gonzalo, Thomas Marchandier, Artur Tron, Javier Carrasco, Pedro Lopez-Aranguren<br>Halide Electrolytes for Solid-State Batteries: Investigating Ionic Transport and Interface Dynamics |
| 15:05 - 15:20<br>Fleming-O2 | Grace Wei *(Department of Materials Science and Engineering, University of California, Berkeley, CA, 94720, USA)*, KyuJung Jun, Gerbrand Ceder<br>Ultrafast Lithium-ion Diffusion in Oxyhalides |
| 15:20 - 15:35<br>Fleming-O3 | Marnix Wagemaker *(Storage of Electrochemical Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2929JB, Delft, The Netherlands)*, Zhu Chen, Qidi Wang, Eveline van der Maas, Swapna Ganapathy, Wenxuan Zhao, Theodoris Famprikis, Chenglong Zhao, Victor Landgraf, Lars Bannenberg, Baohua Li, Janek Jurgen<br>Designing halide solid electrolytes |
| | **4A2 Anion Conductors. Room: Westminster**<br>Chair: Isaac Abrahams |
| 14:00 - 14:30<br>Westminster-K1 | Susana Garcia-Martin *(Complutense University of Madrid)*<br>Understanding electrochemical properties of materials by imaging their crystal structure |
| 14:30 - 14:50<br>Westminster-I1 | Nini Pryds *(Department of Energy Conversion and Storage, Technical University of Denmark (DTU))*<br>Engineering of oxide heterostructures with symmetry-breaking |
| 14:50 - 15:05<br>Westminster-O1 | Thomas Defferriere *(Department of Materials Science and Engineering, Massachusetts Institute of Technology)*, Baoming Wang, Julian P. Klein, Frances M. Ross, Harry L. Tuller<br>Methods for Studying Ionic Transport and Transfer Across Interfaces in Bilayer Metal Oxide Stacks |
| 15:05 - 15:20<br>Westminster-O2 | Julius K. Dinter *(Center of Materials Research, JLU Gießen)*, Juri Becker, Anja Henss, Matthias T. Elm<br>Electrochemical Characterization of CeO2/YSZ Multilayer Systems with Well-defined Interfaces |
| 15:20 - 15:35<br>Westminster-O3 | Daniele Vivona *(MIT - Massachusetts Institute of Technology, Department of Mechanical Engineering)*, Kiarash Gordiz, Randall Meyer, Sumathy Raman, Yang Shao-Horn<br>Superior Designs of Solid-State Ionic Conductors by engineering Local Environments |
| | **4A3 Protonic Conductors. Room: St.James**<br>Chair: Leonard KWATI |
| 14:00 - 14:30<br>St.James-K1 | Chris Ling *(School of Chemistry, The University of Sydney, NSW 2006, Astralia)*, Frederick Marlton, Alex Brown<br>Synergistic hydration-distortion and ionic conduction mechanisms in barium–group(V) oxides |
| 14:30 - 14:50<br>St.James-I1 | Shanwen Tao *(School of Engineering, University of Warwick, Coventry CV4 7AL, UK)*, Peimiao Zou<br>Fast low temperature ceramic mixed OH-/H+ ionic conductors for electrochemical devices |
| 14:50 - 15:05<br>St.James-O1 | Hitoshi Takamura *(Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan)*, Mei Asakura, Yuta Tsujino, Akihiro Ishii, Itaru Oikawa, Kohei Kato, Shota Takemura, Shingo Ide<br>Defect Chemistry and Transport Properties of Anion-Doped Ba-Zr-Based Proton Conductors |
| 15:05 - 15:20<br>St.James-O2 | OMAR RAHMOUNI *(Université Paris-Saclay, CentraleSupélec, CNRS, Laboratoire SPMS, 91190, Gif-sur-Yvette, France)*, Caroline Pirovano, Giulio Cordaro, Victor Duffort, Martine Trentesaux, Nicolas Nuns, Guilhem Dezanneau, Rose-noelle Vannier<br>Oxygen diffusion and water incorporation in Ba(Ce,Sn,Zr)0.8Y0.1Yb0.1O2.8 PCFC electrolyte |
| | **4A4 Advanced Techniques. Room: Moore**<br>Chair: Koji Amezawa |
| 14:00 - 14:30<br>Moore-K1 | Ifan Stephens *(Imperial College London, Department of Materials, London, London, SW7 2AZ, UK)*<br>Translating concepts from electrocatalysis to battery science and back |
| 14:30 - 14:50<br>Moore-I1 | Clement Nicollet *(Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France)*<br>A Method to Measure Oxygen Surface Exchange Kinetics on Porous Mixed Conducting Oxides with Simple Determination of Microstructure Parameters. |
| 14:50 - 15:05<br>Moore-O1 | Juan Carlos Gonzalez-Rosillo *(Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.)*, Beatrice Laurenti, Francesco Chiabrera, Alex Morata, Albert Tarancón<br>Tip-Enhanced Raman Spectroscopy for Nanometric Chemical Insights and Operando Characterization of Battery Materials |
| 15:05 - 15:20<br>Moore-O2 | TRAN THI HUYEN TRAN, THUY LINH PHAM, JEEHOON KIM, EUI-CHOL SHIN, CHEOL-WOO AHN, DONG-SOO PARK, NAMSOO SHIN, JAEKOOK KIM, JONG-SOOK LEE *(Chonnam National University, South Korea)*<br>Physics-based Impedance Modeling of Polycrystalline Solid Electrolytes Assisted by Data Science Tools: Application to Li7La3Zr2O12 |
| 15:20 - 15:35<br>Moore-O3 | Matthias T. Elm *(Institute of Physical Chemistry, RWTH Aachen)*, Janis K. Eckhardt, Christian Heiliger<br>Correction Factor to Account for the Regular Pore Structure of Mesoporous Oxides for a Reliable Determination of the Electrical Conductivity from Impedance Spectroscopy |
| | **4A5 Batteries. Room: Abbey**<br>Chair: Magda Titirici |

| | |
|---|---|
| 14:00 - 14:30<br>Abbey-K1 | Eric Wachsman *(University of Maryland)*<br>Achieving Extreme High Ion-Current Densities in Tailored Materials, Structures, and Interfaces |
| 14:30 - 14:50<br>Abbey-I1 | Antonio Bertei *(Department of Civil and Industrial Engineering, University of Pisa, Largo Lucio Lazzarino 2, IT 56122, Pisa, Italy)*, Marco Lagnoni, Xuekun Lu<br>Phase-separating Active Materials in Lithium-ion Batteries: Implications for Fast-charging and Material Characterisation |
| 14:50 - 15:05<br>Abbey-O1 | Kun Joong Kim *(Department of Chemistry, Technical University of Munich, Chair of Solid-State Electrolyte Chemistry, Germany)*, Steffen Weinmann, Hana Gobena, Jennifer Rupp<br>Processing oxide lithium metal batteries with thin electrolyte |
| 15:05 - 15:20<br>Abbey-O2 | Stephen Dongmin Kang *(Department of Materials Science & Engineering, Seoul National University, Seoul, Korea)*<br>Why battery electrodes never seem to yield reliable GITT measurements |
| 15:20 - 15:35<br>Abbey-O3 | James Simon *(University of Cambridge)*, Andras Kozak, Veronika Sedajova, Svetlana Menkin, Stuart Clarke, Clare Grey<br>Investigation of interface stability of aqueous zinc metal batteries using scanning electrochemical microscopy |
| | **4A6 Solid Oxide Cells. Room: Gielgud**<br>Chair: Scott Barnett |
| 14:00 - 14:30<br>Gielgud-K1 | Anne Hauch *(Topsoe A/S, Haldor Topsoe Allé 1, DK-2800 Kgs Lyngby, Denmark)*<br>Solid Oxide Electrolysis Cell Technology – Solid State Devices for Efficient Green Hydrogen Production |
| 14:30 - 14:50<br>Gielgud-I1 | marie-laure fontaine *(SINTEF AS)*, einar vøllestad, Ragnar Strandbakke, Elena Stefan, christelle denonville, Didrik Småbråten<br>Innovative cells and stacks for hydrogen production |
| 14:50 - 15:05<br>Gielgud-O1 | TAKAYUKI NAKAO *(Energy Technology Laboratories, Osaka Gas Co)*, SHUICHI INOUE<br>Interface Design Development for High Performance of SOFC/SOEC Contact Layers between Interconnects and Solid Oxide Cells |
| 15:05 - 15:20<br>Gielgud-O2 | Einar Vollestad *(SINTEF Industry, Sustainable Energy Technology, Oslo, Norway)*<br>Principles and Potential of Pressurized Steam Electrolysis using Proton Ceramic Electrolysers |
| 15:20 - 15:35<br>Gielgud-O3 | Imanol Quina, Laura Almar, David Catalán-Martínez, Andrea Dos Santos, Amir Masoud Dayaghi, Truls Norby, Agustín Martínez, Jose Manuel Serra, Sonia Escolástico *(Instituto de Tecnología Química (Universitat Politècnica de València—Consejo Superior de Investigaciones Científicas), Valencia, Spain)*<br>Hydrocarbon production by CO2 electro-catalytic reduction in a pressurized protonic electrochemical membrane reactor |
| 15:35 - 16:05 | **Coffee Break** |
| | **5A1 Lithium Conductors. Room: Fleming**<br>Chair: Stefan ADAMS |
| 16:05 - 16:35<br>Fleming-K1 | Ainara Aguadero *(Department of Materials, Imperial College London, South Kensington Campus, London, SW7 2AZ, U.K.)*, Raul Artal, Ricardo Jimenez, Cristina Garcia, Kit Baker, Ieuan Seymour<br>Solid electrolytes bulk and interfaces analysis to improve all-solid-state batteries performance |
| 16:35 - 16:50<br>Fleming-O1 | Oskar Thompson *(Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP*, LEPMI, 38000 Grenoble, France)*, Adrien Faucier-Magnan, Gavin Vaughan, Vittoria Pschedda, Laura H Henry, Sylvie le Floch, Claire Villevieille<br>Investigating the Morphology of Thiophosphate Based Electrolytes Using Synchrotron X-Ray Tomography Techniques |
| 16:50 - 17:05<br>Fleming-O2 | Zachary Warren *(Instituto de Cerámica y Vidrio (CSIC))*, Jadra Mosa, Mario Aparicio, Nataly Carolina Rosero-Navarro<br>Solution processing Li2S-P2S5 glass-ceramic solid-state electrolyte in ethyl mercaptan |
| 17:05 - 17:20<br>Fleming-O3 | Gwangseok Oh *(Posco holdings, N.EX.T Hub)*, Seungduk Seo, Ohmin Kwon, Sangchul Nam<br>Development of air-stable sulfide-based solid electrolyte using oxide-based ionic conductive materials |
| 17:20 - 17:35<br>Fleming-O4 | Kosuke Kawai, Yuki Nomura, Masaki Fujita, Hirokazu Kitaura, Eiji Hosono, Hiroshi Nakajima, Hirofumi Tsukasaki, Shigeo Mori, Akitoshi Hayashi, Naoaki Yabuuchi, Kazuo Yamamoto, Masashi Okubo *(Waseda University)*<br>MXenes for all 'strain-free' solid-state batteries |
| | **5A2 Anion Conductors. Room: Westminster**<br>Chair: Nini Pryds |
| 16:05 - 16:35<br>Westminster-K1 | Isaac Abrahams *(School of Physical and Chemical Sciences, Queen Mary University of London)*<br>Unravelling Local Structure in Oxide-Ion Conducting Fluorites |
| 16:35 - 16:50<br>Westminster-O1 | Giuditta Perversi *(Maastricht University)*, Niels Schreiner, Angela Angelodimou<br>The road to high-entropy: sequential doping study of Ba2In2O5 |
| 16:50 - 17:05<br>Westminster-O2 | Sophie Bauer *(Department of Materials- and Geo-Sciences, Technische Universität Darmstadt, Darmstadt, Germany)*, Till Frömling<br>The Drastic Effect of A-Site Non-Stoichiometry on the Cation Diffusion and Core-Shell Formation in NBT-Based Ceramics |
| 17:05 - 17:20<br>Westminster-O3 | Mina Yamaguchi *(Graduate School of Environmental Studies, Tohoku University)*, Masaski Kurata, Ryosuke Iwata, Shogo Fuwa, Riyan Achmad Budiman, Keiji Yashiro, Tatsuya Kawada<br>High-Temperature Photo-Response in Gd-Doped CeO2 |
| | **5A3 Protonic Conductors. Room: St.James**<br>Chair: Chris Ling |
| 16:05 - 16:35<br>St.James-K1 | Wilhelm Albert Meulenberg, Jürgen Malzbender, Julia Wolter, Wendelin Deibert, Olivier Guillon, Jose Manuel Serra *(Instituto de Tecnología Química (Universitat Politècnica de València- Agencia Estatal Consejo Superior de Investigaciones Científicas))*, Candela Segarra, Laura Almar, Sonia Escolástico, Wenyu Zhou<br>Ba(Zr,Ce,Y)O3-δ proton-conducting materials: manufacture, performance and stability |
| 16:35 - 16:50<br>St.James-O1 | Wen YANG *(Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK-14))*, Christian Rodenbücher, Jiangshui Luo, Carsten Korte<br>A solid proton conductor realized by the encapsulation of ionic liquids in the metal-organic framework ZIF-8 |
| 16:50 - 17:05<br>St.James-O2 | Kehan Huang *(Faculty of Engineering, Department of Materials, Imperial College, London)*, Yidong Han, Stephen Skinner<br>Exploring the Protonic Conduction in W- and Mo-substituted LaNbO4 Materials at Reducing Conditions |
| 17:05 - 17:20<br>St.James-O3 | Giulio Cordaro *(Université Paris-Saclay, CentraleSupélec, CNRS, Lab. SPMS, Gif-sur-Yvette 91190, France)*, Juande Sirvent, Omar Rahmouni, Federico Baiutti, Dominique Thiaudière, Alex Morata, Albert Tarancón, Guilhem Dezanneau<br>Structural and Chemical Study of Electrolytes for Protonic Ceramic Cells Using a High-Throughput Approach |
| | **5A4 Advanced Techniques. Room: Moore**<br>Chair: Ifan Stephens |

| | |
|---|---|
| 16:05 - 16:35<br>Moore-K1 | Koji Amezawa *(Tohoku University)*, Masaharu Yanagi, Yuta Kimura, Takashi Nakamura, HIrokazu Katsui, Oki Sekizawa, Kiyofumi Nitta, Yasutoshi Iriyama, Tatsuya Kawada<br>Direct Observation of Chemical Potential Distribution in Solid State Ionics Devices by Using Operando Micro X-Ray Absorption Fine Structure Measurements |
| 16:35 - 16:50<br>Moore-O1 | Christian Melcher *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Andreas Nenning, Florian Schrenk, Kirsten Rath, Christoph Rameshan, Alexander Karl Opitz<br>Exploring Metal-Support Interactions in Solid Oxide Electrolysis Cathodes by in-situ Surface Analytics |
| 16:50 - 17:05<br>Moore-O2 | Francesco Chiabrera *(Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.)*, Paul Nizet, Yunqing Tang, Nerea Alayo, Philipp Langner, Federico Baiutti, Alex Morata, Albert Tarancón<br>Optoionic Impedance Spectroscopy (OIS) for In-situ Investigation of Ion Insertion in Mixed Ionic-Electronic Conductors |
| 17:05 - 17:20<br>Moore-O3 | Julian Taubmann *(Department of Energy Conversion and Storage, Technical University of Denmark (DTU))*, Christodoulos Chatzichristodoulou, Henrik Lund Frandsen<br>Fundamental Insights into the Degradation of Nickel/Yttria Stabilised Zirconia Fuel Electrodes of Solid Oxide Cells by Model Electrode Testing |
| 17:20 - 17:35<br>Moore-O4 | Yen-Po Liu *(Peter Grünberg Institute, Electronic Materials (PGI-7), Forschungszentrum Jülich GmbH, 52425 Jülich, Germany)*, Moritz L. Weber, Dylan Jennings, Felix Gunkel, Regina Dittman<br>Phase-separated nanostructures of Ni:STO studied using low temperature Scanning Tunneling Microscopy and Spectroscopy |
| | **5A5 Batteries. Room: Abbey**<br>Chair: Eric Wachsman |
| 16:05 - 16:35<br>Abbey-K1 | Magda Titirici *(Department of Chemical Engineering, Imperial College London, London, SW7 2AZ, UK)*<br>Beyond Li: Na, K and Al based batteries-progress, challenges and prospects |
| 16:35 - 16:50<br>Abbey-O1 | Daiana Ferreira *(Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.)*, Antonio Gianfranco Sabato, Marc Nuñez Eroles, Alex Morata, Marc Torrell, Albert Tarancón<br>Advanced manufacturing processes of NASICON-based all-solid-state lithium-metal batteries |
| 16:50 - 17:05<br>Abbey-O2 | Artur Tron *(AIT Austrian Institute of Technology GmbH, Center for Low-Emission Transport, Battery Technologies, Giefinggasse 2, 1210 Vienna, Austria)*, Alexander Beutl, Ander Orue, Pedro López-Aranguren, Andrea Itziar Pitillas Martinez, Maria Helena Braga, Ville Kekkonen<br>Round-robin test of sulfide-based solid-state battery assembly in coin-type cell configuration |
| 17:05 - 17:20<br>Abbey-O3 | Oliver Clemens *(University of Stuttgart, Institute for Material Science, Stuttgart)*, Hong Chen, Tommi Aalto, Vanita Vanita<br>Pusshing to the Limits - Effect of Uniaxial Stack Pressure on the Performance of All-Solid-State Fluoride-Ion-Batteries |
| 17:20 - 17:35<br>Abbey-O4 | Ana De La Fuente Duran, Nicholas Siemons, Adam Marks, Tyler Mefford, Alberto Salleo, William Chueh *(Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA;)*<br>Effects of electrolyte composition on the electrochemistry of organic mixed conducting polymers |
| | **5A6 Solid Oxide Cells. Room: Gielgud**<br>Chair: Anne Hauch |
| 16:05 - 16:35<br>Gielgud-K1 | Scott Barnett *(Northwestern University)*, Qian Zhang, Pattiya Pibulchinda, Dalton Cox, Katsuyo Thornton, Peter Voorhees<br>Microstructural Evolution of Ni-YSZ Electrodes During Solid Oxide Electrolysis Operation |
| 16:35 - 16:50<br>Gielgud-O1 | Kuan-Ting Wu *(International Institute for Carbon-neutral Energy Research (WPI-I2CNER), Kyushu University)*, Tatsumi Ishihara<br>Designing Highly Active Electrode by Infiltration Technique for Co-electrolysis of CO2 and H2O |
| 16:50 - 17:05<br>Gielgud-O2 | ARMELLE RINGUEDE *(Institut de Recherche de Chimie Paris, CNRS UMR 8247, Chimie ParisTech)*, André GRISHIN, Simon HUBERT, Valerie ALBIN, Michel CASSIR, Virginie LAIR<br>Transport Mechanisms in Composite Electrolyte for Hybrid Cells |
| 17:05 - 17:20<br>Gielgud-O3 | Sang Eun Lee *(Dankook University)*, Preethi Sudarsan, Hee Jung Park<br>Electrochemical Characteristics of Metal Supported Solid Oxide Fuel Cells with a Buffer Layer Fabricated Using Ultrafine GDC Particles |
| 17:20 - 17:35<br>Gielgud-O4 | Piotr Winiarz *(AGH University of Krakow, Faculty of Energy and Fuels, Al. Mickiewicza 30, 30-059 Krakow, Poland)*, Kun Wang, Konrad Świerczek, Kun Zheng<br>Negative thermal expansion coefficient materials utilization to enhance the performance of electrospun oxygen electrodes for Solid Oxide Cells |
| 18:00 - 19:30 | **Poster Session** |

| July 16th - Day 3 (Tuesday) | |
|---|---|
| 07:30 - 08:30 | **Registration** |
| | **Plenary Session 2. Room: Fleming** |
| 08:30 - 09:20<br>Fleming-T1 | Y. Shirley Meng *(Division of Chemical Sciences and Engineering, Argonne National Laboratory)*<br>The Solid State Renaissance - Science Frontiers at A Glance |
| 09:20 - 09:30 | **SSI Journal Announcement. Room: Fleming** |
| 09:30 - 09:45 | **Session Change** |
| | **2B1 Lithium Electrodes. Room: Fleming**<br>Chair: Yiyang Li |
| 09:45 - 10:15<br>Fleming-K1 | Arumugam Manthiram *(The University of Texas at Austin)*<br>Pushing the Limits of High-nickel Layered Oxide Cathodes in Lithium-ion Batteries |
| 10:15 - 10:35<br>Fleming-I1 | François WEILL *(CNRS, Univ. Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France)*, Gozde ONEY, Jacob OLCHOWKA, Arnaud DEMORTIERE, Laurence CROGUENNEC<br>Influence of Local Order on Electrochemical Properties of High Voltage Spinel LiNi0.5Mn1.5O4 |
| 10:35 - 10:50<br>Fleming-O1 | Adrien Fauchier Magnan *(Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, 38000 Grenoble, France)*, Léa Mangani, Lucas Trassart, Sylvain Franger, Claire Villeveille<br>Understanding the Mixed Ionic Conduction in Composite Electrode (NCM/LPSCl) for All Solid-State Batteries |
| | **2B2 Anion Conductors. Room: Westminster**<br>Chair: Kotaro Fujii |
| 09:45 - 10:15<br>Westminster-K1 | PETER CROZIER *(School for Engineering of Matter, Transport and Energy, Arizona State University)*<br>Towards Visualization of Atomic-Level Transport in Ion Conductors: Characterizing Structural Dynamics with Advanced Electron Microscopy and Data Science |
| 10:15 - 10:35<br>Westminster-I1 | Konrad Świerczek *(AGH University of Krakow, Faculty of Energy and Fuels, Department of Hydrogen Energy, al. A. Mickiewicza 30, 30-059 Krakow, Poland)*<br>New complex perovskites and related oxides for electrochemical applications |
| 10:35 - 10:50<br>Westminster-O1 | Juliusz Dąbrowa, Jan Adamczyk *(AGH University of Krakow, PL)*, Karolina Bar, Klaudia Zielińska, Marek Zajusz, Maria Szymczak, Margarita Nowakowska, Andrzej Mikuła, Konrad Świerczek<br>Beyond the high entropy approach – highly functional, Sr-free, multicomponent cathodes for solid oxide fuel cells |
| | **2B3 Protonic Materials. Room: St.James**<br>Chair: Chuancheng Duan |
| 09:45 - 10:15<br>St.James-K1 | Nicola Perry *(University of Illinois Urbana-Champaign)*<br>Toward Descriptors for Near-Zero-Chemical-Strain Perovskites |
| 10:15 - 10:35<br>St.James-I1 | Werner Sitte *(Chair of Physical Chemistry, Montanuniversitaet Leoben, Franz-Josef-Strasse 18, A-8700 Leoben, Austria)*, Christina Nader, Andreas Egger, Edith Bucher, Judith Lammer, Werner Grogger, Rotraut Merkle, Joachim Maier<br>Phase Composition, Cation Distribution and Proton Uptake of Self-Generated Ba(Ce,Fe,In)O3-δ Composites |
| 10:35 - 10:50<br>St.James-O1 | Tomohiro Ishiyama *(National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan)*, Hiroko Arai, Hiroki Nagashima, Hiroyuki Miyamura, Kenji Koga, Aditya Sharma, Takuya Yamaguchi, Takahisa Omata<br>Cermet-supported type phosphate glass electrolyte electrochemical cell for energy conversion devices |
| | **2B4 In-situ/In-Operando Techniques. Room: Moore**<br>Chair: Catalina Elena Jiménez |
| 09:45 - 10:15<br>Moore-K1 | SOSSINA HAILE *(Department of Materials Science and Engineering, Northwestern University, Evanston)*<br>The Surface Defect Chemistry of Ceria: Exploiting the Power of Angle-Resolved X-ray Absorption Spectroscopy for Exquisite in situ Characterization |
| 10:15 - 10:35<br>Moore-I1 | Cortney Kreller *(Los Alamos National Laboratory, Los Alamos, NM 87545, USA)*, Benjamin Derby, James Valdez, Wang Yongqiang, Franziska Schmidt, Tinsley Benhaddouch, Blas Uberuaga<br>In situ Characterization of Radiation-Induced Transport in Complex Oxides |
| 10:35 - 10:50<br>Moore-O1 | Stefan Kucharski *(Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research)*, Yoo Jung Sohn, Christian Lenser, Olivier Guillon, Norbert H. Menzler<br>Operando X-ray Diffraction and Spectroscopy of Solid Oxide Electrolyser Cells |
| | **2B5 Exsolution/ Surfaces. Room: Abbey**<br>Chair: Sivaprakash Sengodan |
| 09:45 - 10:15<br>Abbey-K1 | Alexander K. Opitz *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*<br>Small Tweaks with Big Impact: Manipulating Catalytic Activity of Mixed Conducting Electrodes by Surface Chemistry Modification |
| 10:15 - 10:35<br>Abbey-I1 | Moritz L. Weber *(Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California 94720, United States)*, Dylan Jennings, Břetislav Šmíd, Sarah Fearn, Andrea Cavallaro, Alexander Gutsche, Lisa Heymann, Jia Guo, Liam Yasin, Samuel J. Cooper, Stephen J. Skinner, Regina Dittmann, Ainara Aguadero, Slavomir Nemšák, Christian Lenser, Felix Gunkel<br>Space charge effects on the reaction kinetics of metal exsolution and the coalescence of exsolved nanoparticles |
| 10:35 - 10:50<br>Abbey-O1 | Alexander Bonkowski *(Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany)*, Roger A. De Souza<br>A single model for the thermodynamics and kinetics of nanoparticle exsolution from perovskite-oxides |
| | **2B6 Materials Discovery/ High Entropy Materials. Room: Gielgud**<br>Chair: Miriam Botros |
| 09:45 - 10:15<br>Gielgud-K1 | Matthew Rosseinsky *(University of Liverpool)*<br>Digital Routes to Inorganic Materials – A New Pathway for Ion Transport in Solids |
| 10:15 - 10:35<br>Gielgud-I1 | Yue Shui, Yinchun Shi, Lei Zhu, Zhen Huang, Na Ni *(School of Mechanical Engineering, Shanghai Jiao Tong University, 800 Dongchuan Rd, 200240, China)*<br>Structural Disorder, Sintering and Electrochemical Properties of High Entropy ABO3 Solid Oxide Cell Air Electrode Materials |

| | |
|---|---|
| 10:35 - 10:50<br>Gielgud-O1 | Florian Strauss *(Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany)*, Shango Li, Jing Lin, Mareen Schaller, Sylvio Indris, Xin Zhang, Torsten Brezesinski, Ce-Wen Nan, Shuo Wang<br>Tuning Ionic Conductivity in High Entropy Lithium Argyrodite Solid Electrolytes |
| 10:50 - 11:20 | **Coffee Break** |
| | **3B1 Lithium Electrodes. Room: Fleming**<br>Chair: Arumugam Manthiram |
| 11:20 - 11:40<br>Fleming-I1 | Yiyang Li *(University of Michigan)*<br>Quantifying Lithium Transport in Individual Battery Particles |
| 11:40 - 11:55<br>Fleming-O1 | Yuta Kimura *(Tohoku University)*, Mai Tanaka, Su Huang, Takashi Nakamura, Nozomu Ishiguro, Oki Sekizawa, Kiyofumi Nitta, Tomoya Uruga, Kingo Ariyoshi, Tomonari Takeuchi, Toyoki Okumura, Mizuki Tada, Yoshiharu Uchimoto, Koji Amezawa<br>3D Operando Tracking of Electrochemical Reactions in an Active Material Particle Ensemble in Solid-State Battery Electrodes |
| 11:55 - 12:10<br>Fleming-O2 | Masatsugu Oishi *(Tokushima University)*, Raku Hamamoto, Satoshi Hiroi, Koji Ohara<br>Functions of low crystallinity in Li-rich layered oxide electrode evaluated by pair distribution function analysis |
| | **3B2 Anion Conductors. Room: Westminster**<br>Chair: PETER CROZIER |
| 11:20 - 11:40<br>Westminster-I1 | Kotaro Fujii *(Tokyo Institute of Technology)*, Masatomo Yashima<br>Exploration and structure science of novel oxide-ion and proton conductors |
| 11:40 - 11:55<br>Westminster-O1 | Davide Chinello *(Department of Chemical Sciences, University of Padova, via Marzolo 1, 35131 Padova, Italy)*, Antonella Glisenti<br>Tailoring B-site doping in molybdenum-based double perovskites: implications on thermo- and electro-catalytic activity |
| 11:55 - 12:10<br>Westminster-O2 | Fanlin Zeng *(Institute of Energy and Climate Research, Materials Synthesis and Processing (IEK-1), Forschungszentrum Jülich GmbH, 52425 Jülich, Germany)*, Wendelin Deibert, Wilhelm Albert Meulenberg, Stefan Baumann<br>Promoting the performance of doped alkaline earth titanates as mixed ionic and electronic conductors for thermal water splitting |
| 12:10 - 12:25<br>Westminster-O3 | Julien Riviere *(UMR 8181 -UCCS- Unité de catalyse et de chimie du solide, Équipe chimie du solide. Univ. Lille, CNRS, Centrale Lille Institut, Univ. Artois. F-59000, Lille, France.)*, Aurélie Rolle, Victor Duffort, Rose-Noelle Vannier<br>Ca2Fe2-x(Co,Mn)xO5+δ as possible La-Free air electrodes for Solid oxide electrolyser cell |
| 12:25 - 12:35<br>Westminster-S1 | Vernon Smith *(Bruker Corporation)*<br>Bruker AXS X-ray diffraction solutions for the advanced characterization of solid state ionics – from atoms to devices |
| | **3B3 Protonic Materials. Room: St.James**<br>Chair: Nicola Perry |
| 11:20 - 11:40<br>St.James-I1 | Chuancheng Duan *(Kansas State University)*, Fan Liu, Liyang Fang, Zixian Wang<br>Approaches to reducing the operating temperature of protonic ceramic electrochemical cells |
| 11:40 - 11:55<br>St.James-O1 | Dongyeon Kim *(Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea)*, Jun Hyuk Kim, Sejong Ahn, Kang Taek Lee, WooChul Jung<br>Advanced Oxygen Electrodes for Protonic Ceramic Electrochemical Cells: The Role of Ta-Stabilized BaCoO3-□ |
| 11:55 - 12:10<br>St.James-O2 | Zhongwei Yue *(Foshan Xianhu Laboratory)*, San Ping Jiang<br>MECHANISMS of GENERATION and EVOLUTION of the PCFC OXYGEN ELECTRODE/ELECTROLYTE INTERFACE |
| | **3B4 In-situ, In-Operando Techniques. Room: Moore**<br>Chair: Cortney Kreller |
| 11:20 - 11:40<br>Moore-I1 | Catalina E. Jimenez *(Helmholtz-Zentrum Berlin für Materialien und Energie, 12489 Berlin, Germany)*, Mauricio D. Arce, Rosario Suarez Anzorena, Mariano Santaya, Lucia M. Toscani, Emilia A. Carbonio, Raul Garcia Diez, Marianne van der Merwe, R. Enggar Wibowo, Mauro Melone, Nadia Gamba, Virginia Pérez Dieste, Ignacio J. Villar García, Daniel Többens, Shah Zareen, Lucas Bodenstein Dresler, Andrés López García, Wilson Quevedo Garzón, Dirk Wallacher, Nico Grimm, Regan G. Wilks, Axel Knop-Gericke, Susana A. Larrondo, Horacio E. Troiani, Liliana V. Mogni, Marcus Bär<br>Insights by Advanced Synchrotron-Based Methods at the Solid/Gas Interface of Electrode Materials for Solid Oxide Cells |
| 11:40 - 11:55<br>Moore-O1 | Savita Chaoudhary *(Institute of Material Science, TU Darmstadt, 64287 Darmstadt (Germany))*, Pengcheng Hu, Binxiang Huang, Kim Alexander Creutz, Yue Liu, Gero Pickel, Vinit Agarwalla, Alexander Frebel, Andreas Klein<br>Operando XPS studies of electrodes and electrolyte/electrode interfaces of solid oxide electrochemical cells |
| 11:55 - 12:10<br>Moore-O2 | Andreas Nenning *(TU Wien)*, Alexander Opitz, Matthäus Siebenhofer, Christoph Riedl, Raffael Rameshan, Christoph Rameshan, Jürgen Fleig<br>What can In-situ XPS Tell us About Reaction Mechanisms on Solid Oxide Cell Electrodes? |
| 12:10 - 12:25<br>Moore-O3 | Arim Seong *(Department of Materials Exhibition Road, Imperial College London, London, SW7 2AZ, UK)*, Santanu Ray, Robert Leah, Subhasish Mukerjee, Stephen Skinner<br>Understanding the evolution of chemistry and microstructure of functional ceramic interfaces under solid oxide cell operation |
| | **3B5 Exsolution/ Surfaces. Room: Abbey**<br>Chair: Alexander Opitz |
| 11:20 - 11:40<br>Abbey-I1 | Sivaprakash Sengodan *(Khalifa University)*<br>Unlocking High-Performance SOFC Anodes: Pd3Mn Alloy Exsolution from PrBaMn2O5+δ |
| 11:40 - 11:55<br>Abbey-O1 | Bianca Dißmann *(Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany)*, Jonathan M. Polfus, Andreas Rosnes, Roger A. De Souza<br>Diffusion of Nickel upon Exsolution from LaySr1-1.5yTi1-xNixO3-δ Studied by DFT Simulations and Thermogravimetry |
| 11:55 - 12:10<br>Abbey-O2 | Princess Inangha *(Faculty of Engineering, Department of Materials, Imperial College, London)*<br>Visualizing the Size Evolution of Exsolved Nanoparticles by In-situ X-ray Scattering ` |
| 12:10 - 12:25<br>Abbey-O3 | Dylan Jennings *(Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Materials Synthesis and Processing (IEK-1), 52425 Jülich, Germany)*, Moritz L. Weber, Yen-Po Liu, Ansgar Meise, Moritz Kindelmann, Ivar Reimanis, Hiroaki Matsumoto, Pengfei Cao, Regina Dittman, Joachim Mayer, Felix Gunkel, Wolfgang Rheinheimer<br>Disparate Behavior in Exsolved Nanoparticles: The Influence of Embedded Nanostructures on Nanoparticle Dynamics |
| | **3B6 Materials Discovery/ High Entropy Materials. Room: Gielgud**<br>Chair: Matthew Rosseinsky |

| | |
|---|---|
| 11:20 - 11:40<br>Gielgud-I1 | Yang Xu *(University College London, London,)*<br>Incorporating K-ions in the Cathode Materials for Sodium-Ion Batteries |
| 11:40 - 11:55<br>Gielgud-O1 | Yanyan Cui, Yushu Tang, Jing Lin, Junbo Wang, Simon Schweidler, Torsten Brezesinski, Miriam Botros *(Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany)*<br>Photonic Surface Coating of High-Entropy Oxides on NCM Particles |
| 11:55 - 12:10<br>Gielgud-O2 | Jing Lin *(Battery and Electrochemistry Laboratory, Institute of Nanotechnology, Karlsruhe Institute of Technology)*, Mareen Schaller, Sylvio Indris, Jürgen Janek, Aleksandr Kondrakov, Torsten Brezesinski, Florian Strauss<br>Multicationic Substituted High-Entropy Lithium Argyrodite Superionic Conductors |
| 12:10 - 12:25<br>Gielgud-O3 | Alexandros Vasileiadis *(Storage of Electrochemical Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2929JB, Delft, The Netherlands)*, James A. Quirk, Anastasia K. Lavrinenko, Theodosios Famprikis, Jouke R. Heringa, James A. Dawson, Marnix Wagemaker, Victor Landgraf, Pedro B. Groszewicza<br>Unveiling the Role of Structural Disorder in Argyrodite Solid Electrolytes for Enhanced Li-ion Conductivity |
| 12:35 - 14:00 | **Lunch Break** |
| | **4B1 Lithium Electrodes. Room: Fleming**<br>Chair: Kisuk Kang |
| 14:00 - 14:30<br>Fleming-K1 | Montse Casas Cabanas *(Center for Cooperative Research on Alternative Energies (CIC energiGUNE), Basque Research and Technology Alliance (BRTA))*, Marcus Fehse, Iciar Monterrubio, Nahom Enkubahri Asres, Juan Miguel López del amo, Marine Reynaud<br>Crystal Chemistry Insights into LiM0.5Mn1.5O4 (M = Ni, Fe) Spinels and Influence on Electrochemical Performance |
| 14:30 - 14:50<br>Fleming-I1 | Robert House *(Department of Materials, University of Oxford; Oxford, UK)*, John-Joseph Marie, Miguel Perez-Osorio, Gregory Rees, Mikkel Juelsholt, Jun Chen, Peter Bruce<br>Oxygen-redox Chemistry in High Energy Density Battery Cathodes |
| 14:50 - 15:05<br>Fleming-O1 | Ilia Tertov *(Institut de Chimie de la Matière Condensée de Bordeaux, CNRS, France)*, Emmanuelle Suard, Laurence Croguennec, Christian Masquelier, Thomas Hansen, François Fauth, Pierre-Etienne Cabelguen<br>Exploring Ni/Mn Ordering in LNMO via Comprehensive Neutron and X-ray Diffraction Study |
| 15:05 - 15:20<br>Fleming-O2 | Sou Taminato *(Mie University)*, Ryosuke Goto, Daisuke Mori, Nobuyuki Imanishi<br>Synthesis and Lithium (De-)intercalation Properties of Li5+xFe1-xMnxO4 with Anti-fluorite Type Structure for Lithium Battery Cathode |
| | **4B2 Anion Conductors. Room: Westminster**<br>Chair: Tatsumi Ishihara |
| 14:00 - 14:30<br>Westminster-K1 | Brent Melot *(Departments of Chemistry, Chemical Engineering, and Materials Science, University of Southern California, Los Angeles, CA, USA)*<br>Looking Beyond Alkali Metal Intercalation for Energy Storage |
| 14:30 - 14:50<br>Westminster-I1 | Briséïs Mercadier, Samuel Coles, Mathieu Duttine, Christophe Legein, Monique Body, Olaf Borkiewicz, Oleg Lebedev, Benjamin Morgan *(Department of Chemistry, University of Bath, Claverton Down, Bath BA2 7AY, United Kingdom)*, Christian Masquelier, Damien Dambournet<br>Dynamic Lone Pairs and Fluoride-Ion Disorder in Cubic-BaSnF4 |
| 14:50 - 15:05<br>Westminster-O1 | Stephen Hull *(The ISIS Facility, STFC Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire, OX11 0QX, U.K.)*, Gabriel Perez, Helen Playford, Robbie Shaw<br>Fluoride-ion Conductors for Future Solid State Batteries |
| 15:05 - 15:20<br>Westminster-O2 | Arunkumar Dorai *(Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai 980-8577, Japan)*, Miwa Murakami, Atsushi Mineshige, Reiji Takekawa, Kiyonori Takegoshi, Takahisa Omata, Junichi Kawamura<br>Fluoride ion conduction mechanism Ba1-xSnxF4 solid electrolyte studied using 19F PFG-NMR |
| 15:20 - 15:35<br>Westminster-O3 | Chengchao Zhong *(Department of Applied Chemistry, Ritsumeikan University, Japan)*, Shintaro Tachibana, Tailei Xu, Yu Shintomi, Keiji Shimoda, Takashi Saito, Takashi Kamiyama, Shogo Kawaguchi, Yuki Orikasa<br>F− Conduction in Fluorosulphide La2SrF4S2 and Cation-anion Engineering for Conductivity Enhancement |
| | **4B3 Protonic Materials. Room: St.James**<br>Chair: TRULS NORBY |
| 14:00 - 14:30<br>St.James-K1 | Tatsuya Kawada *(Graduate School of Environmental Studies, Tohoku University, Japan)*, Taisei Segami, Ryuta Sato, Soichiro Ebata, Satoshi Watanabe, Riyan Budiman, Mina Yamaguchi, Keji Yashiro, Koji Amezawa<br>Stress Distribution in Proton Conducting Oxide under Fuel Cell Operation Conditions |
| 14:30 - 14:45<br>St.James-O1 | Yong-Yun Hsiau *(University of Illinois Urbana-Champaign)*, Yea-Shine Lee, Liz Griffin, Roberto dos Reis, Bernadette Cladek, Vinayak Dravid, Katharine Page, Nicola Perry<br>Growth, Structure, and Kinetics of Triple-conducting Vertically Aligned Nanocomposites |
| 14:45 - 15:00<br>St.James-O2 | Moritz Kindelmann *(Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research)*, Sonia Escolastico, Laura Almar, Julian Ebert, Dylan Jennings, Wolfgang Rheinheimer, Martin Bram, Jose Serra, Joachim Mayer, Olivier Guillon<br>Acceptor dopant segregation controls the conductivity of barium zirconate based proton conductors |
| 15:00 - 15:15<br>St.James-O3 | Toshiaki Matsui *(Kyoto University)*, Takashi Ozeki, Nahoko Sugioka, Kazunari Miyazaki, Sadahiro Nagasaka, Hiroki Muroyama, Koichi Eguchi, Kenichi Imagawa, Yoshimi Okada<br>Intermediate-temperature proton conductivity of Li+/H+ ion-exchanged material (Li,H)3.5Zn0.25GeO4 |
| | **4B4 In-situ/in-Operando Techniques. Room: Moore**<br>Chair: Nuria Tapia Ruiz |
| 14:00 - 14:30<br>Moore-K1 | William Chueh *(Department of Materials Science & Engineering, Stanford University)*<br>Oxygen Transport in Lithium Layered Oxides |
| 14:30 - 14:50<br>Moore-I1 | Neil Dasgupta *(University of Michigan)*<br>Operando Visualization of Solid-State Batteries: From Metal Anodes to Composite Cathodes |
| 14:50 - 15:05<br>Moore-O1 | Jongwoo Lim *(Seoul National University, Seoul, South Korea)*<br>lithium insertion dynamics at multi-length-scale |
| 15:05 - 15:20<br>Moore-O2 | Sivakkumaran Sukumaran *(Department of Materials, Imperial College London, South Kensington Campus, London, SW7 2AZ, U.K.)*, Sarah Fearn, Stephen Skinner<br>In situ TOF-SIMS Investigation of the Dynamic Metallic Anode\|Solid-Electrolyte Interface in Solid-State Sodium-ion Batteries |

| | |
|---|---|
| 15:20 - 15:35<br>Moore-O3 | Valerie Siller, Barthélémy Lelotte Lelotte, Robin Wullich, Marta Mirolo, Laura Höltschi, Vincent Pelé, Christian Jordy, Carlos A. F. Vaz, Camelia Borca, Thomas Huthwelker, Petr Novák, Mario El Kazzi *(Electrochemistry Laboratory, Paul Scherrer Institute, Forschungstrasse 111, 5232 Villigen PSI, Switzerland)*<br>Operando XPS/XAS/XPEEM: Exploiting Complementary Techniques to Probe the Interfaces in All-Solid-State Batteries |
| | **4B5 Exsolution/ Surfaces. Room: Abbey**<br>Chair: Ilan Riess |
| 14:00 - 14:30<br>Abbey-K1 | WooChul Jung *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea.)*<br>An Ideal Surface Reveals How Active It Is and Why It Degrades: Atomically Flat SrTi0.5Fe0.5O3-δ Model Thin Film – a Case Study |
| 14:30 - 14:50<br>Abbey-I1 | Simone Mascotto *(Institute of Integrated Natural Science, University of Koblenz, Germany)*, Filippo Colombo, Anastasios Tsiotsias, DongHwan Oh, Maria Goula, WooChul Jung<br>Switchable catalysts realized via exsolution |
| 14:50 - 15:05<br>Abbey-O1 | Jakub Lach *(Department of Hydrogen Energy, Faculty of Energy and Fuels, AGH University of Krakow, al. A. Mickiewicza 30, 30-059 Krakow, Poland)*, Kun Zheng, Alicja Klimkowicz, Michał Gogacz, Cristian Radu, Jie Luo, Damian Kaufmann, Paweł Czaja, Yihan Ling<br>Tuning nanofibrous electrode materials (Sm/Nd)0.9Ba0.9Mn1.8-xFexNi0.1Co0.1O6-δ with in situ Exsolved Nanocatalysts for Symmetrical Solid Oxide Cells |
| 15:05 - 15:20<br>Abbey-O2 | Alfonso J. Carrillo *(Instituto de Tecnología Química, UPV-CSIC, Av. de los Naranjos s/n, 46022 Valencia, Spain)*, Andrés López-García, Sonia Remiro-Buenamañana, Dragos Neagu, Jose Manuel Serra<br>Compositional optimization of multicomponent metallic nanoparticles via high-pressure exsolution from double perovskite electrodes |
| 15:20 - 15:35<br>Abbey-O3 | Jonathan Cavazzani *(Department of Chemical Sciences, University of Padova, Via F. Marzolo 1, 35131, Padova, Italy)*, Antonella Glisenti<br>Exsolution of NiFe alloy from titanates/ferrites-based perovskite for Solid Oxide Fuel Cells running on ammonia as alternative fuel |
| | **4B6 Materials Discovery/ High Entropy Materials. Room: Gielgud**<br>Chair: Kosova Kreka |
| 14:00 - 14:30<br>Gielgud-K1 | Anatoly Frenkel, Yue Qi, Ellen Wachtel, David Ehre, Igor Lubomirsky *(Dept. of Molecular Chemistry and Materials Science, Weizmann Institute of Science, Rehovot, 7610015, Israel)*<br>Electrostriction in Ionic Conductors: Origin and Implications |
| 14:30 - 14:50<br>Gielgud-I1 | Aleksandra Mielewczyk-Gryń *(Institute of Nanotechnology and Materials Engineering, Faculty of Applied Physics and Mathematics, and Advanced Materials Centre, Gdańsk University of Technology, Narutowicza 11/12, 80-233 Gdańsk, Poland)*, Daniel Jaworski, Arkadiusz Dawczak, Sebastian Wachowski, Tadeusz Miruszewski, Tamilarasan Subramani, Hanna Kavaliuk, Alexandra Navrotsky, Maria Gazda<br>High Entropy Oxides a buzz word or a new opening for proton conducting ceramics |
| 14:50 - 15:05<br>Gielgud-O1 | Seeun Oh *(Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea)*, Dongyeon Kim, Hyeonggeun Kim, Kang Taek Lee<br>Designing Highly Stable and Catalytic Oxygen Electrodes for Protonic Ceramic Electrochemical Cells Using High-Entropy Materials |
| 15:05 - 15:20<br>Gielgud-O2 | Sebastian Wachowski *(Institute of Nanotechnology and Materials Engineering, Faculty of Applied Physics and Mathematics, and Advanced Materials Centre, Gdańsk University of Technology, Narutowicza 11/12, 80-233 Gdańsk, Poland)*, Hanna Kavaliuk, Iga Szpunar, Aleksandra Mielewczyk-Gryń, Tadeusz Miruszewski, Ragnar Strandbakke, Maria Balaguer<br>Mixed protonic-electronic conductivity in barium lanthanide cobaltites: from simple perovskites to high entropy materials. |
| 15:35 - 16:05 | **Coffee Break** |
| | **5B1 Lithium Electrodes. Room: Fleming**<br>Chair: Montse Casas Cabanas |
| 16:05 - 16:35<br>Fleming-K1 | Kisuk Kang *(Center for Nanoparticle Research, Institute of Basic Science, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul 151-742, Republic of Korea)*<br>A series of new Li-excess layered transition metal oxide with high energy density and no voltage fades |
| 16:35 - 16:50<br>Fleming-O1 | Chia-Chin Chen *(Department of Chemical Engineering, National Taiwan University, Taipei 10617, Taiwan)*<br>Mixed Ion-Electron Transport in Composite Battery Electrodes |
| 16:50 - 17:05<br>Fleming-O2 | Hirotada Gamo *(National Institute of Advanced Industrial Science and Technology (AIST), Kansai Center)*, Hikaru Sano, Tetsu Kiyobayashi, Zyun Siroma, Yasushi Maeda<br>Understanding Mechanism of Microscopic Conduction in Cathode Composites for All-Solid-State Batteries via Scanning Spreading Resistance Microscopy |
| 17:05 - 17:20<br>Fleming-O3 | Sabrina Sicolo *(Technical University, Darmstadt)*, Marcel Sadowski, Kilian Vettori, Matteo Bianchini, Juergen Janek, Karsten Albe<br>Off-Stoichiometry, Vacancy Trapping, and Pseudo-irreversible First-Cycle Capacity in LiNiO2 |
| 17:20 - 17:35<br>Fleming-O4 | Takashi Nakamura *(Tohoku University)*, Yuta Kimura, Koji Amezawa, Juergen Janek<br>Anion Defect Engineering for Spinel-Type Cathode LiMn2O4 |
| 17:35 - 17:50<br>Fleming-O5 | Chun-Yen Yang *(National Taiwan University, Taiwan)*, Chia-Chin Chen<br>Anomalous lithium storage in self-activated metal-organic frameworks driven by structural transformation |
| | **5B2 Anion Conductors. Room: Westminster**<br>Chair: Brent Melot |
| 16:05 - 16:35<br>Westminster-K1 | Tatsumi Ishihara *(Kyushu University, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Japan)*, Maksymilian Kluczny, Song Juntae, Watanabe Motonori<br>Mixed anion conductivity in PbB2iO2Cl doped with Ca and Ga |
| 16:35 - 16:50<br>Westminster-O1 | Kanghee Jo *(Pusan National University)*, Taeheun Lim, Jiseung Ryu, Ryan O'Hayre, Heesoo Lee<br>Surface charge transfer in oxygen reduction reaction of A-site doped PrBaCo1.9Cu0.1O5+δ for IT-SOFC |
| 16:50 - 17:05<br>Westminster-O2 | Rosario Suarez Anzorena *(Dept. Interface Design, Helmholtz-Zentrum für Materialen und Energie GmbH (HZB), Albert-Einstein-Straße 15, 12489 Berlin, Germany)*, Catalina E. Jiménez, Lucía M. Toscani, Mauro Melone, Virginia Pérez-Dieste, Ignacio J. Villar-García, Daniel Többens, Shah Zareen, Lucas Bodenstein-Dresler, Andrés López-García, Wilson Quevedo Garzon, Matthijs van Spronsen, Raul Garcia-Diez, Dirk Wallacher, Nico Grimm, Regan G. Wilks, Susana A. Larrondo, Marcus Bär<br>Ni-Fe/CeO2-based Electrodes for Intermediate Temperature Solid Oxide Cells |
| 17:05 - 17:20<br>Westminster-O3 | Alejandro Natoli *(Universidad San Pablo-CEU, CEU Universities, Facultad de Farmacia, Departamento de Química y Bioquímica, Urbanización Montepríncipe, Boadilla del Monte, Madrid, E-28668, Spain.)*, Ulises Amador, Susana García-Martín, Flaviano García-Alvarado<br>SrFe1-xSbxO3-δ AS POTENTIAL AIR ELECTRODE FOR SOLID OXIDE ELECTROLYZER CELLS |
| 17:20 - 17:35<br>Westminster-O4 | Juan Bisquert *(Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castelló, Spain)*<br>Hysteresis processes in ionic, electronic and biological devices |

| | |
|---|---|
| 17:35 - 17:50<br>Westminster-O5 | Christian Rodenbücher *(Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK-14))*, Gustav Bihlmayer, Kristof Szot, Carsten Korte<br>Influence of Dislocations on the Redox Processes in Strontium Titanate |
| | **5B3 Protonic Materials. Room: St.James**<br>Chair: Tatsuya Kawada |
| 16:05 - 16:35<br>St.James-K1 | TRULS NORBY *(Department of Chemistry, Centre for Materials Science and Nanotechnology, University of Oslo)*<br>Mechanisms and Polarisation of Electrodes for Proton Ceramic Electrochemical Cells |
| 16:35 - 16:50<br>St.James-O1 | Or Ben Zion *(Dept. of Molecular Chemistry and Materials Science, Weizmann Institute of Science, Rehovot, 7610015, Israel)*, Tahel Malka, David Ehre, Igor Lubomirsky, Isaac Abrahams<br>Effect of hydration on electrical and electromechanical properties of lanthanum-cerium oxides |
| 16:50 - 17:05<br>St.James-O2 | Heejung W. Chung *(Massachusetts Institute of Technology (MIT), Department of Materials Science and Engineering (DMSE))*, Pjotrs Žguns, Ju Li, Bilge Yildiz<br>Quantified oxygen sublattice flexibility correlates with proton-hopping barriers in diverse ternary metal oxides |
| 17:05 - 17:20<br>St.James-O3 | Takahisa Omata *(Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University)*, Aman Sharma, Issei Suzuki, Kei Toyooka, Tomohiro Ishiyama, Junji Junji<br>Suppression of electronic conduction by local structural change around vanadium ions induced by replacing sodium ions with protons in vanadophosphate glass |
| 17:20 - 17:35<br>St.James-O4 | Yabing Wen *(University of Oslo (UiO))*, Yadan Luo, Truls Norby<br>Polarization from the space charge layer at the interface between metal Ag electrodes and proton ceramic electrolytes |
| | **5B4 In-situ, In-Operando Techniques. Room: Moore**<br>Chair: Peter Bruce |
| 16:05 - 16:35 | |
| 16:35 - 16:50<br>Moore-O1 | Ozgur Capraz *(University of Maryland Baltimore County)*<br>Probing Chemo-Mechanical Deformations in Cathode Materials for Alkali Metal Ion Batteries via Operando Stress/Strain Measurements |
| 16:50 - 17:05<br>Moore-O2 | Chao Zhu, Franjo Weber, Till Fuchs, Shiguru Kobayashi, Felix Richter, Taro Hitosugi, Jürgen Janek, Rüdiger Berger *(Max Planck Institute for Polymer Research, Ackermannweg 10, 55128 Mainz, Germany)*<br>Lithium dendrite growth and space charge layers detected by operando KPFM measurements |
| 17:05 - 17:20<br>Moore-O3 | Boyang Fu *(AGH University of Krakow, Faculty of Energy and Fuels, Al. Mickiewicza 30, 30-059 Krakow, Poland)*, Andrzej Kulka, Konrad Świerczek<br>Interphase Engineering by Electrolyte Additives for Lithium-Rich Layered Oxides: operando XRD studies, operando Raman studies, and electrochemical properties |
| 17:20 - 17:35<br>Moore-O4 | Zhiyuan ZENG *(Department of Materials Science and Engineering, City University of Hong Kong, Hong Kong SAR, P.R. China)*<br>Electrochemical lithium intercalation & exfoliation in 2D TMDs and its in-situ studies |
| | **5B5 Exsolution/ Surfaces. Room: Abbey**<br>Chair: WooChul Jung |
| 16:05 - 16:35<br>Abbey-K1 | Ilan Riess *(Physics Department, Technion-IIT, Haifa 3200003, Israel)*<br>The unique properties of the surface monomolecular layer of reduced ceria |
| 16:35 - 16:50<br>Abbey-O1 | Yuji Okuyama *(Faculty of Engineering, University of Miyazaki, Gakuen-kibanadai-nishi-1-1, Miyazaki, 889-2192, Japan.)*, Hideaki Iguchi, Yuki Sekitani, Kosuke Yamuchi, Yuichi Mikami, Tomohiro Kuroha, Youya Sasakawa, Nai Shi, Junji Hyodo, Yoshihiro Yamazaki<br>Ni exsolution induced fast proton conduction in Lu and Ni-codoped barium zirconate |
| 16:50 - 17:05<br>Abbey-O2 | Juanita Hidalgo *(Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA)*, Florian Schrenk, Filip Grajkowski, Bilge Yildiz<br>Understanding surface chemistry and exsolution mechanisms by in-situ ambient-pressure spectroscopy for optimal nanocatalyst design |
| 17:05 - 17:20<br>Abbey-O3 | Zhishan Li *(Foshan Xianhu Laboratory)*, San Ping Jiang<br>EFFECT of SURFACE DECORATED CeO2 AMOUNT on the ELECTROCHEMICAL PERFORMANCE of RSOC FUEL ELECTRODE |
| 17:20 - 17:35<br>Abbey-O4 | Alexandre Merieau *(Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France)*, Olivier Joubert, Clément Nicollet<br>Surface acidity: an understanding of the catalytic properties in mixed conducting oxides for oxygen exchange reaction |
| 17:35 - 17:50<br>Abbey-O5 | Joe Kler *(Institute of Physical Chemistry, RWTH Aachen University)*, Jacqueline M. Börgers, Roger A. De Souza<br>The Effect of Surface Orientation and Water on the Oxygen Surface Exchange in Strontium Titanate |
| | **5B6 Materials Discovery/ High Entropy Materials. Room: Gielgud**<br>Chair: Aleksandra Mielewczyk-Gryń |
| 16:05 - 16:35<br>Gielgud-K1 | Haley Buckner, Joshua Simpson-Gomez, Alexander Bonkowski, Kathrin Rubartsch, Hua Zhou, Roger De Souza, Nicola Perry *(University of Illinois Urbana-Champaign)*<br>Transforming an Ionic Conductor into an Electronic Conductor Through Crystallization |
| 16:35 - 16:50<br>Gielgud-O1 | Margarita Nowakowska *(Faculty of Materials Science and Ceramics, AGH University of Krakow, al. Mickiewicza 30, 30-059 Krakow, Poland)*, Juliusz Dąbrowa, Anna Stępień, Marek Zajusz, Keyun Li, Klaudia Zielińska, Konrad Świerczek<br>Improving the performance of SrFe1-xMoxO3-δ-based SOFC electrodes by application of the high-entropy approach |
| 16:50 - 17:05<br>Gielgud-O2 | Hasti Vahidi, Huiming Guo, William Bowman *(Department of Materials Science and Engineering, University of California, Irvine, Irvine, CA United States 92617)*<br>Atomic and Nanoscale Studies of Secondary Phase Formation and Exsolution-Self-Assembly in High Entropy Oxide Electroceramics |
| 17:05 - 17:20<br>Gielgud-O3 | Kosova Kreka *(Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.)*, Antonio Maria, Simon Schweidler, Miriam Botros, Mohana V. Kante, Marc Torrell, Albert Tarancón<br>High Entropy Oxides for Enhanced Performance and Stability at High Current Densities in Solid Oxide Cells |
| 17:20 - 17:35<br>Gielgud-O4 | Keyun Li *(Department of Hydrogen Energy, Faculty of Energy and Fuels, AGH University of Krakow, al. A. Mickiewicza 30, 30-059 Krakow, Poland)*, Piotr Winiarz, Anna Niemczyk, Yevgeniy Naumovich, Kosova Kreka, Marc Torrell, Albert Tarancón, Konrad Świerczek<br>Development of Oxygen Electrodes for Solid Oxide Cells based on Multicomponent La0.6Sr0.4Ni0.15Mn0.15Fe0.15CuxCo0.55-xO3-δ Perovskite: Role of Copper Substitution, Influence of Entropy and Morphology Modification by Electrospinning |
| 17:35 - 17:50<br>Gielgud-O5 | Yoji Kobayashi *(King Abdullah University of Science and Technology (KAUST) - Saudi Arabia)*<br>Precise anion structure and ionic conductivity of high entropy oxides and oxyhydrides |

| | |
|---|---|
| 18:00 - 19:30 | **Poster Session** |

| July 17th - Day 4 (Wednesday) | |
|---|---|
| 07:30 - 08:20 | **Registration** |
| | **Plenary Session 3. Room: Fleming**<br>Chair: Richard Catlow |
| 08:20 - 09:10<br>Fleming-T1 | Aron Walsh *(Department of Materials, Royal School of Mines, Imperial College London, London SW7 2AZ, England)*<br>Solid State Informatics |
| 09:10 - 09:25 | **Poster Awards Ceremony. Room: Fleming** |
| 09:25 - 09:40 | **ISSI Elections. Room: Fleming** |
| 09:40 - 09:45 | **Session Change** |
| | **2C1 Catalysis. Room: Fleming**<br>Chair: Sean Bishop |
| 09:45 - 10:15<br>Fleming-K1 | Huayang Zhu, Gregory S. Jackson, Joshua Perksy, Robert J. Kee *(Mechanical Engineering, Colorado School of Mines, Golden, CO 80401)*<br>Gadolinium-Doped Ceria as a Mixed-Conducting Electrolyte in a Membrane-Assisted Water-Gas-Shift Process |
| 10:15 - 10:30<br>Fleming-O1 | Gang Wan *(Department of Mechanical Engineering, Stanford University)*, Arun Majumdar<br>When Free Radicals Meet the Solid, Ion, and Gas in Photochemical Methane Oxidation and Removal |
| 10:30 - 10:45<br>Fleming-O2 | Dongha Kim *(University of Toronto)*, Shijie Liu, David Sinton<br>Direct air capture via two-electrolyser electrocatalysis coupled with carbonate crystallizer |
| | **2C2 Materials Modelling. Room: Westminster**<br>Chair: Dane Morgan |
| 09:45 - 10:15<br>Westminster-K1 | Saiful Islam *(Department of Materials, University of Oxford; Oxford, UK)*<br>From Cathodes to Solid Electrolytes: Atomic-Scale Insights into Battery Materials |
| 10:15 - 10:30<br>Westminster-O1 | Yoshitaka Tateyama *(Laboratory for Chemistry and Life Science, Tokyo Institute of Technology, Yokohama, Japan)*, Zizhen Zhou, Huu Duc Luong, Bo Gao<br>Strain Effects on Li-ion Transport around Cathode-Coating Interfaces: A DFT Study |
| 10:30 - 10:45<br>Westminster-O2 | Marcel Sadowski, Sabrina Sicolo, Leonie Koch, Karsten Albe *(TU Darmstadt, Institute of Materials Science, Otto-Berndt-Str. 3, D-64287 Darmstadt, Germany)*<br>On the role of dislocations in chemomechanical degradation of layered transition-metal oxides: A computational study |
| | **2C3 Sodium Batteries/Materials. Room: St.James**<br>Chair: Emma Kendrick |
| 09:45 - 10:15<br>St.James-K1 | Jürgen Janek *(Institute of Physical Chemistry & Center for Materials Research, Justus Liebig University Giessen)*<br>High Capacity Anodes in Lithium and Sodium Solid-State Batteries |
| 10:15 - 10:30<br>St.James-O1 | Alice Beardmore *(Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK)*, Svetlana Menkin, Dominic Wright, Clare Grey<br>Elucidating the Effect of Solvent and Binder Choice on SEI Stability Using Novel Electrolytes for Sodium-Ion Batteries |
| 10:30 - 10:45<br>St.James-O2 | Debolina Deb *(Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India)*, Sai Gautam Gopalakrishnan<br>Exploration of Fluoride-Based Compounds as Na-Ion Cathodes |
| | **2C4 Thin Films/Devices. Room: Moore**<br>Chair: Dillon Fong |
| 09:45 - 10:15<br>Moore-K1 | Albert Tarancón *(ICREA, Passeig Lluís Companys 23, 08010, Barcelona, Spain)*, Juan de Dios Sirvent, Philipp Langner, Fjorelo Buzi, Paul Nizet, Kosova Kreka, Nerea Alayo, Alex Morata, Federico Baiutti, Francesco Chiabrera<br>The Beginning of the Ion Age: Thin Film Oxides for Solid-State Ionics and Iontronics Devices |
| 10:15 - 10:30<br>Moore-O1 | Nicolas Osenciat *(Laboratory for Thin Films and Photovoltaics, Empa – Swiss Federal Laboratories for Materials Science and Technology, CH-8600 Dübendorf, Switzerland)*, Erica Clinton, André Müller, Joël Casella, Jedrzej Morzy, Moritz Futscher, Kumar Yalamanchili, Yaroslav Romanyuk<br>Sputtering of C- and Si-doped LiPON as thin-film electrolyte separator for all-solid-state Li-ion batteries |
| 10:30 - 10:45<br>Moore-O2 | Mohammadhossein Montazerian *(Department of Chemistry and Applied Biosciences, ETH Zürich, Zürich, Switzerland)*, Adil Baiju, Daniele Pergolesi, Mario El Kazzi, Thomas Lippert, Nikita Shepelin<br>All-Oxide all-solid-state micro Li-ion batteries |
| | **2C5 Batteries. Room: Abbey**<br>Chair: Yet-Ming Chiang |
| 09:45 - 10:15<br>Abbey-K1 | Juergen Fleig *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*<br>The Chemical Capacitance as the Link between Defect Chemistry and Electrode Potentials in Lithium Ion and Oxygen Ion Batteries |
| 10:15 - 10:30<br>Abbey-O1 | Alexander Schmid *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Barbara Wagner, Jürgen Fleig<br>Rechargeable oxygen ion batteries based on mixed conducting oxides |
| 10:30 - 10:45<br>Abbey-O2 | Weicheng Hua *(Norwegian University of Science and Technology (NTNU))*, Krisianne Nygård Nilsen Hjelseng, Ann Mari Svensson, Maria Valeria Blanco, Frederico Cova, Johan Jean-Claude Maurice Hamonnet, Pedro Alonso Sanchez, Juan Rubio Zuazo<br>Multi-Pronged Approach for Probing the Reaction Mechanism of SiO2 Anodes in Li-ion Batteries |
| | **2C6 Membranes. Room: Gielgud**<br>Chair: Ian Metcalfe |
| 09:45 - 10:15<br>Gielgud-K1 | Dong Ding *(Energy and Environmental Science and Technology, Idaho National Laboratory, Idaho Falls, ID 83415, USA)*<br>Flexible Chemical and Fuel Production at Elevated Temperature using Protonic Ceramic Electrochemical Cells (PCEC) for a Net-Zero World |
| 10:15 - 10:30<br>Gielgud-O1 | María Balaguer *(Instituto de Tecnología Química (Universitat Politècnica de València – Consejo Superior de Investigaciones Científicas), Av. Los Naranjos, s/n, 46022 Valencia, Spain)*, Sonia Escolástico, Cecilia Solís, Fidel Toldra-Reig, Simona Somacescu, Uta Gerhards, Ainara Aguadero, Katja Haas-Santo, Roland Dittmeyer, Jose Manuel Serra<br>H2S Promotion of Mixed Protonic–Electronic Transport in La5.4WO11.1− δ Membranes |

| | |
|---|---|
| 10:45 - 11:15 | **Coffee Break** |
| | **3C1 Catalysis. Room: Fleming**<br>Chair: Robert Kee |
| 11:15 - 11:45<br>Fleming-K1 | Sean Bishop *(Sandia National Laboratories, Albuquerque, NM, USA)*, Matthew Witman, Keith King, Arielle Clauser, Michael Dzara, Perla Salinas, Joshua Sugar, Pinwen Guan, Bert Debusschere, Eric Coker, David Ginley, Anthony McDaniel<br>Predicting and Evaluating New Water Splitting Materials for Solar Thermochemical Hydrogen Production |
| 11:45 - 12:00<br>Fleming-O1 | Filip Grajkowski *(Laboratory for Electrochemical Interfaces, Massachusetts Institute of Technology, Cambridge, MA, USA)*, Subhash Chandra, Sanaz Koohfar, Dongha Kim, Georgios Dimitrakopoulos, Bilge Yildiz<br>Utilizing the intermediates of oxygen evolution to promote the selective electrochemical oxidative coupling of methane to ethylene |
| 12:00 - 12:15<br>Fleming-O2 | Won Jun Lee, Jeong Woo Han *(Department of Materials Science & Engineering, Seoul National University, Seoul, Korea)*<br>Highly Active, Stable Ru-free Anode for Direct Ammonia Solid Fuel Cells: Enhanced Performance through Donor-Promoted NiFe Alloy Catalyts |
| 12:15 - 12:30<br>Fleming-O3 | Maha El Bedaiwy *(The American University in Cairo)*, Mostafa Youssef, Mohamed El-Morsi, Mohamed Amr Serag-Eldin<br>The thermochemistry of the water splitter SrTi_0.5 Mn_0.5 O_(3-δ) studied using density functional theory (DFT+U) |
| | **3C2 Materials Modelling. Room: Westminster**<br>Chair: Aron Walsh |
| 11:15 - 11:45<br>Westminster-K1 | Dane Morgan *(University of Wisconsin-Madison)*<br>Molecular Simulations and Machine Learning for Computational Design of Materials with Fast Oxygen Kinetics |
| 11:45 - 12:00<br>Westminster-O1 | Jeongah Lee *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea.)*, Sangwoo Kim, Yong Beom Kim, DongHwan Oh, Sejong Ahn, Sung-Yoon Chung, WooChul Jung<br>A study on Ca-substituted LaCoO3 perovskite oxides for alkaline water and ethanol oxidation reactions |
| 12:00 - 12:15<br>Westminster-O2 | Mostafa Youssef *(The American University in Cairo)*, Mohamed Abdallah, Sahar Abdel Azeem<br>Understanding Field-Enhanced Ion Transport in Insulating Oxides: Insights from Molecular Dynamics Simulations and Cumulants analysis |
| 12:15 - 12:30<br>Westminster-O3 | Takaya Fujisaki *(Faculty of Materials for Energy, Shimane University)*, Yuta Tsuji, Phuc Hoan Tu, David S. Rivera Rocabado, Aleksandar Tsekov Staykov, Yusuke Shiratori, Keiji Yashiro<br>Effect of hydrogen ion behavior on methane dissociation on CeO2-supported Ni nanoparticles |
| | **3C3 Sodium Batteries/Materials. Room: St.James**<br>Chair: Jürgen Janek |
| 11:15 - 11:45<br>St.James-K1 | Emma Kendrick *(University of Birmingham)*<br>Critique of critical and other materials in sustainable new battery chemistry developments |
| 11:45 - 12:00<br>St.James-O1 | Qidi Wang *(Storage of Electrochemical Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2929JB, Delft, The Netherlands)*, Chenglong Zhao, Marnix Wagemaker<br>Principles of layered electrode/electrolyte materials for batteries |
| 12:00 - 12:15<br>St.James-O2 | Ester García-González *(Departamento de Química Inorgánica, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid 28040, Spain)*, Chandrasekar M Subramaniyan, Alois Kuhn, Olga Guerrero-Pérez, Enrique Rodríguez-Castellón, Flaviano García-Alvarado<br>The underexplored tunneled-V4O9: a competitive cathode material efficiently synthesized |
| 12:15 - 12:30<br>St.James-O3 | Theodosios Famprikis *(Department of Radiation Science & Technology, Faculty of Applied Sciences, Delft University of Technology, The Netherlands)*, Alexandros Vasileiadis<br>Structure and Dynamics of Inorganic Rotor-Phase Electrolytes |
| | **3C4 Thin Films/Devices. Room: Moore**<br>Chair: Matthew Wells |
| 11:15 - 11:45<br>Moore-K1 | Dillon Fong *(Materials Science Division, Argonne National Laboratory)*<br>X-ray studies of oxygen vacancies in epitaxial SrCoOx heterostructures |
| 11:45 - 12:00<br>Moore-O1 | En Ju Cho *(Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA)*, Nicola Perry<br>Optimizing Ionic Conductivity of Pulsed Laser Deposited Li1.3Al0.3Ti1.7(PO4)3 (LATP) Thin Films for Multilayer Solid-State Battery Electrolytes |
| 12:00 - 12:15<br>Moore-O2 | Frederic Le Cras *(Univ. Bordeaux, CNRS, Bordeaux INP, ICMCB, UMR 5026, F-33600 Pessac, France)*, William Berthou, Maxime Legallais, Bruno Bousquet, Vincent Motto-Ros, Stephanie Sorieul, Gunay Yildirim<br>High Throughput Screening of Thin Film Solid Ionic Conductors using an Experimental Approach: Application to the Li(Si)PON System |
| | **3C5 Batteries. Room: Abbey**<br>Chair: Juergen Fleig |
| 11:15 - 11:45<br>Abbey-K1 | Yet-Ming Chiang *(Department of Materials Science and Engineering, Massachusetts Institute of Technology)*, Cole D. Fincher, Vijay D. Veeraraghavan, Colin Gilenbach, Daniela Vallejo, Chiung-Yuan Lo, James LeBeau, Brian W. Sheldon, W. Craig Carter, M. D. Thouless<br>Stability of the Metal Electrode – Solid Electrolyte Subassembly for Solid-State Batteries |
| 11:45 - 12:00<br>Abbey-O1 | Mickael Dolle, Rozita Sadeghzadeh *(University of Montreal, Canada)*, David Lepage, Gabrielle Foran, Arnaud Prébé, David Aymé-Perrot<br>Advances in the Synthesis and Characterization of Blended Polymer Electrolytes for Li-Based Batteries: From Solid to Gel Electrolytes with Enhanced Ionic Conductivity |
| 12:00 - 12:15<br>Abbey-O2 | Hirotoshi Yamada *(Nagasaki University)*, Tomoko Ito<br>Influence of Stress Buffer in Oxide-based All-solid-state Batteries |
| 12:15 - 12:30<br>Abbey-O3 | Kazunori Nishio *(School of Materials and Chemical Technology, Tokyo Institute of Technology, Tokyo 152-8552, Japan.)*, Daisuke Imazeki, Kosuke Kurushima, Yuki Takeda, Kurei Edamura, Shigeru Kobayashi, Ryo Nakayama, Ryota Shimizu, Taro Hitosugi<br>Quantitative investigation of the interface resistance between sulfide solid electrolyte and positive electrode in all-solid-state Li batteries |
| | **3C6 Young Scientist Awards. Room: Gielgud**<br>Chair: Rotraut Merkle |
| 11:15 - 11:30<br>Gielgud-O1 | Kent Griffith *(University of California San Diego, California 92093-0021, United States of America)*<br>Designing Crystal Chemistry for High-power, Fast-charging Batteries |

| | |
|---|---|
| 11:30 - 11:45<br>Gielgud-O2 | Chuancheng Duan *(Kansas State University, USA)*<br>Ionic Synergy in Advancing Ceramic Electrochemical Cells with Composite Electrodes |
| 11:45 - 12:00<br>Gielgud-O3 | Andrey Poletayev *(Department of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK)*, Matthias Hoffmann, James Dawson, Samuel Teitelbaum, Mariano Trigo, Saiful Islam, Aaron Lindenberg<br>Between vibrations and diffusion: the persistence of memory in ion conduction |
| 12:00 - 12:15<br>Gielgud-O4 | Qiyang Lu *(School of Engineering, Westlake University, Hangzhou, China)*<br>Navigating Complexity: Harnessing Ionic Defects for Tailored Oxide Thin Film Properties |
| 12:15 - 12:30<br>Gielgud-O5 | Iwnetim Abate *(MIT, USA)*<br>High-Valent Redox in Intercalation Electrodes: The Interplay of Defect Chemistry, Electrostatics, and Structure |
| 12:30 - 14:00 | **Lunch Break** |
| | **Mid career Award Lecture and Ceremony - Room: St.James**<br>Chair: Koji Amezawa |
| 13:30 - 14:00<br>St.James-K1 | Philipp Adelhelm *(Humboldt-University of Berlin, Germany)*<br>Solvent co-intercalation and other chemical surprises in Na-ion batteries |
| | **4C1 Catalysis. Room: Fleming**<br>Chair: Aleksey Yaremchenko |
| 14:00 - 14:30<br>Fleming-K1 | Ian Metcalfe *(Newcastle University)*<br>Mixed ionic and electronic conductors for fuels to hydrogen |
| 14:30 - 14:50<br>Fleming-I1 | Di Chen *(Tsinghua University)*<br>Enhancing Surface Redox Kinetics in Ceria Thin Films: The Role of Biaxial Strain and Alkaline Oxides |
| 14:50 - 15:05<br>Fleming-O1 | Lisa Winkler *(Technical University of Munich)*, Jennifer Rupp<br>Proton Conducting Ceramic Single Chamber Glucose Fuel Cells for Human Implants |
| 15:05 - 15:20<br>Fleming-O2 | Alessandro Senocrate *(Empa-Swiss Federal Laboratories for Materials Science and Technology, CH-8600, Dübendorf, Switzerland)*, Francesco Bernasconi, Peter Kraus, Corsin Battaglia<br>Controlling CO2 and H2O Mass Transport in Gas Diffusion Electrodes for CO2 Reduction by Acting on the Substrate |
| | **4C2 Materials Modelling. Room: Westminster**<br>Chair: Richard Catlow |
| 14:00 - 14:30<br>Westminster-K1 | Pooja Goddard *(Loughborough University)*, Apoorv Jain, Bassey Oboho, Maurits Houck, Alex Groombridge, Fiona Coomer<br>Solid State Ionic Modelling of Niobium Based Oxides for Battery Applications |
| 14:30 - 14:50<br>Westminster-I1 | Aleksandar Staykov *(International Institute for Carbon-Neutral Energy Research (I2CNER), Kyushu University, 744 Motooka, Fukuoka 819-0395, Japan)*<br>Theoretical insights in surface catalytic activity and ionic transport in complex oxides |
| 14:50 - 15:05<br>Westminster-O1 | Shusuke Kasamatsu *(Faculty of Science, Yamagata University)*, Tatsumi Aoyama, Yuichi Motoyama, Kazuyoshi Yoshimi<br>Ab Initio Statistical Thermodynamics of Dopant Segregation and Space Charge Formation at Metal/Ionic Conductor Interfaces |
| 15:05 - 15:20<br>Westminster-O2 | Alexander Shluger *(Department of Physics and Astronomy, University College London, Gower Street, London, WC1E 6BT, United Kingdom)*, Teofilo Cobos Freire<br>Formation, Diffusion and Incorporation of Interstitial Oxygen Ions at the TiN/Oxide Interfaces |
| 15:20 - 15:35<br>Westminster-O3 | Meng Li *(Energy and Environmental Science and Technology, Idaho National Laboratory, Idaho Falls, ID, 83415, United States)*, Dong Ding, Yanwen Zhang<br>Revealing Small Ion Intercalation Dynamics through Data Mining of Trajectories |
| | **4C3 Sodium Batteries/Materials. Room: St.James**<br>Chair: Shirley Meng |
| 14:00 - 14:30<br>St.James-K1 | Chuanlian Xiao *(Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany)*, Yue Zhu, Joachim Maier<br>Solid State Ionics of Lithium or Sodium Storage |
| 14:30 - 14:50<br>St.James-I1 | ANKE WEIDENKAFF *(Technical University, Darmstadt)*<br>Regenerative Sustainable Materials for a Circular Economy |
| 14:50 - 15:05<br>St.James-O1 | Saneyuki Ohno *(Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University)*, Zheng Huang<br>New Na-ion conducting halide-based solid electrolytes: NaNbCl6 and NaTaCl6 |
| 15:05 - 15:20<br>St.James-O2 | Anastasia GREBENSHCHIKOVA *(Institut de Chimie de la Matière Condensée de Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France)*, Jacob OLCHOWKA, Loïc SIMONIN, Laurence CROGUENNEC, Christian MASQUELIER<br>Iron and Sulfate Based Positive Electrode Materials for Na-ion Batteries |
| 15:20 - 15:35<br>St.James-O3 | Cristina Garcia *(Instituto de Ciencia de Materiales de Madrid, ICMM-CSIC, Sor Juana Inés de La Cruz 3, Madrid, 28049, Spain)*, Ainara Aguadero, Ricardo Jimenez, Jose Antonio Alonso<br>Engineering of NaSICON-current collector interfaces to optimise the performance of Na solid-state reservoir-free batteries |
| | **4C4 Thin Films/Devices. Room: Moore**<br>Chair: Albert Tarancón |
| 14:00 - 14:30<br>Moore-K1 | David Scanlon *(School of Chemistry, University of Birmingham, Birmingham, UK)*<br>Identifying the ground state structures of point defects in solids |
| 14:30 - 14:50<br>Moore-I1 | Federico Baiutti *(Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.)*, Fjorelo Buzi, Juande Sirvent, Kosova Kreka, Lucile Bernadet, Francesco Chiabrera, Lucile Bernadet, Alex Morata, Albert Tarancon<br>Nanostructured thin-film architectures for high-temperature electrochemistry |
| 14:50 - 15:05<br>Moore-O1 | Xin Xu *(The Polytechnic School, Arizona State University)*<br>Ultra-thin Surface Doping for Regulating Li Intrusion in Garnet Solid Electrolytes |
| 15:05 - 15:20<br>Moore-O2 | Matthew Wells *(University of Cambridge,)*, Judith MacManus-Driscoll<br>Performance Enhancement of Low-Temperature Solid Oxide Cells with Vertically Aligned Nanocomposite Films |
| 15:20 - 15:35<br>Moore-O3 | Tim K. Hecker *(Institute of Experimental Physics I, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany)*, Markus S. Friedrich, Alexander G. Strack, Paul Tuchecker, Peter J. Klar<br>Impact of Hydrogen-Induced Structural Phase Transition on Diffusion in Tungsten Trioxide Thin-Films |

| | |
|---|---|
| | **4C5 Batteries. Room: Abbey**<br>Chair: Philipp Adelhelm |
| 14:00 - 14:30<br>Abbey-K1 | Clare Grey *(University of Cambridge)*<br>Linking Transport with Intercalation Mechanisms, Cracking, and Dendrite Formation in Conventional and Solid-State Batteries. |
| 14:30 - 14:50<br>Abbey-I1 | Chun Ann Huang *(Department of Materials, Imperial College London, London, UK)*<br>Novel processing and 3D correlative imaging of electrodes for batteries |
| 14:50 - 15:05<br>Abbey-O1 | Dominika Gastol *(School of Metallurgy and Materials, University of Birmingham, Birmingham B15 2TT, UK)*, Yongxiu Chen, Mathew Capener, Alexis Maurel, Ana Cristina Martinez Maciel, Yirong Lin, Eric MacDonald, Emma Kendrick<br>3D printing of dual-chemistry and dual-structured electrodes for high energy and controlled recycling of Li-ion batteries |
| 15:05 - 15:20<br>Abbey-O2 | Amna Rafique *(Center for Cooperative Research on Alternative Energies (CIC energiGUNE), Basque Research and Technology Alliance (BRTA), Parque Tecnológico de Álava, Albert Einstein, 48, 01510, Vitoria-Gasteiz, Spain)*, Lorenzo Fallarino, Pedro López-Aranguren, Arianna Pesce<br>Interfacial design and engineering of anode-less ceramic LLZO Batteries |
| 15:20 - 15:35<br>Abbey-O3 | Yejin Kang *(Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea)*, Seungsoo Jang, Joonam Park, Hyeongseok Kim, Kang Taek Lee<br>An Electro-Chemo-Mechanical Modeling for Anode Degradations using Heterogeneous Graphite Electrodes of Lithium-Ion Batteries |
| | **4C6 Membranes. Room: Gielgud**<br>Chair: Markus Kubicek |
| 14:00 - 14:30<br>Gielgud-K1 | Jean-Marc BASSAT *(CNRS, Univ. Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France)*, Pierre-Marie GEFFROY, Elise BONNET, Romuald FRUGIER, Zonghao SHEN, Jérôme LAURENCIN, Jacinthe GAMON<br>Recent advances in materials, shaping and characterization tools for efficient SOFC and SOEC devices operating at intermediate temperatures |
| 14:30 - 14:50<br>Gielgud-I1 | Leonard Kwati *(International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan.)*, Mariya E. Ivanova, Christain Dellen, Moritz Kindelmann, Wilhelm A. Meulenberg, Tatsumi Ishihara, Hiroshige Matsumoto<br>Processing Ceramic Protonic Membranes with Optimized Electrode/Electrolyte Interface for PCEC/PCFC Application. |
| 14:50 - 15:05<br>Gielgud-O1 | Marwan Lagdiem *(Instituto de Tecnología Química (Universitat Politècnica de València – Consejo Superior de Investigaciones Científicas), Av. Los Naranjos s/n, E-46022 Valencia, Spain)*, Jose Manuel Serra Alfaro, Laura Almar, Alfonso J. Carrillo, Alvaro Represa, Sonia Escolastico, David Catalán-Martinez, Julio Garcia-Fayos<br>Electrifying Ba0.5Sr0.5Co0.8Fe0.2O3-□ for focalized heating in oxygen transport membranes |
| 15:05 - 15:20<br>Gielgud-O2 | Håkon Andersen *(Department of Chemistry, Centre for Materials Science and Nanotechnology, University of Oslo)*, Yngve Larring, Reidar Haugsrud<br>Kinetic study of novel oxygen carriers for chemical looping for hydrogen production: Ca0.6La0.4Ti0.1CrxMn0.9-xO3-δ (x = 0, 0.3, 0.45 & 0.9) |
| 15:20 - 15:35<br>Gielgud-O3 | Philipp Brüner *(IONTOF GmbH)*, Thomas Grehl, Jona Schuch, Sebastian Klemenz, Till Frömling<br>Low Energy Ion Scattering analysis of Co2B catalysts for water electrolysis |
| 15:35 - 16:35 | **Mentoring Session. Albert Room** |
| 19:45 - 22:30 | **Gala Dinner. Room: Churchill** |

| July 18th - Day 5 (Thursday) | |
|---|---|
| 08:00 - 08:30 | **Registration** |
| | **Plenary Session 4. Room: Fleming**<br>Chair: Stephen Skinner |
| 08:30 - 09:20<br>Fleming-T1 | Bilge Yildiz *(Massachusetts Institute of Technology Laboratory for Electrochemical Interfaces, Departments of Nuclear Science and Engineering, and Materials Science and Engineering)*<br>Lattice Dynamics to Uncover Fast Proton Conductors |
| 09:20 - 09:35 | **Poster Awards Ceremony. Room: Fleming** |
| 09:35 - 09:45 | **Session Change** |
| | **2D1 SOFC Electrodes. Room: Fleming**<br>Chair: Zonghao Shen |
| 09:45 - 10:15<br>Fleming-K1 | Rose-Noëlle Vannier *(Univ. Lille, CNRS, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France)*, Fatima-Ezzahra El Bassiri, Aurélie Rolle<br>Innovative Solid Oxide Cell air electrode: a review |
| 10:15 - 10:35<br>Fleming-I1 | George Harrington *(University of Bath)*<br>Understanding the role of acidity on the surface exchange reaction in mixed conductors: The case for water species |
| 10:35 - 10:50<br>Fleming-O1 | Insaf Abdouli *(Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France)*, Clément Nicollet<br>Effect of Transition Metal Oxides Infiltration on Oxygen Exchange Kinetics and Adsorption Properties in Mixed Ionic and Electronic Conducting Oxides. |
| | **2D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster**<br>Chair: Felix Gunkel |
| 09:45 - 10:15<br>Westminster-K1 | Regina Dittmann *(Peter Gruenberg Institute (PGI-7), Forschungszentrum Juelich GmbH and JARA-FIT, Juelich, 52425, Germany)*, Alexandros Sarantopoulos, Christopher Bengel, Alexander Gutsche, Felix Cüppers, Susanne Hoffmann-Eifert, Stephan Menzel<br>Engineering the switching kinetics of valence change memory for neuromorphic computing |
| 10:15 - 10:35<br>Westminster-I1 | Yiyang Li *(University of Michigan)*<br>Phase Separation in Amorphous Metal Oxides Enables Information Retention |
| 10:35 - 10:50<br>Westminster-O1 | Matthaeus Siebenhofer *(Laboratory for Electrochemical Interfaces, Massachusetts Institute of Technology, Cambridge, MA, USA)*, Pjotrs Zguns, Bilge Yildiz<br>Ion migration in mixed conducting oxides for fast conductivity modulation in neuromorphic devices |
| | **2D3 Protonic Triple Conductors. Room: St.James**<br>Chair: Ming Li |
| 09:45 - 10:15<br>St.James-K1 | Rotraut Merkle *(Max Planck Institute for Solid State Research, Stuttgart, Germany)*, Maximilian F. Hoedl, Andrew Chesnokov, Christian Berger, Giulia Raimondi, Tolga Acartürk, Ulrich Starke, Denis Gryaznov, Eugene A. Kotomin, Joachim Maier<br>Proton Mobility in Triple-conducting Perovskites - Insights from Experiment and Theory |
| 10:15 - 10:35<br>St.James-I1 | Yue Qi *(School of Engineering, Brown University)*, Jiyun Park, Boyuan Xu, Dawei Zhang, Wei Li, Xingbo Liu, Jian Luo, Stephan Lany<br>Accurate prediction of oxygen vacancy concentration in Compositionally Complex Perovskite Oxides (CCPO) |
| 10:35 - 10:50<br>St.James-O1 | Yewon Shin *(Colorado School of Mines)*, Michael Sanders, Michael Walker, Bernadette Cladek, Kennedy Agyekum, Jue Liu, Erica Truong, Katharine Page, Yan-Yan Hu, Sossina Haile, Ryan O'Hayre<br>Investigating proton transport in the triple-conducting oxide BaCoxFe0.8-xZr0.1Y0.1O3-d (BCFZY, 0.1≤x≤0.7) system by correlative characterizations: ToF-SIMS/ND/SSNMR |
| | **2D4 Grain Boundaries/Interfaces. Room: Moore**<br>Chair: David Mebane |
| 09:45 - 10:15<br>Moore-K1 | Jennifer Rupp *(Department of Chemistry, Technical University of Munich)*<br>Lithium, Interfaces & Action: Designing Next Solid Battery Materials – From Engineered Grain Boundaries to Novel High Entropy Amorphous Phases |
| 10:15 - 10:35<br>Moore-I1 | Kulbir Ghuman *(Institut National de la Recherche Scientifique - Énergie, Matériaux et Télécommunications, Université du Québec)*<br>Unraveling the Role of Interfaces and Grain Boundaries in LLTO: A Molecular Dynamics Investigation |
| 10:35 - 10:50<br>Moore-O1 | Adrian Usler *(Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany)*, Fabian Ketter, Roger De Souza<br>Reading between the grains of oxide-ion conductors: the thermal history of space-charge layers |
| | **2D6 New Materials. Room: Gielgud**<br>Chair: Ieuan Seymour |
| 09:45 - 10:15<br>Gielgud-K1 | Zhihong Du, Yang Zhang, Leyu Shen, Hailei Zhao *(University of Science and Technology Beijing)*<br>Modulation of electrode reaction kinetics of B-site double perovskite-based materials for SOFC |
| 10:15 - 10:35<br>Gielgud-I1 | Taner Akbay *(Materials Science and Nanotechnology Engineering Department, Yeditepe University, Istanbul, Turkey)*<br>Atomistic Elucidation of Anion Adsorption on Charged GermaGraphene |
| 10:35 - 10:50<br>Gielgud-O1 | Takeru Miyagawa, Manuel Grumet, Namita Krishnan, Christian Reverón Baecker, Waldemar Kaiser *(Department of Physics, TUM School of Natural Sciences, Technical University of Munich, 85748 Garching, Germany)*, David A. Egger<br>Ion Migration in Anharmonic Solid-State Ion Conductors from Machine-Learning Molecular Dynamics |
| 10:50 - 11:20 | **Coffee Break** |
| | **3D1 SOFC Electrodes. Room: Fleming**<br>Chair: Rose-Noelle VANNIER |
| 11:20 - 11:40<br>Fleming-I1 | Zonghao Shen *(CNRS, Univ. Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France)*, Jean-Marc Bassat, Sebastien Fourcade, Alain Demourgues, Etienne Durand, Lionel Teule-Gay, Mathieu Duttine, Jacinthe Gamon<br>Is fluorine incorporation in the La0.6Sr0.4Co0.2Fe0.8O3-δ improving its electrochemical behaviour for solid oxide cells applications? |
| 11:40 - 11:55<br>Fleming-O1 | Takuya Katsumata *(Tohoku University)*, Ryotaro Aso, Yuta Kimura, Koji Amezawa, Takashi Nakamura<br>Effect of Electrochemical F doping on Oxygen Evolution Reaction |

| | |
|---|---|
| 11:55 - 12:10<br>Fleming-O2 | Ozden Celikbilek *(Univ. Grenoble Alpes, CEA-Liten, DTCH, 38000 Grenoble, France)*, Karthikeyan Saravanabavan, Giuseppe Sassone, Cintia Hartmann, Maxime Hubert, Jerome Laurencin<br>Investigating the Impact of Humidity on the Degradation of Oxygen Electrodes in Solid Oxide Cells |
| 12:10 - 12:25<br>Fleming-O3 | Nguyen Xua Dong, Lee Sang Won, Kim Hye Young, Tae Ho Shin *(Low-carbon & DX R&D Division, Korea Institute of Ceramic Engineering and Technology, Jinju-si, Gyeongsangnam-do 52851, Republic of Korea.)*<br>Boosting Electrochemical High-Performance via Extra-Role of Doped CeO2-δ Interlayer for "Oxygen Provider" at High-Current SOFC Operation |
| | **3D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster**<br>Chair: Regina Dittmann |
| 11:20 - 11:40<br>Westminster-I1 | Felix Gunkel *(Forschungszentrum Jülich GmbH, Peter Grünberg Institute, Electronic Materials (PGI-7), 52425 Jülich, Germany)*<br>Solid state ionics for a tailored ionic-electronic structure in oxide thin films and heterostructures for electronics and energy applications |
| 11:40 - 11:55<br>Westminster-O1 | Alexandros Sarantopoulos *(Peter Gruenberg Institute (PGI-7), Forschungszentrum Juelich GmbH and JARA-FIT, Juelich, 52425, Germany)*, Kristof Lange, Francisco Rivadulla, Stephan Menzel, Regina Dittmann<br>Resistive switching acceleration induced by thermal confinement. |
| 11:55 - 12:10<br>Westminster-O2 | Takashi Tsuchiya *(National Institute for Materials Science, Japan)*, Daiki Nishioka, Wataru Namiki, Kaoru Shibata, Tomoki Wada, Makoto Takayanagi, Masataka Imura, Yasuo Koide, Tohru Higuchi, Kazuya Terabe<br>Ion-gating Reservoirs Operating on Electric Double Layer and Redox Mechanisms for High Performance Physical Reservoir Computing |
| 12:10 - 12:25<br>Westminster-O3 | Philipp Langner *(Department of Advanced Materials for Energy Applications, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià del Besòs, Barcelona, Spain)*, Francesco Chiabrera, Nerea Alayo, Paul Nizet, Luigi Morrone, Alex Morata, Albert Tarancón<br>Beyond the von Neumann Bottleneck: A Solid-State Oxide-Ion Synaptic Transistor for Analog Computing |
| | **3D3 Protonic Triple Conductors. Room: St.James**<br>Chair: Rotraut Merkle |
| 11:20 - 11:40<br>St.James-I1 | Ming Li *(University of Nottingham)*<br>Enhancing/Suppressing Oxide Ion Conductivity in Perovskite Oxides |
| 11:40 - 11:55<br>St.James-O1 | Minkyeong Jo *(HMC, Department of Nanotechnology and Advanced Materials Engineering, Sejong University, 209 Neungdong-ro, Gwangjin-gu, Seoul 05006, Republic of Korea)*, Minji Kim, Jun-young Park<br>High-performance air-electrode for reversible proton ceramic cells with alkali metal doping |
| 11:55 - 12:10<br>St.James-O2 | Mayuri Kushare *(Mechanical Engineering, Colorado School of Mines, Golden, CO 80401)*, Kingsley Egbo, Sandrine Ricote, Su Jeong Heo, Jesse Fosheim, Andriy Zakutayev, Gregory Jackson<br>The Study of Surface Chemistry of Water Splitting on Pr2NiO4+δ Electrodes with and without Ba(Zr,Y,Pr)O3-δ Overlayers in Proton-Ceramic Electrolysis Cells |
| 12:10 - 12:25<br>St.James-O3 | Ryoga Sato *(Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan)*, Akihiro Ishii, Itaru Oikawa, Hitoshi Takamura<br>Electron-Hole Incorporation into Ba-Zr-Based Proton Conductors by High-Pressure Oxidation |
| | **3D4 Grain Boundaries/Interfaces. Room: Moore**<br>Chair: Jennifer Rupp |
| 11:20 - 11:40<br>Moore-I1 | David Mebane *(West Virginia University)*<br>Quantifying physical parameters with microscope data from ion conducting grain boundaries and electrocatalytic surfaces using accessible codes for model-based Bayesian analysis |
| 11:40 - 11:55<br>Moore-O1 | Zijie Sha *(Department of Materials, Imperial College London, London, SW7 2AZ, United Kingdom.)*, James Douglas, Lluís Yedra, Stephen Skinner, John Kilner<br>Understanding grain boundary transport in mixed conducting perovskite electrodes |
| 11:55 - 12:10<br>Moore-O2 | Jan L. Dornseifer *(Institute of Experimental Physics I, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany)*, Janis K. Eckhardt, Matthias T. Elm, Christian Heiliger, Peter J. Klar<br>Correlation between Microstructure and Impedance in Polycrystalline Ceria Thin Films |
| | **3D5 Battery Degradation/Dendrites. Room: Abbey**<br>Chair: William Chueh |
| 11:20 - 11:40<br>Abbey-I1 | Hung Q. Nguyen, Feng Jin, Florian Flatscher, Juraj Todt, Peter Siffalovic, Günther J. Redhammer, Jozef Keckes, Daniel Rettenwander *(Department of Material Science and Engineering, NTNU Norwegian University of Science and Technology, 7034 Trondheim, Norway.)*<br>Studying solid-state batteries during operation using X-rays |
| 11:40 - 12:00<br>Abbey-I2 | Yue Qi *(School of Engineering, Brown University)*, Harsh Jagad, Sydney Morris, Changmin Shi, Stephen Harris, Brian Sheldon<br>Blocking Lithium Dendrites in Solid Electrolytes with Ion-Exchange Induced Residual Stresses – Theory and Experiments |
| 12:00 - 12:15<br>Abbey-O1 | Sundeep Vema *(Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK)*, Dipayan Mukherjee, Joe Stallard, Supreeth Nagendran, Norman Fleck, Vikram Deshpande, Clare Grey<br>Factors governing lithium-metal dendrite initiation in ceramic solid electrolytes |
| 12:15 - 12:30<br>Abbey-O2 | Gang Wan *(Department of Mechanical Engineering, Stanford University)*, Chia-Chin Chen, Zonghai Chen, Kang Xu<br>Self-discharge of Layered Oxide Cathodes Induced by Carbonate-mediated Hydrogenation |
| | **3D6 New Materials. Room: Gielgud**<br>Chair: Hailei Zhao |
| 11:20 - 11:40<br>Gielgud-I1 | Ieuan Seymour *(Department of Chemistry, School of Natural and Computing Sciences, University of Aberdeen, King's College, Aberdeen, AB24 3UE, U.K.)*, Kit Barker, Sarah McKinney, Raul Artal, Nuria Tapia-Ruiz, Ricardo Jimenez, Stephen Skinner, Ainara Aguadero<br>Understanding the role of A-site cations on the ionic conductivity of halide solid-state electrolytes for solid-state batteries |
| 11:40 - 11:55<br>Gielgud-O1 | Ana Carolina Coutinho Dutra *(Newcastle University)*, James A. Dawson<br>Exploring the Links between Dynamics and Dimensionality in Anti-Perovskite Solid Electrolytes |
| 11:55 - 12:10<br>Gielgud-O2 | Juliane Fiates *(Department of Chemistry, Newcastle University, Bedson Building)*, James Dawson<br>Simulating Electrolytes and SEI Formation in Anode-Free Batteries |
| 12:10 - 12:25<br>Gielgud-O3 | Bora Karasulu *(Department of Chemistry, University of Warwick, CV4 7AL, Coventry, United Kingdom.)*<br>First-principles Simulations of Interfaces within All-Solid-State Batteries: A special case of Lithium Thiophosphates |
| 12:30 - 14:00 | **Lunch Break** |

| | |
|---|---|
| | **4D1 SOFC Electrodes. Room: Fleming**<br>Chair: Elisabeth Djurado |
| 14:00 - 14:30<br>Fleming-K1 | Teruhisa HORITA *(National Institute of Advanced Industrial Science and Technology)*<br>Overview of Mass Transports by Impurity Poisoning at (La,Sr)(Co,Fe)O3 based cathode in Solid Oxide Fuel Cells |
| 14:30 - 14:45<br>Fleming-O1 | Fatima-Ezzahra EL BASSIRI *(Univ. Lille, CNRS, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France)*, Aurélie Rolle, Rose-Noëlle Vannier<br>In-depth study of the oxygen reduction reaction of the Ca3Co4O9+δ / CGO composite |
| 14:45 - 15:00<br>Fleming-O2 | Aurélie Rolle *(UCCS - Unité de Catalyse et Chimie du Solide, UMR CNRS 8181, Univ. Lille, Centrale Lille, Univ. Artois, F-59000 Lille, France)*, Laurine Verfaille, Ibtissam Kehal, Sylvie Daviero-Minaud, Rose-Noëlle Vannier<br>Investigation of Ba2Co9O14 as potential electrode material for Solid Oxide Fuel Cell |
| 15:00 - 15:15<br>Fleming-O3 | Riyan Achmad Budiman *(Graduate School of Environmental Studies, Tohoku University, Japan)*, Junichi Sakuraba, Mina Yamaguchi, Shin-ichi Hashimoto, Keiji Yashiro, Tatsuya Kawada<br>Determining the enhancement factors of porous La 0.6 Sr 0.4 CoO 3-δ – Ce 0.9 Gd 0.1 O 1.95 composite for solid oxide fuel cell cathode |
| 15:15 - 15:30<br>Fleming-O4 | Masahiro Yasutake *(Next-Generation Fuel Cell Research Center (NEXT-FC), Kyushu University)*, Han Gil Seo, Yohei Nagatomo, Junko Matsuda, Kazunari Sasaki, Harry Tuller<br>Degradation and Recovery of LSCF Reversible Solid Oxide Cell Air Electrodes by Controlled Surface Acidity |
| | **4D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster**<br>Chair: Davide Moia |
| 14:00 - 14:30<br>Westminster-K1 | Derek C Sinclair *(Department of Materials Science and Engineering, University of Sheffield, Sheffield, UK)*, James H Killeen, Sadi Ege Parim, Thomas E Hooper, Erin Carroll, Julian S Dean<br>The Influence of A-site Deficiency on the Functionality of Niobate-based Perovskites and Tungsten Tetragonal Bronzes. |
| 14:30 - 14:45<br>Westminster-O1 | Drew Buzzell *(Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology (MIT), Cambridge, MA 02139, USA)*, Fran Kurnia, Hyunwon Chu, Lingping Kong, Jesus del Alamo, Jennifer Rupp<br>Tailoring Li4Ti5O12 thin film carrier kinetics through solid solution doping for Battery and Memristor Applications |
| 14:45 - 15:00<br>Westminster-O2 | Fran Kurnia *(Department of Chemistry, Technical University of Munich, 85748 Garching, Germany)*, Drew Buzzell, Thomas Defferriere, Lukas Wolz, Yang Wang, Johanna Eichhorn, Harry Tuller, Bettina Lotsch, Jennifer Rupp<br>Opto-Ionics for Memristive Switching in Lithium Titanate |
| 15:00 - 15:15<br>Westminster-O3 | Miranda Schwacke *(Department of Materials Science and Engineering, Massachusetts Institute of Technology)*, Thomas Defferriere, Matthäus Siebenhofer, Harry Tuller, Bilge Yildiz<br>Modulation of Space Charge Resistances in Polycrystalline WO3 Films by Mg Ion Intercalation in ECRAM Devices |
| 15:15 - 15:30<br>Westminster-O4 | Alan Zhang, Catalin Spataru, Joshua Sugar, A. Alec Talin, Suhas Kumar, Elliot Fuller *(Sandia National Laboratories, Livermore, CA, USA)*<br>Tuning the insulator metal transition in rare earth nickelates through dynamic electrochemical ion insertion |
| | **4D3 Protonic Triple Conductors. Room: St.James**<br>Chair: Joachim Maier |
| 14:00 - 14:30<br>St.James-K1 | Hiroshige Matsumoto *(International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan.)*, Veeramani Vediyappan, Leonard Kwati, Bhuvaneshwari Manivannan, Paulo Wiff<br>Controlling transport of electrode reaction species to suppress electronic leakage in proton-conducting oxide cells |
| 14:30 - 14:45<br>St.James-O1 | Genki Kobayashi *(RIKEN - Japan)*, Yoshiki Izumi, Fumitaka Takeiri, Kei Okamoto, Takashi Saito, Takashi Kamiyama, Akihide Kuwabara<br>Electropositive Metal Doping into Lanthanum Hydride for H– Conducting Solid Electrolyte Use at Room Temperature |
| 14:45 - 15:00<br>St.James-O2 | Xiaolan Kang *(Max Planck Institute for Solid State Research, Stuttgart, Germany)*, Rotraut Merkle, Joachim Maier<br>Water Adsorption and Surface Protonics of Mixed Conducting Oxides |
| 15:00 - 15:15<br>St.James-O3 | Maria Szymczak *(Faculty of Materials Science and Ceramics, AGH University of Krakow, al. Mickiewicza 30, 30-059 Krakow, Poland)*, Juliusz Dąbrowa, Marek Zajusz, Wojciech Skubida, Konrad Świerczek<br>Modifying Ba-based Triple-Conducting Perovskites for Enhanced PCFC Air-Electrode Performance |
| 15:15 - 15:30<br>St.James-O4 | Takuma Shiraiwa *(Tohoku University)*, Tomoyuki Yamasaki, Takahisa Omata<br>Mixed Protonic and Electronic Conductivity of Nb-doped TiO2 Under Hydrogen Atmosphere |
| | **4D4 Grain Boundaries/Interfaces. Room: Moore**<br>Chair: Katherine Bagarinao |
| 14:00 - 14:30<br>Moore-K1 | Thomas Defferriere, Colin Gilgenbach, James LeBeau, Han Gil Seo, Yong Beom Kim, Woo Chul Jung, Harry Tuller *(Department of Materials Science and Engineering, Massachusetts Institute of Technology)*<br>Engineering of Grain Boundaries in Gd-Doped Ceria Solid Electrolytes |
| 14:30 - 14:45<br>Moore-O1 | Gen Hasegawa *(National Institute for Materials Science (NIMS))*, Naoaki Kuwata<br>Grain boundary diffusion analysis in solid electrolytes by lithium isotope SIMS imaging |
| 14:45 - 15:00<br>Moore-O2 | Jan Dippell *(Helmholtz Institute Ulm for Electrochemical Energy Storage (HIU), Ulm, Germany)*, Timo Danner, Arnulf Latz<br>Simulating Impedances of Interfaces between Solid Electrolytes |
| 15:00 - 15:15<br>Moore-O3 | James Quirk *(Department of Chemistry, Newcastle University, Bedson Building)*, James Dawson<br>Design Principles for Grain Boundaries in Solid Electrolytes |
| 15:15 - 15:30<br>Moore-O4 | Vaibhav Arun Deshmukh *(Department of Materials- and Geo-Sciences, Technische Universität Darmstadt, Darmstadt, Germany)*, Jochen Rohrer, Karsten Albe<br>Molecular Dynamics Simulations of Na-ion Transport at Grain Boundaries in NaSICON-Type Na¬3Zr2Si2PO12 Solid Electrolytes |
| | **4D5 Battery Degradation/Dendrites. Room: Abbey**<br>Chair: Louis Piper |
| 14:00 - 14:30<br>Abbey-K1 | Peter Bruce *(Department of Materials, University of Oxford; Oxford, UK)*, Dominic Melvin, Ziyang Ning, Dominic Spencer-Jolly, Guanchen Li, James Marrow, Charles Monroe<br>Challenges in solid state batteries at the lithium/ceramic electrolyte interface |
| 14:30 - 14:45<br>Abbey-O1 | Cole Fincher *(Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA)*, Colin Gilgenbach, Rachel Osmundsen, Christian Roach, Aubrey Penn, Michael Thoulass, W. Craig Carter, Brian Sheldon, James Lebeau, Yet-Ming Chiang<br>Direct observations of dendrite growth in ceramic electrolytes |

| | |
|---|---|
| 14:45 - 15:00<br>Abbey-O2 | Toyoki Okumura *(National Institute of Advanced Industrial Science and Technology (AIST), Kansai Center)*, Tomonari Takeuchi, Machiko Ode, Kazunori Takada<br>Self-assembled composite texture of layered rock-salt electrode / LISICON-type electrolyte for oxide-based all-solid-state battery |
| 15:00 - 15:15<br>Abbey-O3 | Dimitrios Chatzogiannakis *(Institut de Sciencia de Materials (ICMAB), Campus UAB, Bellaterra, 08193, Spain)*, Montse Casas-Cabanas, M. Rosa Palacin<br>Understanding material specific contribution and charge transfer dynamics in blended positive electrodes for Li-ion batteries |
| | **4D6 New Materials. Room: Gielgud**<br>Chair: Orkun Furat |
| 14:00 - 14:30<br>Gielgud-K1 | Francesco Ciucci *(University of Bayreuth)*<br>Cobalt-Free Air Electrodes for Protonic Ceramic Cells |
| 14:30 - 14:45<br>Gielgud-O1 | Yoshihiro Yamazaki *(Platform of Inter-Transdisciplinary Energy Research (Q-PIT), Kyushu University)*, Kota Tsujikawa, Junji Hyodo, Susumu Fujii, Shusuke Kasamatsu<br>Materials discovery by interpretation: a case of proton-conducting oxides |
| 14:45 - 15:00<br>Gielgud-O2 | Steffen Neitzel-Grieshammer *(FH Münster University of Applied Sciences)*<br>Modelling Proton and Oxygen Ion Conductivity in Yttrium Doped Barium Zirconate from First Principles |
| 15:00 - 15:15<br>Gielgud-O3 | Armando Morin Martinez *(Department of Energy Conversion and Storage, Technical University of Denmark (DTU))*, Benjamin Sjølin, R Baby Dhanalakshmi, Vincenzo Esposito, Ivano Castelli<br>Autonomous Workflows for the Discovery of Ionic Oxide Conductors at Low Temperatures |
| 15:30 - 16:00 | **Coffee Break** |
| | **5D1 SOFC Electrodes. Room: Fleming**<br>Chair: Teruhisa Horita |
| 16:00 - 16:20<br>Fleming-I1 | Elisabeth Djurado *(Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, F-38000 Grenoble)*, Lydia Yefsah, Maxime Hubert, Ozden Celikbilek, Dario Ferreira Sanchez, Karine Couturier, Jérôme Laurencin<br>PrO1.833 as an Innovative Nanostructured Oxygen Electrode for High-Temperature Electrolysis: Performance and Stability |
| 16:20 - 16:35<br>Fleming-O1 | Taeheun Lim *(Pusan National University)*, Kanghee Jo, Woo Jin Kim, Yong-Nam Kim, Heesoo Lee<br>Valence electronic structure on oxygen reduction reaction kinetics of Fe-based perovskite oxides for intermediate-temperature solid oxide fuel cells |
| 16:35 - 16:50<br>Fleming-O2 | Yue Liu *(Institute of Material Science, Technische Universität Darmstadt, Germany)*, Stefanie Frick, Nicole S. Bein, Katharina N.S. Schuldt, Adrián López Vergara, Andreas Klein<br>Charge Transition Level of Co2+/3+ in Perovskite Oxides |
| 16:50 - 17:05<br>Fleming-O3 | Ryszard Kluczowski *(Institute of Power Engineering, Mory 8, 01-330 Warsaw, Poland)*, Yevgeniy Naumovich, Anna Niemczyk, Krystian Machaj, Piotr Winiarz, Konrad Świerczek, Keyun Li<br>Copper As Cobalt Surrogate In The Electrodes Of Solid Oxide Cells: Challenges And Solutions |
| 17:05 - 17:20<br>Fleming-O4 | Juande Sirvent *(Department of Advanced Materials for Energy, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, Sant Adrià del Besòs, Barcelona 08930, Spain)*, Giulio Cordaro, Carlota Bozal-Ginesta, Sarah Fearn, Zijie Sha, Kosova Kreka, Juan Carlos González-Rosillo, Lisa Laa, Marc Núñez, Francesco Chiabrera, Alex Morata, Guilhem Dezanneau, John Kilner, Federico Baiutti, Albert Tarancón<br>A combinatorial (La,Sr)(Mn,Co,Fe)O3 library for screening oxygen electrodes in solid oxide fuel cells: high throughput for performance and thermal degradation |
| 17:20 - 17:35<br>Fleming-O5 | Paul Nizet *(Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930, Sant Adrià de Besòs, Spain)*, Francesco Chiabrera, Nicolau López-Pintó, Nerea Alayo, Philipp Langner, Federico Baiutti, Alex Morata, Jordi Sort, Albert Tarancón<br>Oxygen-ion control and functional properties of Sr-doped lanthanum ferrites |
| 17:35 - 17:50<br>Fleming-O6 | Sejong Ahn *(Department of Materials Science and Engineering, KAIST, Daejeon, Republic of Korea)*, Kyu In Sim, Jun Hyuk Kim, Jeong Woo Han, WooChul Jung<br>The effect of cubic phase stabilization on oxygen reduction kinetics in barium cobaltite |
| | **5D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster**<br>Chair: Derek Sinclair |
| 16:00 - 16:15<br>Westminster-O1 | James Killeen *(Department of Materials Science and Engineering, University of Sheffield, Sheffield, UK)*, Julian Dean, Derek Sinclair<br>The Role of A-Site Vacancies on the Dielectric Response of the NaNbO3 - La1/3NbO3 Solid Solution |
| 16:15 - 16:30<br>Westminster-O2 | Davide Moia *(Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany)*, Joachim Maier<br>Defect chemical and equivalent circuit models for photo-active mixed ionic-electronic conducting devices |
| 16:30 - 16:45<br>Westminster-O3 | Mina Jung *(Max Planck Institute for Solid State Research, Stuttgart, Germany.)*, Masaud Almalki, Michael Graetzel, Davide Moia, Joachim Maier<br>Evidence for ionically-generated space charges in halide perovskites and their impact on photovoltaics |
| 16:45 - 17:00<br>Westminster-O4 | Ya-Ru Wang *(Max Planck Institute for Solid State Research, Stuttgart, Germany.)*, Marko Mladenović, Ursula Rothlisberger, Jovana V. Milić, Davide Moia, Michael Grätzel, Joachim Maier<br>Photo De-Mixing in Mixed Bromide-Iodide Perovskites: Dimensionality and Encapsulation Effects on Ionic & Electronic Transport Properties |
| 17:00 - 17:15<br>Westminster-O5 | Thijs Smolders, Roger De Souza, Alison Walker, Matthew Wolf *(Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany)*<br>Diffusivity tensors of Br and Cs vacancies in biaxially strained perovskite CsPbBr3 |
| | **5D3 Protonic Triple Conductors. Room: St.James**<br>Chair: Hiroshige Matsumoto |
| 16:00 - 16:20<br>St.James-I1 | Einar Vollestad, Ragnar Strandbakke *(SINTEF Industry, Sustainable Energy Technology, Oslo, Norway)*<br>Approaching a Mechanistic Understanding of Electrode Processes and Surface Protonics for Proton Ceramic Electrochemical Cells |
| 16:20 - 16:35<br>St.James-O1 | Kosuke Kawai *(Waseda University)*, Seong-Hoon Jang, Jun Kikkawa, Koji Yazawa, Kazuma Gotoh, Yuta Igarashi, Yoshitaka Tateyama, Atsuo Yamada, Masashi Okubo<br>Strain-free proton intercalation of Mo3Nb2O14 anode in aqueous rechargeable batteries |
| 16:35 - 16:50<br>St.James-O2 | Seongwoo Nam *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea.)*, Jinwook Kim, Hyunseung Kim, Byeom Gyun Jung, WooChul Jung<br>Understanding Electrochemical Reactions Occurring in Air Electrodes for Protonic Ceramic Cell |

| | |
|---|---|
| 16:50 - 17:05<br>St.James-O3 | Wei Wu *(Idaho National Laboratory)*, Dong Ding, Ju Li<br>Revitalizing performance and expanding lifetime of protonic ceramic cells by interfacial acid etch |
| 17:05 - 17:20<br>St.James-O4 | Chenyang Liao *(Department of Materials, Royal School of Mines, Imperial College London, London SW7 2AZ, England)*, Kehan Huang, Zijie Sha, Miguel Gonzalez, Stephen Skinner<br>Probing the Protonic Conduction in Barium Based Perovskite System in Medium-low Temperature |
| 17:20 - 17:35<br>St.James-O5 | Angus Pedersen *(Department of Materials, Royal School of Mines, Imperial College London, London SW7 2AZ, England)*, Rifael Snitkoff-Sol, Yan Yurko, Jesús Barrio, Rongsheng Cai, Theo Suter, Guangmeimei Yang, Sarah Haigh, Dan Brett, Rhodri Jervis, Magda Titirici, Ifan Stephens, Lior Elbaz<br>A Highly Porous Fe-N-C-based Proton Exchange Membrane Fuel Cell: Effect of Ionomer Loading Probed by in situ Electrochemical Methods |
| | **5D4 Grain Boundaries/Interfaces. Room: Moore**<br>Chair: Harry Tuller |
| 16:00 - 16:20<br>Moore-I1 | Katherine Develos-Bagarinao *(National Institute of Advanced Industrial Science and Technology (AIST))*, Qingchuan Bai, Takuya Yamaguchi, Toshiaki Yamaguchi, Haruo Kishimoto<br>Elucidating the role of the interdiffusion layer at GDC/YSZ heterointerfaces |
| 16:20 - 16:35<br>Moore-O1 | Colin Gilgenbach *(Department of Materials Science and Engineering, Massachusetts Institute of Technology)*, Thomas Defferriere, Harry Tuller, James LeBeau<br>Coupled Electrochemical and Structural Analysis of Interfaces Using Multislice Electron Ptychography |
| 16:35 - 16:50<br>Moore-O2 | Claudia Steinbach *(Institute of Chemical Technologies and Analytics, Technische Universität Wien, 1060 Vienna, Austria)*, Alexander Schmid, Andreas Nenning, Florian Fahrnberger, Herbert Hutter, Markus Kubicek, Juergen Fleig<br>Prediction of Space Charges at SrTiO3 \| Mixed Ionic and Electronic Conducting Oxide Heterojunctions from Defect Chemistry |
| 16:50 - 17:05<br>Moore-O3 | Kaichuang Yang *(Westlake University)*, Qiyang Lu<br>Differentiating Oxygen Exchange Reaction Mechanisms across Phase Boundaries |
| 17:05 - 17:20<br>Moore-O4 | San Ping Jiang *(Curtin University)*<br>Development of nanostructured lanthanum strontium cobalt ferrite/gadolinian-doped ceria composite electrodes of solid oxide cells formed by in situ polarization |
| | **5D5 Battery Degradation/Dendrites. Room: Abbey**<br>Chair: Konrad Świerczek |
| 16:00 - 16:20<br>Abbey-I1 | Louis Piper *(WMG, University of Warwick)*<br>Seeing degradation in NMC 811/graphite pouch cells with operando X-ray studies |
| 16:20 - 16:35<br>Abbey-O1 | Kieran Mylrea *(Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK)*, Xiaorui Shi, Svetlana Menkin, Jonathan Slaughter, Jana Fritze, Dominic Wright, Clare Grey<br>EIS-NMR Study of Interphase Evolution in 'Anode-Free' Li Metal Battery Self-Discharge |
| 16:35 - 16:50<br>Abbey-O2 | Dominic Spencer-Jolly *(School of Metallurgy and Materials, University of Birmingham, Elms Road, Birmingham, B15 2SE, UK)*, Varnika Agarwal, Peter Bruce<br>Towards understanding silver-carbon composite interlayers in anode-free solid-state batteries |
| 16:50 - 17:05<br>Abbey-O3 | Jinkyu Chung, Junho Bae, Hanbi Choi, Chihyun Nam, Danwon Lee, Bonho Koo, Namdong Kim, Jongwoo Lim *(Seoul National University, Seoul, South Korea)*<br>Dynamic coupling of internal strain field and lithium pathway within individual battery particles in solid state batteries |
| 17:05 - 17:20<br>Abbey-O4 | Moumita Rana *(Delft University of Technology, The Netherlands)*, Wolfgang Zeier<br>Route to high performance silicon-based composite anode for solid state battery through modulating charge carrier transport |
| 17:20 - 17:35<br>Abbey-O5 | Edward Mu *(Department of Chemistry, Stanford University)*, Hari Ramachandran, Eder Lomeli, Augustin Braun, Jue Liu, Zhelong Jiang, Kipil Lim, Grace Busse, Brian Moritz, Edward Solomon, Wanli Yang, William Gent, Thomas Devereaux, William Chueh<br>A new high-valent Fe redox couple in intercalation electrodes |
| 17:35 - 17:50<br>Abbey-O6 | Jenny Pringle *(Institute for Frontier Materials, Deakin University, 221 Burwood Highway, Burwood, Victoria 3125, Australia)*, Faezeh Makhlooghiazad, Luke O'Dell, Azra Sourjah, Maria Forsyth<br>The Development of New Ionic Electrolytes for Energy Storage Devices |
| | **5D6 New Materials. Room: Gielgud**<br>Chair: Francesco Ciucci |
| 16:00 - 16:20<br>Gielgud-I1 | Orkun Furat *(Ulm University, Institute of Stochastics)*, Anja Bielefeld, Jürgen Janek, Volker Schmidt<br>Generative Adversarial Framework for Calibrating Stochastic Geometry Models to ASSB Cathode Microstructures |
| 16:20 - 16:35<br>Gielgud-O1 | Sona Guluzade *(Department of Chemistry, University of Bath, Claverton Down, Bath BA2 7AX, UK)*, Christian Masquelier, Saiful Islam, Benjamin Morgan<br>Computational Screening for Novel Fast-Ion Conductors in the Li-Si-S Chemical Space |
| 16:35 - 16:50<br>Gielgud-O2 | Ronald Kam *(Department of Materials Science and Engineering, University of California, Berkeley, CA, 94720, USA)*, Aaron Kaplan, Luca Binci, Tucker Holstun, Nicola Marzari, Gerbrand Ceder<br>Relating the Phase Stability, Electronic Structure, Magnetic Order, and Ionic Configuration of Li-Mn-O Rock Salt Phases from First Principles |
| 16:50 - 17:05<br>Gielgud-O3 | Marcel Sadowski *(Institute of Materials Science, Technical University of Darmstadt, Germany)*, Laura Fieber, Karsten Albe<br>Kinetics of Pore Formation at the Interface Between Solid Electrolyte and Metal Anodes in All-Solid-State Batteries During Discharge |
| 17:05 - 17:20<br>Gielgud-O4 | Sai Gautam Gopalakrishnan *(Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India)*, Vijay Choyal<br>Machine learning guided exploration of amorphous materials as cathodes for Mg-batteries |
| 17:20 - 17:35<br>Gielgud-O5 | Reshma Devi Parthasarathy *(Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India)*, Keith Tobias Butler, Sai Gautam Gopalakrishnan<br>Enhancing Material Property Predictions by Leveraging Transfer Learning Techniques |
| 17:35 - 17:50<br>Gielgud-O6 | Dereje Bekele Tekliye *(Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India)*, Sai Gautam Gopalakrishnan<br>Weberite-Frameworks as Potential Calcium-Ion Battery Cathodes |

| July 19th - Day 6 (Friday) | |
|---|---|
| 08:00 - 08:30 | **Registration** |
| | **Plenary Session 5. Senior Scientist Awards Room: Fleming**<br>Chair: Bilge Yildiz |
| 08:30 - 09:20<br>Fleming-T2 | Joachim Maier *(Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany)*<br>Nanoionics: More Than a Fashionable Slogan |
| 09:20 - 10:10<br>Fleming-T1 | John Kilner *(Imperial College London, Department of Materials, London SW7 2AZ, UK.)*<br>Optimisation of Oxygen Ion Transport for Solid Oxide Devices |
| 10:10 - 10:40 | **Coffee Break** |
| 10:40 - 10:45 | **Session Change** |
| | **2E1 Battery Materials. Room: Fleming**<br>Chair: David Muñoz-Rojas |
| 10:45 - 11:15<br>Fleming-K1 | M. Rosa Palacin *(Institut de Ciència de Materials de Barcelona (ICMAB-CSIC))*<br>Prussian Blue type compounds as positive electrodes for Mg and Ca based batteries |
| 11:15 - 11:45<br>Fleming-K2 | Venkataraman Thangadurai *(Department of Chemistry, University of Calgary)*<br>Advanced Electrolytes for High-Performance Solid State Metal Batteries |
| 11:45 - 12:00<br>Fleming-O1 | Clarissa Glaser *(Institute of Physical Chemistry, Justus Liebig University, Heinrich-Buff-Ring 17, 35392 Giessen, Germany)*, Marcus Rohnke, Jürgen Janek<br>MgB2X4 (B = Sc, Er, Tm, Y; X = S, Se) Spinels as Promising Mg-Ion Conductors for Almost-Solid-State Mg Batteries |
| 12:00 - 12:15<br>Fleming-O2 | Zhixuan Wei *(Institute of Physical Chemistry & Center for Materials Research, Justus Liebig University Giessen)*, Jürgen Janek<br>Investigation of Magnesium Metal Deposition in Solid-State Mg Batteries on NASICON/IL Hybrid Solid Electrolyte |
| 12:15 - 12:30<br>Fleming-O3 | Tsuyoshi Ohnishi, Isao Sakaguchi, Kazunori Takada *(National Institute for Materials Science)*<br>Surface treatment of garnet-type solid electrolyte for lithium metal anode |
| 12:30 - 12:45<br>Fleming-O4 | Naoaki Kuwata *(National Institute for Materials Science (NIMS))*, Gen Hasegawa<br>Lithium Diffusion in Perovskite-Type Solid Electrolytes Revealed by PFG-NMR |
| | **2E2 Machine Learning/Materials Modelling. Room: Westminster**<br>Chair: Seungwu Han |
| 10:45 - 11:15<br>Westminster-K1 | Paul Shearing *(The ZERO Institute, The University of Oxford, Holywell House, Oxford OX2 0EST)*<br>Understanding battery materials using advanced X-ray and correlative imaging methods |
| 11:15 - 11:35<br>Westminster-I1 | Samuel Cooper *(Dyson School of Design Engineering, Imperial College London, Exhibition Road, London SW7 2AZ, United Kingdom)*, Steve Kench, Isaac Squires, Amir Dahari, Ronan Docherty, Sam Hair<br>Machine learning for the characterisation and design of electrode materials |
| 11:35 - 11:50<br>Westminster-O1 | Wenhao Sun *(Materials Science and Engineering, University of Michigan, Ann Arbor)*<br>Navigating phase diagram complexity to guide robotic inorganic materials synthesis |
| 11:50 - 12:05<br>Westminster-O2 | Sonja Ambaum *(Institute of Physical Chemistry, RWTH Aachen University)*, Neil L. Allan, Regina Dittmann, Roger A. De Souza<br>Oxygen Diffusion in Brownmillerite Sr2Fe2O5 is Two-Dimensional: Results from a Molecular Dynamics Study |
| 12:05 - 12:20<br>Westminster-O3 | Ying Zhou *(Newcastle University, Newcastle upon Tyne, NE1 7RU, United Kingdom.)*, James Dawson<br>Modelling Solid Electrolyte Materials using Machine Learning Potentials |
| 12:20 - 12:35<br>Westminster-O4 | Annalena R. Genreith-Schriever *(Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK)*, Alexandra Alexiu, Chloe S. Coates, George S. Phillips, Liam A. V. Nagle-Cocco, Joshua D. Bocarsly, Farheen N. Sayed, Katharina Märker, Ieuan D. Seymour, Euan N. Bassey, Sian E. Dutton, Clare P. Grey<br>Probing Jahn-Teller Distortions and Antisite Defects in LiNiO2 with Ab-initio Molecular Dynamics, Variable-Temperature X-Ray Diffraction, and 7Li NMR Spectroscopy |
| | **2E3 Battery Materials. Room: St.James**<br>Chair: Michele Riva |
| 10:45 - 11:15<br>St.James-K1 | Jeff Sakamoto *(Materials and Mechanical Engineering Departments, University of California, Santa Barbara)*<br>Mechano-electrochemical Phenomena in Solid-State Batteries |
| 11:15 - 11:35<br>St.James-I1 | Till Frömling *(Fraunhofer IWKS)*, Lukas Porz, Qaisar Khushi Muhammad, Jürgen Rödel<br>Introduction of dislocations as a strategy for modifying properties of functional ceramics |
| 11:35 - 11:50<br>St.James-O1 | Nidhi Kapate *(Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA;)*, Stephen Kang, Jimmy Kuo, Hongbo Zhao, William Chueh<br>Understanding the Kinetic Origins of GITT Voltage Relaxation and Low-Frequency EIS Measurements in Porous Electrodes |
| 11:50 - 12:05<br>St.James-O2 | Jaekwang Lee *(School of Materials science and Engineering, Pusan National University)*, Tae Won Nam, Min Chul Shin, Heesoo Lee<br>Solution combustion synthesis and electrochemical properties of nickel oxide/carbon nanotube composites |
| 12:05 - 12:20<br>St.James-O3 | Hiroto Katsuragawa, Yusuke Tago, Sawako Mori, Shota Maeda, Shuichi Matsuda, Ryo Nakayama, Shigeru Kobayashi, Taro Hitosugi, Makoto Moriya *(Graduate School of Science and Technology, Shizuoka University, Shizuoka 422-8529, Japan.)*<br>Molecular Crystalline Electrolyte Consisting of LiTFSA and Succinonitrile with High Li-ion Transference Number and 5 V-class Electrochemical Stability |
| 12:20 - 12:35<br>St.James-O4 | Victor Landgraf *(Delft University of Technology, The Netherlands)*<br>Entropy-induced high conductivity in fully-reduced solid-electrolytes thermodynamically stable against Li metal |
| | **2E4 Solid Oxide Cells/Protonics. Room: Moore**<br>Chair: Na Ni |
| 10:45 - 11:15<br>Moore-K1 | Olga A. Marina *(Pacific Northwest National Laboratory, USA)*, Surendra Karki, Chris Coyle, Long Le, Dan Edwards, Tian Liu, Jie Bao<br>LSCF Phase Evolution During Solid Oxide Electrolysis Cell Operation |
| 11:15 - 11:35<br>Moore-I1 | MIGUEL A. LAGUNA-BERCERO *(Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Zaragoza, 50009, Spain)*, ALODIA ORERA, ANGEL LARREA, ANDRES ACIN, JOSE I. PEÑA, RUTH LAHOZ<br>3D laser machining: a potential tool to develop new architecture designs for solid state energy devices |

| | |
|---|---|
| 11:35 - 11:50<br>Moore-O1 | Tomoyuki Yamasaki *(Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University)*<br>Mixed conduction in Lanthanum oxyhydrides |
| 11:50 - 12:05<br>Moore-O2 | Hinuma Yoyo *(National Institute of Advanced Industrial Science and Technology (AIST), Kansai Center)*<br>Why are there two activation barriers for H diffusion in LaH2.75O0.125? |
| 12:05 - 12:20<br>Moore-O3 | Jinwook Kim *(Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology)*, Seongwoo Nam, Sejong Ahn, Hyunseung Kim, Jun Hyuk Kim, Byeom Gyun Jeong, Di Chen, WooChul Jung<br>Investigation of Electrochemical Reaction Mechanism at the Fuel Electrode Surface in Proton-Conducting Oxide Cells |
| 12:20 - 12:35<br>Moore-O4 | Motoya Karino *(Grad. Sch. of Engineering, Tohoku Univ.)*, Teruki Yoshioka, Diao Zhou, Yuta Kimura, Takashi Nakamura, Keiji Yashiro, Tatsuya Kawada, Koji Amezawa<br>Effect of Mixed Conduction in Electrolytes on the Impedance Response of Proton Conducting Ceramic Fuel Cell Cathodes |
| | **2E5 Electrocatalysis. Room: Abbey**<br>Chair: André Weber |
| 10:45 - 11:15<br>Abbey-K1 | Jose M. Serra *(Instituto de Tecnología Química (Universitat Politècnica de València – Consejo Superior de Investigaciones Científicas), Av. Los Naranjos, s/n, 46022 Valencia, Spain)*, Aitor Domínguez-Saldaña, Alfonso Juan Carrillo, Joaquin Santos, Laura Navarrete, Maria Balaguer, Beatriz García-Baños, Pedro Plaza-González, David Catalán-Martínez, Jose Manuel Catalá-Civera<br>Microwave-driven Modulation of Redox Properties of Solid-State Ionic Conductors |
| 11:15 - 11:35<br>Abbey-I1 | marie-laure fontaine *(SINTEF AS)*, Didrik Småbråten, einar vøllestad, Ragnar Strandbakke<br>On the development of cost-effective and large-scale H2 and NH3 production technologies |
| 11:35 - 11:50<br>Abbey-O1 | Xi Xu *(Department of Materials Exhibition Road, Imperial College London, London, SW7 2AZ, UK)*, Stephen Skinner<br>Locally Tuning Sr Segregation Blocking Layers for Mixed Ion and Electron Conduction (MIEC) Using Oriented Crystal Planes |
| 11:50 - 12:05<br>Abbey-O2 | Qiyang Lu *(Westlake University)*<br>Understanding the Role of Ionic Point Defects in Oxide Electrocatalysts |
| 12:05 - 12:20<br>Abbey-O3 | Kun Zheng *(AGH University of Krakow, Faculty of Energy and Fuels, Department of Hydrogen Energy, al. A. Mickiewicza 30, 30-059 Krakow, Poland)*, Jakub Lach, Michał Gogacz, Muhammad Bilal Hanif, Luo Jie, Amir Sultan, Paweł Czaja, Michał Mosiałek, Yihan Ling<br>The synergistic effect of dual-phase in designing hybrid electrodes for high-performance SOFCs |
| | **2E6 SOFC/SOEC. Room: Gielgud**<br>Chair: Masatomo Yashima |
| 10:45 - 11:15<br>Gielgud-K1 | Avner Rothschild *(Department of Materials Science and Engineering, Technion – Israel Institute of Technology, Haifa, 3200003, Israel)*<br>Decoupled Water Splitting: Reshaping Water Electrolysis for Green Hydrogen Production at Scale |
| 11:15 - 11:35<br>Gielgud-I1 | Aleksey Yaremchenko *(CICECO - Aveiro Institute of Materials, University of Aveiro, Portugal)*, Rui Pinto, Javier Macías, Jorge Frade<br>Vanadate- and Molybdate-Based Anode Components for Biogas-Fueled SOFCs |
| 11:35 - 11:50<br>Gielgud-O1 | Manfred Martin *(Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany)*<br>Kinetics of Unmixing Caused by Electrochemical Potential Gradients |
| 11:50 - 12:05<br>Gielgud-O2 | Simon Guillonneau *(Institut des Matériaux Jean Rouxel, Université de Nantes)*, Olivier Joubert, Clément Nicollet<br>Monitoring redox properties of transition metals in spinel type structures for improved oxygen exchange kinetics. |
| 12:05 - 12:20<br>Gielgud-O3 | Hyeongmin Yu *(Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea)*, Seungsoo Jang, Donghun Lee, Kang Taek Lee<br>Facile Microstructural Tuning via One-step Microwave-assisted Sintering for High Performing Solid Oxide Electrochemical Cells |
| 12:20 - 12:35<br>Gielgud-O4 | Jangwoo Seo, Kwangchul Jung, Insung Lee, Bumsoo Kim *(E&KOA co.)*, Suok Kim<br>Manufacturing and Performance Assessment of CuMn Foam as a Current Collector for Air Electrodes in SOFC and SOEC Stacks. |
| 12:35 - 14:00 | **Lunch Break** |
| | **3E1 Battery Materials. Room: Fleming**<br>Chair: M Rosa Palacin Peiro |
| 14:00 - 14:20<br>Fleming-I1 | David Muñoz-Rojas *(Université Grenoble Alpes, CNRS, Grenoble INP, LMGP, Grenoble, CS 50257, Grenoble Cedex 1 38016, France)*<br>Fast, open-air printing of functional thin films for energy applications |
| 14:20 - 14:35<br>Fleming-O1 | Maycol F. Mena *(Instituto de Cerámica y Vidrio ICV-CSIC, Madrid, España)*, Ferley A. Vásquez, Jadra Mosa, Mario Aparicio, Jorge A. Calderon, Nataly Carolina Rosero-Navarro<br>Improving the Electrochemical Performance type-Perovskite Solid Electrolyte through controlled Synthesis Parameters in the Sol-Gel Process. |
| 14:35 - 14:50<br>Fleming-O2 | Marc Bertrand *(Université de Montréal)*, Steeve Rousselot, Maxime Rioux, David Aymé-Perrot, Mickael Dolle<br>Ionic Percolation through Low-Temperature Densification of Glass-Ceramic LAGP Electrolytes for All-Solid-State Batteries |
| | **3E2 Machine Learning/Materials Modelling. Room: Westminster**<br>Chair: Paul Shearing |
| 14:00 - 14:20<br>Westminster-I1 | Seungwu Han *(Department of Materials Science and Engineering, Research Institute of the Advanced materials, Seoul National University, Seoul 08826, Republic of Korea)*<br>Application of pretrained machine learning force fields to Li diffusion in electrolytes |
| 14:20 - 14:35<br>Westminster-O1 | Marcin Kryński *(Warsaw University of Technology)*, Aleksandra Dzięgielewska, Konrad Kwatek, Marcin Małys, Jan Jamroz, Hangfeng Zhang, Wojciech Wróbel, Isaac Abrahams, Franciszek Krok<br>Bridging the gap between theoretical modeling and experiments in bismuth oxide based solids |
| 14:35 - 14:50<br>Westminster-O2 | Thorben Böger *(Institute of Inorganic and Analytical Chemistry, University of Münster, D-48149 Münster, Germany)*, Wolfgang G. Zeier<br>Deciphering Thermal Transport in NASICON-Electrolytes: Experimental and Ab-initio Insights into Phonon Dynamics and Heat Transport |
| 14:50 - 15:05<br>Westminster-O3 | Seung-Jae Shin *(Thomas Young Centre and Department of Materials, Imperial College London, London, United Kingdom.)*, Aron Walsh, Alexander C. Forse, Jamie W. Gittins, Matthias J. Golomb<br>Microscopic Origin of Electrochemical Capacitance in two-dimensional Metal Organic Frameworks |
| | **3E3 Battery Materials. Room: St.James**<br>Chair: Samuel Cooper |
| 14:20 - 14:35<br>St.James-O1 | Kazuhiro Hikima *(Toyohashi University of Technology, Japan)*, Ryota Kishi, Atsunori Matsuda<br>Electrochemical Properties of Li10GeP2S12 Ionic Conductors Synthesized by the Solution Method |
| 14:35 - 14:50<br>St.James-O2 | Oliver Maus *(Institute of Inorganic and Analytical Chemistry, University of Münster, D-48149 Münster, Germany)*, Wolfgang Zeier<br>A Close Look into Post-synthesis Ball-milling of the Highly Conducting Solid Electrolyte Li5.5PS4.5Cl1.5 for All-solid State Batteries |

| | |
|---|---|
| 14:50 - 15:05<br>St.James-O3 | Neelam Srivastava *(Banaras Hindu University)*, Dipti Yadav, Kanak Aggarwal<br>Economical, Ecofriendly and Easy to Handle Polymer-In-Salt-Electrolytes |
| 15:05 - 15:20<br>St.James-O4 | Vasiliki Faka *(University of Muenster)*, Wolfgang Zeier<br>Pressure-induced dislocations and their influence on ionic transport in Li+ conducting argyrodites |
| | **3E4 Solid Oxide Cells/Protonics. Room: Moore**<br>Chair: Olga Marina |
| 14:00 - 14:20<br>Moore-I1 | André Weber *(Karlsruhe Institute of Technology (KIT), Institute for Applied Materials - Electrochemical Technologies (IAM-ET))*<br>Interaction of SOFC Fuel Electrodes with different Fuels and therein contained Impurities |
| 14:20 - 14:35<br>Moore-O1 | Shunrui Luo *(Institut Català de Nanociència i Nanotecnologia (ICN2))*, Kai Pei, Bote Zhao, Yu Chen, Jordi Arbiol<br>Optimization Surface/Interface of PrBaCo2O5+δ as Oxygen Electrode for Enhanced Reversible Protonic Ceramic Electrochemical Cells |
| 14:35 - 14:50<br>Moore-O2 | Ho-Il Ji *(Korea Institute of Science and Technology (KIST))*, Seunghyeok Im<br>Proton Uptake Process in Double Perovskite Triple Ionic-Electronic Conducting Oxides for Protonic Ceramic Cells |
| 14:50 - 15:05<br>Moore-O3 | Jack Strand *(Nanolayers Research Computing)*, Alex Shluger, David Gao<br>Interplay of Electronic and Ionic Processes in Field-Induced Degradation in Amorphous Oxides |
| | **3E5 Electrocatalysis. Room: Abbey**<br>Chair: Jose Manuel Serra |
| 14:00 - 14:20<br>Abbey-I1 | Markus Kubicek *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Matthäus Siebenhofer, Christoph Riedl, Florian Fahrnberger, Herbert Hutter, Andreas Nenning, Jürgen Fleig<br>Near-surface Dipoles on Mixed Ionic Electronic Conducting Oxides: Formation – Measurement – Manipulation |
| 14:20 - 14:35<br>Abbey-O1 | Vladislav Kolotygin *(Department of Advanced Materials for Energy, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, Sant Adrià del Besòs, Barcelona 08930, Spain)*, Antonio María, Lucile Bernadet, Marc Torrell, Albert Tarancón<br>Development of Sr2Fe1.5Mo0.5O6-δ-based Electrodes for Small- and Large-scale SOC Applications |
| 14:35 - 14:50<br>Abbey-O2 | Michał Gogacz *(AGH University of Krakow, Faculty of Energy and Fuels, Department of Hydrogen Energy, al. A. Mickiewicza 30, 30-059 Krakow, Poland)*, Kun Zheng, Jie Luo, Jakub Lach, Yihan Ling<br>Engineering high-performance heterostructured electrodes for boosting the performance of SOFCs |
| 14:50 - 15:05<br>Abbey-O3 | Haodong Wu *(School of Chemistry, University of St Andrews, St Andrews, Fife KY16 9ST, UK)*, Xiangling Yue<br>A Comparative Investigation of ZDX-SFM Composite-Structured Anode for Hydrocarbon-Fueled Solid Oxide Fuel Cells |
| | **3E6 Oxide Materials. Room: Gielgud**<br>Chair: Manfred Martin |
| 14:00 - 14:30<br>Gielgud-K1 | Masatomo Yashima *(Tokyo Institute of Technology)*<br>DISCOVERY of HIGH PROTON and OXIDE-ION CONDUCTORS via INTRINSIC OXYGEN VACANCIES |
| 14:30 - 14:50<br>Gielgud-I1 | Michele Riva *(Technical University of Vienna)*<br>Surfaces of La0.8Sr0.2MnO3 at the Atomic Scale |
| 14:50 - 15:20<br>Gielgud-K2 | Richard Catlow *(Department of Chemistry, University College London, London, (United Kingdom))*<br>New Insights into Defect and Electronic Properties of Oxides and Nitrides |
| 15:30 - 15:45 | **Fleming Room - Closing & Awards Ceremony** |

## Poster Contribution

| | |
|---|---|
| 154 | Mengxin Wu *(university of oslo)*<br>Performance and degradation of positrodes for proton ceramic electrolysers |
| 157 | Benjamin Duff, Stuart J. Elliott, Jacinthe Gamon, Luke M. Daniels, Matthew J. Rosseinsky, Frédéric Blanc *(Department of Chemistry, University of Liverpool, UK)*<br>Understanding Li Ions Diffusion in Sulphide- and Oxide-based Conductors from NMR |
| 185 | Rotraut Merkle *(Max Planck Institute for Solid State Research, Stuttgart, Germany)*, Giulia Raimondi, Joachim Maier<br>Proton Concentrations in Ba(Fe,Acc)O3-d Perovskites |
| 202 | Matthaeus Siebenhofer *(Laboratory for Electrochemical Interfaces, Massachusetts Institute of Technology, Cambridge, MA, USA)*, Andreas Nenning, Peter Blaha, Juergen Fleig, Markus Kubicek<br>Investigating the atomic-scale effects of surface modifications on model surfaces of mixed ionic and electronic conducting oxides |
| 247 | Claudia Steinbach *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Alexander Schmid, Christin Boehme, Juergen Fleig<br>Ultrathin Interfacial Layers Affect Space Charges between Mixed Ionic and Electronic Conducting Oxides and SrTiO3 |
| 280 | Janis K. Eckhardt *(Institute of Theoretical Physics, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany)*, Sascha Kremer, Till Fuchs, Philip Minnmann, Johannes Schubert, Simon Burkhardt, Matthias T. Elm, Peter J. Klar, Christian Heiliger, Jürgen Janek<br>Influence of Microstructure on the Material Properties Derived by Brick Layer Model Analysis – A Case Study for LLZO Ceramics |
| 388 | Alexander Schmid *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Ludwig Enzlberger, Juergen Fleig<br>Mechanistic Insights into Photo-current Enhancement in Strontium Titanate Heterojunctions under UV Illumination |
| 490 | Barbara Wagner *(TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria)*, Alexander Schmid, Jürgen Fleig<br>Exploring the Potential of LSCrMn in Oxygen Ion Batteries via Chemical Capacitance Measurements |
| 510 | Takuya Takahashi *(Graduate school of Chemical Sciences and Engineering, Hokkaido University)*, Genki Kobayashi, Yoshitaka Aoki<br>H− ION CONDUCTIVITY of CUBIC PEROVSKITE BaSn1-xInxO3-δHε OXYHYDRIDES |
| 514 | Leah Narun *(Department of Materials Science & Engineering, Stanford University)*, Will Chueh, Aaron Lindenberg<br>Variable Temperature Phonon Dynamics of Superionic Li Conductor Li7La3Zr2O12 |
| 515 | Dylan Edelman *(Department of Materials Science & Engineering, Stanford University)*, Hari Ramachandran, William Chueh<br>Inducing cation disordering in sodium layered oxides |
| 521 | Sean Bishop *(Sandia National Laboratories, Albuquerque, NM, USA)*, Eric Neuman, Daniel Lowry, William Bachman, Wen Dong, Christopher O'Brien, Chad McCoy<br>Processing-structure-property relationships in BiFeO3-BaTiO3 lead-free ferroelectrics |
| 523 | Ryosuke Maeda *(Graduate school of Chemical Sciences and Engineering, Hokkaido University)*, Hajime Toriumi, Yoshitaka Aoki<br>H− Ion Conductivity of BaZr0.5In0.5O2.25H0.5 Oxyhydride |

| | |
|---|---|
| 524 | Taichi Asakura *(Osaka Metropolitan University)*, Ryo Izawa, Takuya Kimura, Chie Hotehama, Hiroe Kowada, Kota Motohashi, Atsushi Sakuda, Masahiro Tatsumisago, Akitoshi Hayashi<br>LiF-Doped Sulfide Solid Electrolytes with Stabilized α-Li3PS4 Analog Phase for All-Solid-State Li Metal Batteries |
| 529 | Mait Ainsar *(University of Tartu Institute of Chemistry, Ravila 14a Street, Tartu 50411, Estonia)*, Kuno Kooser, Margus Kodu, Glen Kelp, Gunnar Nurk<br>EIS Characterization of La0.31Sr0.58Ti0.97Ni0.03O3-d SOFC Thin Film Microelectrodes |
| 532 | Naoki Matsui *(Tokyo Institute of Technology)*, Miwa Murakami, Kazuhiro Mori, Takashi Saito, Keisuke Shimizu, Kota Suzuki, Ryoji Kanno<br>Effect of Pb 6s2 lone pair on potential flattening of fluoride-ion conduction in CsPbF3 |
| 533 | Yushi Fujita *(Osaka Metropolitan Univeristy)*, Taichi Asakura, Kota Motohashi, Atsushi Sakuda, Akitoshi Hayashi<br>Preparation of Amorphous Li2O-LiI-MoO3 Solid Electrolytes and Application to All-Solid-State Batteries |
| 536 | Yoonseok Choi *(Hydrogen Energy Institute, Korea Institute of Energy Research)*, Phil Joo Chun, Yong Youn, Hye-Sung Kim, Tae Woo Kim<br>Effect of B2O3 additive on the Sintering Behavior of Hexagonal Perovskite-related Ba7Nb4MoO20 |
| 540 | Hye-Sung Kim *(Korea Institute of Energy Research)*, Yong Youn, Basharat Hussain, Abid Ullah, Jong-Eun Hong, Dong Woo Joh, Seung-Bok Lee, Rak-Hyun Song, Seok-Joo Park, Tae Woo Kim, Yoonseok Choi, Tak-Hyoung Lim<br>Anisotropic Proton Migration in Hexagonal Perovskite Related Oxide |
| 541 | Taisei Arakawa *(Faculty of Science, Yamagata University)*, Takeshi Usuki, Shusuke Kasamatsu<br>Ion Dynamics Analysis of Superionic Conducting Glass AgI-As2Se3 by Machine Learning Force Field |
| 551 | Jing Ming *(Department of Chemistry, Queen Mary University of London, Mile End Road, London, E1 4NS, U.K.)*, MarzenaMarzena Leszczyńska-Redek, Marcin Malys, Wojciech Wrobel, Jan Jamroz, Michal Struzik, Stephen Hull, Franciszek Krok, Isaac Abrahams<br>Dopant Clustering and Vacancy Ordering in Neodymium Doped Ceria |
| 556 | Diego Rivera *(Department of Materials Science & Engineering, Stanford University)*, Peter Csernica, William Chueh, Kit McColl, Grace Busse, David Shapiro, Saiful Islam<br>Substantial Oxygen Loss and Chemical Expansion in Lithium-Rich Layered Oxides at Moderate Delithiation |
| 565 | Ángela Ramos-Díaz *(Yusuf Hamied Department of Chemistry, University of Cambridge. Lensfield Road, Cambridge, CB2 1EW, United Kingdom.)*, Sundeep Vema, Farheen N. Sayed, Clare P. Grey<br>Multi-technique Approach to Identify the Onset of Degradation at the Interface of NMC and LLZO during Sintering |
| 567 | Klaudia Pachulska *(Faculty of Physics, Warsaw University of Technology, ul. Koszykowa 75, 00-662 Warsaw)*, Magdalena Winkowska-Struzik, Michał Struzik<br>Dual Doping For Improved Electronic Conductivity In Lithium Garnet Electrolyte Li7La3Zr2O12 |
| 569 | Dan Ito *(Graduate School of Advanced Science and Engineering, Waseda University, Tokyo, Japan)*, Seong-Hoon Jang, Hideo Ando, Toshiyuki Momma, Yoshitaka Tateyama<br>Self-Diffusion Mechanism of Li+, Na+, and K+ Ions in Prussian Blue by First-Principles Calculations |
| 570 | Bonjae Koo *(Sungshin Women's University)*<br>Oxygen Permeability and Structural Stability of BaCo0.7Fe0.25Zr0.05O3-δ Oxygen Transport Membrane for Hydrogen Production |
| 572 | Yuichi Sakuda *(Tokyo Institute of Technology)*, Taito Murakami, Maxim Avdeev, Kotaro Fujii, Yuta Yasui, James R. Hester, Masato Hagihala, Yoichi Ikeda, Yusuke Nambu, Mudasir A. Yatoo, Stephen Skinner, Masatomo Yashima<br>Oxide-Ion Conductivity and Ion Migration Mechanism of Ba7Nb4MoO20-based Materials |
| 577 | Le-Yen Lin *(Department of Chemical Engineering, National Taiwan University, Taiwan)*, Chia-Chin Chen<br>Kinetics of Mixed Ion-Electron Transport in Composite Electrodes |
| 578 | Shu-Han Chen *(Department of Chemical Engineering, National Taiwan University, Taiwan)*, Chia-Chin Chen<br>Space Charge Storage in Mixed Ionic-Electronic Conducting Materials |
| 579 | Gyeong Duk Nam *(School of Earth Sciences and Environmental Engineering, Gwangju Institute of Science and Technology, Gwangju 61005, Republic of Korea.)*, Gahyeon Lee, Hyeon Jin Lee, Tae Woo Kim, Kyong Sik Yun, Hye-Sung Kim, Ji Haeng Yu, Jong Hoon Joo<br>A study on the characteristics of BaZrO3-based electrolyte supported solid oxide electrochemical cells |
| 580 | Thomas Scheiber, Annika Marko, Bernhard Gadermaier, Matjaz Finsgar, H. Martin R. Wilkening *(Institute of Chemistry and Technology of Materials, Graz University of Technology, Stremayrgasse 9, 8010 Graz, Austria)*<br>Charge Carrier Dynamics of the Mixed Conducting Interphase in All-Solid-State Batteries: Lithiated LATP as a Case Study |
| 582 | Luyang Wang *(University of Oslo (UiO))*, Truls Norby<br>Water adsorption and surface protonic conduction on NiO |
| 586 | Florian Stainer, Anna Jodlbauer, Jonas Spychala, Annika Marko, Katharina Hogrefe, Bernhard Gadermaier *(Institute of Chemistry and Technology of Materials, Graz University of Technology, Graz, Austria)*, H. Martin R. Wilkening<br>Solid-State (Cryo-)NMR and Conductivity Spectroscopy: A Complementary Approach to Characterize Ion Dynamics in Solid Electrolytes |
| 588 | Florian Stainer *(Institute of Chemistry and Technology of Materials, Graz University of Technology, Austria.)*, Maria Gombotz, Junji Akimoto, H. Martin R. Wilkening<br>Proton H+ Self-Diffusion in Li-H Exchanged Li6La3ZrTaO12 as Seen by Solid-State 1H NMR Relaxation |
| 593 | Deblina Majumder *(School of Engineering, Newcastle University, Newcastle upon Tyne, NE1 7RU, United Kingdom)*, Alex Martinez Martin, Shailza Saini, Kalliopi Kousi, Evangelos I. Papaioannou<br>Unlocking Enhanced Reversible Oxygen Storage Capacity via Noble Metal Exsolution in Titanium-Doped Lanthanum Strontium Ferrites for Catalytic Applications |
| 594 | Patrick Ewerhardt *(Department of Chemistry, Centre for Materials Science and Nanotechnology, University of Oslo, Gaustadalléen 21, NO-0349 Oslo, Norway)*, Truls Norby, Tor Bjørheim, Jonathan Polfus<br>Modelling and Characterization of Negatrodes in Proton Ceramic Electrochemical Cells |
| 601 | Prince Sharma *(Solid State Battery Ionics Group, Research Center for Energy and Environmental Materials (GREEN), National Institute for Materials Science (NIMS), 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan.)*, Gen Hasegawa, Naoaki Kuwata<br>Enhanced Lithium Exchange through Indium Layering: Progress in LLZO-Ta Solid Electrolyte Technology |
| 603 | Wojciech Wrobel *(.Faculty of Physics, Warsaw University of Technology, Koszykowa 75, 00-662 Warszawa, Poland)*, Jan Jamroz, Marcin Krynski, Marcin Malys, Franciszek Krok, Isaac Abrahams<br>Lone-pair driven order-disorder phase transition in Bi0.8Pr0.2O1.5 oxide ion conductor |
| 604 | Farheen N. Sayed *(Yusuf Hamied Department of Chemistry, Lensfield Road, CB2 1EW, Cambridge, UK)*, Quentin Jacquet, Pedro Groszewicz, Supreeth Nagendran, Steffen P. Emge, P. C. M. M. Magusin, Chris O'Keefe, Sunita Dey, Clare P. Grey<br>The new niobate and tantalate phases: A combined diffraction, EXAFS and NMR spectroscopy study |

| | |
|---|---|
| 605 | Subhash Chandra *(Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, United States)*, Bilge Yildiz<br>Strain dependent Li-ion conductivity modulation in model amorphous LiPON glassy-type solid electrolyte |
| 608 | En Ju Cho *(Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA)*, Bidipta Ghosh, Hong Yang, Nicola Perry<br>Defect chemical study of Y2+xRu2-xO7-δ pyrochlores and correlation with OER performance |
| 611 | Ashley Roach *(Department of Engineering, University of Cambridge, Trumpington Street, CB2 1PZ, Cambridge, UK)*, Sundeep Vema, Clare Grey, Vikram Deshpande, Norman Fleck<br>Driving Forces for Interfacial Voiding in All Solid State Lithium Metal Batteries |
| 612 | Masanari Takahashi *(Osaka Research Institute of Industrial Science and Technology, Nara Institute of Science and Technology)*, C. Arai, M. Yamamoto, A. Kato<br>Sinter-Free Interface Formation of Oxide-Based TiO2 Anode Composite for All-Solid-State Batteries |
| 614 | DONG WOO JOH *(Fuel Cell Laboratory, Korea Institute of Energy Research, Daejeon 34129, Republic of Korea.)*, MIAN MUNEEB UR REHMAN, AMJAD HUSSAIN, TAE-HUN KIM, JI-WEON SHIN, JON-EUN HONG, AK-HYOUNG LIM, RAK-HYUN SONG<br>Ammonia as a Direct Fuel for Solid Oxide Fuel Cells: Long-Term Testing and Durability Analysis |