



24th International Conference on Solid State Ionics (SSI24)

London, 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 Chair: John Kilner
08:50 - 09:40 Fleming-T1	<u>Roger De Souza</u> (<i>Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany</i>) Look Both Ways Before Crossing: Views from the Intersection of Experiment and Simulation
09:40 - 10:00	Session Change
	2A1 Lithium Conductors. Room: Fleming Chair: Alex Morata
10:00 - 10:30 Fleming-K1	<u>H. Martin R. Wilkening</u> (<i>Institute for Chemistry and Technology of Materials, NAWI, Graz University of Technology, Graz, Austria</i>) NMR at cryogenic temperatures to study lithium ion dynamics in electrolytes with ultrafast charge carriers
10:30 - 10:45 Fleming-O1	<u>Arianna Pesce</u> (<i>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</i>), Nico Zamperlin, Ander Orue, Pedro López-Aranguren Exploring the Interfacial Dynamics and Ion Transport of Sulfide Electrolytes in Solid-State Batteries
	2A2 Anion Conductors. Room: Westminster Chair: Stephen Skinner
10:00 - 10:30 Westminster-K1	<u>John Irvine</u> (<i>School of Chemistry, University of St Andrews, St Andrews, Fife KY16 9ST, UK</i>), Shuoshuo Zhang Manipulating Short Range Order/Disorder in Scandia Zirconias to Optimise Ionic Conductivity and its Stability
10:30 - 10:45 Westminster-O1	<u>Ahmad Shaur</u> (<i>MESA+ Institute for Nanotechnology, University of Twente, Enschede 7500 AE, The Netherlands</i>), Henny J.M. Bouwmeester Impact of defect interactions on the electrical conductivity of gadolinium-doped ceria
	2A3 Protonic Conductors. Room: St.James Chair: Kang Taek Lee
10:00 - 10:30 St.James-K1	<u>Sandrine Ricote</u> (<i>Colorado School of Mines</i>), Huayang Zhu, Robert Kee Recent Progress and Challenges in Protonic Ceramic Electrolysis Cells
10:30 - 10:45 St.James-O1	<u>Melanie Anstiss</u> (<i>TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria</i>), Maximilian Weiss, Matthias Weil, Alexander K. Opitz Proton Uptake in Perovskite Structures: Insights from In-situ Techniques on BaFe _{0.8} Y _{0.2} O _{3-δ}
	2A4 Advanced Techniques. Room: Moore Chair: Monica Burriel
10:00 - 10:30 Moore-K1	<u>Ryan O'Hayre</u> (<i>Colorado School of Mines</i>), Jake Huang, Neal Sullivan, Andriy Zakutayev 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 Moore-O1	<u>Janis K. Eckhardt</u> (<i>Institute of Theoretical Physics, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany</i>), Till Fuchs, Simon Burkhardt, Peter J. Klar, Jürgen Janek, Christian Heiliger Challenges in the Impedance Analysis of Solid-State Systems - Current Constriction at the Li LLZO Interface
	2A5 Batteries. Room: Abbey Chair: Nuria Garcia-Araez
10:00 - 10:30 Abbey-K1	<u>Wolfgang Zeier</u> (<i>University of Muenster</i>) Pressure effects and transport limitations solid-state battery composites
10:30 - 10:45 Abbey-O1	<u>Ruijie Zheng</u> (<i>School of Materials and Chemical Technology, Tokyo Institute of Technology, Tokyo 152-8552, Japan.</i>), Shigeru Kobayashi, Yuki Watanabe, Jun Deng, Ryo Nakayama, Kazunori Nishio, Ryota Shimizu, Makoto Moriya, Taro Hitosugi 5 V-class All-solid-state Battery Operation Using Li(FSA)(SN) ₂ Molecular Crystal Solid Electrolyte
	2A6 Solid Oxide Cells. Room: Gielgud Chair: Alodia Orera
10:00 - 10:30 Gielgud-K1	<u>Peter Vang Hendriksen</u> (<i>Department of Energy Conversion and Storage, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark</i>), Peyman Khajavi, Henrik Lund Frandsen, Shu Wang, Morten Phan Klitkou, Mohamad Khoshkalam, Veronica Humlebæk Jensen, Sade Ahmed SOEC materials; opportunities and challenges
10:30 - 10:45 Gielgud-O1	<u>Bowen Li</u> (<i>Department of Energy Conversion and Storage, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark</i>), Anders Bogh Jacobsen, Peter Blennow, Ming Chen 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



11:15 - 11:35 Fleming-I1	3A1 Lithium Conductors. Room: Fleming Chair: H. Martin R. Wilkening <u>Alex Morata</u> (<i>Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.</i>), Juan Carlos Gonzalez-Rosillo, Fernanda Monteiro, Francesco Chiabrera, Apostolos Panagiotopoulos, David Diercks, Ainara Aguadero, John Kilner, Albert Tarancon Improving the Interfaces in Ceramic Thin-film Solid State Li Ion Batteries: Materials Exploration and Devices
11:35 - 11:50 Fleming-O1	<u>Shogo Miyoshi</u> (<i>National Institute for Materials Science (NIMS)</i>), Yoshihiko Nishihara, Fumihiko Ichihara, Takahisa Ohno, Kazutaka Mitsuishi, Naoaki Kuwata, Takuya Masuda, Kazunori Takada Effect of Cobalt-substitution on Phase Relation and Sinterability of Lithium-ion Conductor Based on Lithium Titanium Orthophosphate
11:50 - 12:05 Fleming-O2	<u>Subhash Chandra</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, United States</i>), Iradwikanari Waluyo, Adrian Hunt, Joshua T. Wright, Cole D. Fincher, Yet-Ming Chiang, Carlo U. Segre, Bilge Yıldiz Electrochemically induced local structure change impedes Li-ion mobility in garnet-type lithium solid-electrolyte
12:05 - 12:20 Fleming-O3	<u>Pedram Ghorbanzade</u> (<i>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</i>), Juan Miguel López del Amo Application of solid-state NMR in the design and characterization of LLZO-based polymer Composite electrolytes
11:15 - 11:35 Westminster-I1	3A2 Anion Conductors. Room: Westminster Chair: John Irvine Lucia Corti, Dinu Iuga, Amrit Venkatesh, Ivan Hung, Zhehong Gan, John B. Claridge, Matthew J. Rosseinsky, <u>Frédéric Blanc</u> (<i>Department of Chemistry, University of Liverpool, UK</i>) Oxide Ion Diffusion Mechanism in Melilite and other Phases
11:35 - 11:50 Westminster-O1	<u>Kevin Huang</u> (<i>University of South Carolina, US</i>) Fast Ion Conductors Based on Cubic Perovskite Structure
11:50 - 12:05 Westminster-O2	<u>Carsten Korte</u> (<i>Institute of Energy- and Climate Research (IEK-14), Forschungszentrum Jülich, DE</i>), Christian Rodenbücher, Dominik Wrana, Benedykt Jany, Adam Kruk, Franciszek Krok Electrochemically Driven Redox Phenomena in Oxide Ion Conducting Solid Electrolytes
12:05 - 12:20 Westminster-O3	<u>Dennis Kemp</u> (<i>Institute of Physical Chemistry, RWTH Aachen University</i>), Roger A. De Souza One Stone, Two Birds: Using High Electric Fields to Enhance the Mobility and the Concentration of Point Defects in Ion-Conducting Solids
11:15 - 11:35 St.James-I1	3A3 Protonic Conductors. Room: St.James Chair: Sandrine Ricote <u>Kang Taek Lee</u> (<i>Korea Advanced Institute of Science and Technology (KAIST), South Korea</i>) Innovative Approaches and Enhanced Materials for Protonic Ceramic Electrochemical Cells
11:35 - 11:50 St.James-O1	<u>Stine Roen</u> (<i>University of Oslo (UiO)</i>), Truls Norby, Ragnar Strandbakke, Jonathan M. Polfus Electrochemical Characterization of Ba _{0.95} La _{0.05} (Fe _{1-x} Y _x Ni _x Zn _y)O _{3-δ} as Steam Electrode in Proton Ceramic Electrochemical Cells
11:50 - 12:05 St.James-O2	<u>Jónína Björg Guðmundsdóttir</u> (<i>University of Oslo (UiO)</i>), Einar Vøllestad, Reidar Haugsrud, Jonathan Polfus Oxygen Exchange Kinetics of BaGd _{0.3} La _{0.7} Co ₂ O _{6-d} Air/Steam Electrode for Proton Ceramic Electrochemical Cells
12:05 - 12:20 St.James-O3	<u>Natalia Stankiewicz</u> (<i>Polymat, University of the Basque Country UPV/EHU, 20018 Donostia-San Sebastian, Spain</i>), Leon Focks, Mengyang Cui, Francisco Bonilla, Ivan Bobrikov, Gillian Goward, Irune Villaluenga The Effect of Non-conducting Polymers on the Transport Properties of Hybrid Electrolytes
11:15 - 11:35 Moore-I1	3A4 Advanced Techniques. Room: Moore Chair: Ryan O'Hayre <u>Monica BURRIEL</u> (<i>Université Grenoble Alpes, CNRS, Grenoble INP, LMGP, Grenoble, France</i>) Isotope Exchange Raman Spectroscopy (IERS): A powerful and versatile technique to measure oxygen-ion transport kinetics in situ
11:35 - 11:50 Moore-O1	<u>Zhongtao Ma</u> (<i>Department of Energy Conversion and Storage, Technical University of Denmark (DTU)</i>), Christodoulos Chatzichristodoulou, Kristian Speranza Mølhave, Søren Bredmose Simonsen Electrochemical ETEM impedance study on solid oxide cells
11:50 - 12:05 Moore-O2	<u>Stanislaus Breitwieser</u> (<i>TU Wien</i>), Andreas Nennung, Jürgen Fleig Combined coulometry and XPS measurements for linking bulk to surface defect chemistry in mixed conductors
12:05 - 12:20 Moore-O3	<u>Kirsten Rath</u> (<i>Institute of Chemical Technologies and Analytics, Technische Universität Wien, 1060 Vienna, Austria</i>), Christian Melcher, Paul W. Hoffrogge, Daniel Schneider, Britta Nestler, Alexander K. Opitz Beyond the Surface: Probing the Dynamics of Fluorite-Based Solid Oxide Electrolysis Cathodes Through Advanced Multi-Analytical Techniques
11:15 - 11:35 Abbey-I1	3A5 Batteries. Room: Abbey Chair: Wolfgang Zeier <u>Nuria Garcia-Araez</u> (<i>UNIVERSITY OF SOUTHAMPTON</i>) Safer Batteries Enabled by Shutdown Ceramics and by Functional Additives for Combining Solid and Liquid Electrolytes
11:35 - 11:50 Abbey-O1	<u>Svetlana Menkin</u> (<i>Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK</i>), Jana B. Fritzsche, Rebecca Larnier, James Simon, Clare P. Grey Soft Short Circuit-based Degradation of Lithium, Sodium and Zinc Metal Batteries
11:50 - 12:05 Abbey-O2	<u>Yasmine Benabed</u> (<i>Hydro-Quebec</i>), Gabrielle Foran, Steeve Rousselot, Mickaël Dollé Solving the Li ₇ La ₃ Zr ₂ O ₁₂ Electrochemical Stability Window Puzzle
12:05 - 12:20 Abbey-O3	Hyejeong Hyun, Hyojung Yoon, Subin Choi, Juri Kim, Tom Regier, Zachary Arthur, SeokKoo Kim, <u>Jongwoo Lim</u> (<i>Seoul National University, Seoul, South Korea</i>) Paradoxical role of structural degradation of nickel-rich layered oxides in capacity retention upon storage of lithium-ion batteries
11:15 - 11:35 Gielgud-I1	3A6 Solid Oxide Cells. Room: Gielgud Chair: Peter Vang Hendriksen Miguel Angel Laguna-Bercero, Angel Larrea, Miguel Angel Morales-Zapata, <u>Alodia Orera</u> (<i>Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, 50009 Zaragoza, Spain</i>) Solid Oxide Microtubular Cells for the Production of Green Fuels



11:35 - 11:50 Gielgud-01	<u>Soomin Choi</u> (<i>Gwangju institute of science and technology</i>), 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 Investigation of Thermo-mechanical Stability in High Temperature Solid Oxide Electrochemical Cell
11:50 - 12:05 Gielgud-02	<u>Rinlee Butch Cervera</u> (<i>University of the Philippines Diliman</i>) Electrode Thin Film and Electrolyte Materials Development and Electrochemical Performance for Intermediate-Temperature Reversible Solid Oxide Electrochemical Cells
12:05 - 12:20 Gielgud-03	<u>Keiji Yashiro</u> (<i>Faculty of Materials for Energy, Shimane University</i>), Nanako Bisaka, Takashi Sato, Rryan Achmad Budiman, Mina Yamaguchi, Tatsuya Kawada Microstructure Evolution Analysis on Ni/YSZ Fuel Electrode using Cross-Sectional Model Cells
4A1 Lithium Conductors. Room: Fleming Chair: Ainara Aguadero	
14:00 - 14:30 Fleming-K1	<u>Stefan ADAMS</u> (<i>Department of Materials Science and Engineering, National University of Singapore</i>) Compressible Light-Weight Ion-conducting Solids for Durable High Energy Density Batteries
14:30 - 14:50 Fleming-I1	<u>Wakako Araki</u> (<i>Tokyo Institute of Technology</i>), Kiminori Saito, Miao Wembo, Yoshio Arai Deformation and Diffusion Mechanisms of Li-La-Ti-O with Ordered Microstructures Under Mechanical Stress
14:50 - 15:05 Fleming-O1	<u>Pierre Lannelongue</u> (<i>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</i>), Simon Lindberg, Andrey Golov, Elena Gonzalo, Thomas Marchandier, Artur Tron, Javier Carrasco, Pedro Lopez-Aranguren Halide Electrolytes for Solid-State Batteries: Investigating Ionic Transport and Interface Dynamics
15:05 - 15:20 Fleming-O2	<u>Grace Wei</u> (<i>Department of Materials Science and Engineering, University of California, Berkeley, CA, 94720, USA</i>), Kyujung Jun, Gerbrand Ceder Ultrafast Lithium-ion Diffusion in Oxyhalides
15:20 - 15:35 Fleming-O3	<u>Marnix Wagemaker</u> (<i>Storage of Electrochemical Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2929JB, Delft, The Netherlands</i>), Zhu Chen, Qidi Wang, Eveline van der Maas, Swapna Ganapathy, Wenxuan Zhao, Theodoris Famprikis, Chenglong Zhao, Victor Landgraf, Lars Bannenberg, Baohua Li, Janek Jurgen Designing halide solid electrolytes
4A2 Anion Conductors. Room: Westminster Chair: Isaac Abrahams	
14:00 - 14:30 Westminster-K1	<u>Susana Garcia-Martin</u> (<i>Complutense University of Madrid</i>) Understanding electrochemical properties of materials by imaging their crystal structure
14:30 - 14:50 Westminster-I1	<u>Nini Pryds</u> (<i>Department of Energy Conversion and Storage, Technical University of Denmark (DTU)</i>) Engineering of oxide heterostructures with symmetry-breaking
14:50 - 15:05 Westminster-O1	<u>Thomas Defferriere</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology</i>), Baoming Wang, Julian P. Klein, Frances M. Ross, Harry L. Tuller Methods for Studying Ionic Transport and Transfer Across Interfaces in Bilayer Metal Oxide Stacks
15:05 - 15:20 Westminster-O2	<u>Julius K. Dinter</u> (<i>Center of Materials Research, JLU Gießen</i>), Juri Becker, Anja Henss, Matthias T. Elm Electrochemical Characterization of CeO ₂ /YSZ Multilayer Systems with Well-defined Interfaces
15:20 - 15:35 Westminster-O3	<u>Daniele Vivona</u> (<i>MIT - Massachusetts Institute of Technology, Department of Mechanical Engineering</i>), Kiarash Gordiz, Randall Meyer, Sumathy Raman, Yang Shao-Horn Superior Designs of Solid-State Ionic Conductors by engineering Local Environments
4A3 Protonic Conductors. Room: St.James Chair: Wilhelm Albert Meulenberg	
14:00 - 14:30 St.James-K1	<u>Chris Ling</u> (<i>School of Chemistry, The University of Sydney, NSW 2006, Australia</i>), Frederick Marlton, Alex Brown Synergistic hydration-distortion and ionic conduction mechanisms in barium-group(V) oxides
14:30 - 14:50 St.James-I1	<u>Shanwen Tao</u> (<i>School of Engineering, University of Warwick, Coventry CV4 7AL, UK</i>), Peimiao Zou Fast low temperature ceramic mixed OH ⁻ /H ⁺ ionic conductors for electrochemical devices
14:50 - 15:05 St.James-O1	<u>Hitoshi Takamura</u> (<i>Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan</i>), Mei Asakura, Yuta Tsujino, Akihiro Ishii, Itaru Oikawa, Kohei Kato, Shota Takemura, Shingo Ide Defect Chemistry and Transport Properties of Anion-Doped Ba-Zr-Based Proton Conductors
15:05 - 15:20 St.James-O2	<u>OMAR RAHMOUNI</u> (<i>Université Paris-Saclay, CentraleSupélec, CNRS, Laboratoire SPMS, 91190, Gif-sur-Yvette, France</i>), Caroline Pirovano, Giulio Cordaro, Victor Duffort, Martine Trentesaux, Nicolas Nuns, Guilhem Dezanneau, Rose-noelle Vannier Oxygen diffusion and water incorporation in Ba(Ce,Sn,Zr)0.8Y0.1Yb0.1O2.8 PCFC electrolyte
4A4 Advanced Techniques. Room: Moore Chair: Koji Amezawa	
14:00 - 14:30 Moore-K1	<u>Ifan Stephens</u> (<i>Imperial College London, Department of Materials, London, London, SW7 2AZ, UK</i>) Translating concepts from electrocatalysis to battery science and back
14:30 - 14:50 Moore-I1	<u>Clement Nicollet</u> (<i>Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France</i>) A Method to Measure Oxygen Surface Exchange Kinetics on Porous Mixed Conducting Oxides with Simple Determination of Microstructure Parameters.
14:50 - 15:05 Moore-O1	<u>Juan Carlos Gonzalez-Rosillo</u> (<i>Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.</i>), Beatrice Laurenti, Francesco Chiabrera, Alex Morata, Albert Tarancón Tip-Enhanced Raman Spectroscopy for Nanometric Chemical Insights and Operando Characterization of Battery Materials
15:05 - 15:20 Moore-O2	TRAN THI HUYEN TRAN, THUY LINH PHAM, JEEHOON KIM, EUI-CHOL SHIN, CHEOL-WOO AHN, DONG-SOO PARK, NAMSOO SHIN, JAEKOOK KIM, <u>JONG-SOOK LEE</u> (<i>Chonnam National University, South Korea</i>) Physics-based Impedance Modeling of Polycrystalline Solid Electrolytes Assisted by Data Science Tools: Application to Li ₇ La ₃ Zr ₂ O ₁₂
15:20 - 15:35 Moore-O3	<u>Matthias T. Elm</u> (<i>Institute of Physical Chemistry, RWTH Aachen</i>), Janis K. Eckhardt, Christian Heiliger 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 Chair: Magda Titirici	



14:00 - 14:30 Abbey-K1	<u>Eric Wachsmann</u> (<i>University of Maryland</i>) Achieving Extreme High Ion-Current Densities in Tailored Materials, Structures, and Interfaces
14:30 - 14:50 Abbey-I1	<u>Antonio Bertei</u> (<i>Department of Civil and Industrial Engineering, University of Pisa, Largo Lucio Lazzarino 2, IT 56122, Pisa, Italy</i>), Marco Lagnoni, Xuekun Lu Phase-separating Active Materials in Lithium-ion Batteries: Implications for Fast-charging and Material Characterisation
14:50 - 15:05 Abbey-O1	<u>Kun Joong Kim</u> (<i>Department of Chemistry, Technical University of Munich, Chair of Solid-State Electrolyte Chemistry, Germany</i>), Steffen Weinmann, Hana Gobena, Jennifer Rupp Processing oxide lithium metal batteries with thin electrolyte
15:05 - 15:20 Abbey-O2	<u>Stephen Dongmin Kang</u> (<i>Department of Materials Science & Engineering, Seoul National University, Seoul, Korea</i>) Why battery electrodes never seem to yield reliable GITT measurements
15:20 - 15:35 Abbey-O3	<u>James Simon</u> (<i>University of Cambridge</i>), Andras Kozak, Veronika Sedajova, Svetlana Menkin, Stuart Clarke, Clare Grey Investigation of interface stability of aqueous zinc metal batteries using scanning electrochemical microscopy
4A6 Solid Oxide Cells. Room: Gielgud Chair: Scott Barnett	
14:00 - 14:30 Gielgud-K1	<u>Anne Hauch</u> (<i>Topsoe A/S, Haldor Topsoe Allé 1, DK-2800 Kgs Lyngby, Denmark</i>) Solid Oxide Electrolysis Cell Technology – Solid State Devices for Efficient Green Hydrogen Production
14:30 - 14:50 Gielgud-I1	<u>marie-laure fontaine</u> (<i>SINTEF AS</i>), einar vøllestad, Ragnar Strandbakke, Elena Stefan, christelle denonville, Didrik Småbråten Innovative cells and stacks for hydrogen production
14:50 - 15:05 Gielgud-O1	<u>TAKAYUKI NAKAO</u> (<i>Energy Technology Laboratories, Osaka Gas Co</i>), SHUICHI INOUE Interface Design Development for High Performance of SOFC/SOEC Contact Layers between Interconnects and Solid Oxide Cells
15:05 - 15:20 Gielgud-O2	<u>Einar Vollestad</u> (<i>SINTEF Industry, Sustainable Energy Technology, Oslo, Norway</i>) Principles and Potential of Pressurized Steam Electrolysis using Proton Ceramic Electrolysers
15:20 - 15:35 Gielgud-O3	Imanol Quina, Laura Almar, David Catalán-Martínez, Andrea Dos Santos, Amir Masoud Dayaghi, Truls Norby, Agustín Martínez, Jose Manuel Serra, <u>Sonia Escolástico</u> (<i>Instituto de Tecnología Química (Universitat Politècnica de València—Consejo Superior de Investigaciones Científicas), Valencia, Spain</i>) Hydrocarbon production by CO ₂ electro-catalytic reduction in a pressurized protonic electrochemical membrane reactor
15:35 - 16:05	Coffee Break
5A1 Lithium Conductors. Room: Fleming Chair: Stefan ADAMS	
16:05 - 16:35 Fleming-K1	<u>Ainara Aquadero</u> (<i>Department of Materials, Imperial College London, South Kensington Campus, London, SW7 2AZ, U.K.</i>), Raul Artal, Ricardo Jimenez, Cristina Garcia, Kit Baker, Ieuan Seymour Solid electrolytes bulk and interfaces analysis to improve all-solid-state batteries performance
16:35 - 16:50 Fleming-O1	<u>Oskar Thompson</u> (<i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP*, LEPMI, 38000 Grenoble, France</i>), Adrien Faucier-Magnan, Gavin Vaughan, Vittoria Pschedda, Laura H Henry, Sylvie le Floch, Claire Villevieille Investigating the Morphology of Thiophosphate Based Electrolytes Using Synchrotron X-Ray Tomography Techniques
16:50 - 17:05 Fleming-O2	<u>Zachary Warren</u> (<i>Instituto de Cerámica y Vidrio (CSIC)</i>), Jadra Mosa, Mario Aparicio, Nataly Carolina Rosero-Navarro Solution processing Li ₂ S-P ₂ S ₅ glass-ceramic solid-state electrolyte in ethyl mercaptan
17:05 - 17:20 Fleming-O3	<u>Gwangseok Oh</u> (<i>Posco holdings, N.EX.T Hub</i>), Seungduk Seo, Ohmin Kwon, Sangchul Nam Development of air-stable sulfide-based solid electrolyte using oxide-based ionic conductive materials
17:20 - 17:35 Fleming-O4	Kosuke Kawai, Yuki Nomura, Masaki Fujita, Hirokazu Kitaura, Eiji Hosono, Hiroshi Nakajima, Hirofumi Tsukasaki, Shigeo Mori, Akitoshi Hayashi, Naoaki Yabuuchi, Kazuo Yamamoto, <u>Masashi Okubo</u> (<i>Waseda University</i>) MXenes for all ‘strain-free’ solid-state batteries
5A2 Anion Conductors. Room: Westminster Chair: Nini Pryds	
16:05 - 16:35 Westminster-K1	<u>Isaac Abrahams</u> (<i>School of Physical and Chemical Sciences, Queen Mary University of London</i>) Unravelling Local Structure in Oxide-Ion Conducting Fluorites
16:35 - 16:50 Westminster-O1	<u>Giuditta Perversi</u> (<i>Maastricht University</i>), Niels Schreiner, Angela Angelodimou The road to high-entropy: sequential doping study of Ba ₂ In ₂ O ₅
16:50 - 17:05 Westminster-O2	<u>Sophie Bauer</u> (<i>Department of Materials- and Geo-Sciences, Technische Universität Darmstadt, Darmstadt, Germany</i>), Till Frömling The Drastic Effect of A-Site Non-Stoichiometry on the Cation Diffusion and Core-Shell Formation in NBT-Based Ceramics
17:05 - 17:20 Westminster-O3	<u>Mina Yamaguchi</u> (<i>Graduate School of Environmental Studies, Tohoku University</i>), Masaki Kurata, Ryosuke Iwata, Shogo Fuwa, Riyan Achmad Budiman, Keiji Yashiro, Tatsuya Kawada High-Temperature Photo-Response in Gd-Doped CeO ₂
5A3 Protonic Conductors. Room: St.James Chair: Chris Ling	
16:05 - 16:35 St.James-K1	<u>Wilhelm Albert Meulenbergh</u> (<i>Institut für Energie- und Klimaforschung, Forschungszentrum Jülich GmbH, Germany</i>), Jürgen Malzbender, Julia Wolter, Wendelin Deibert, Olivier Guillon, Jose Manuel Serra, Candela Segarra, Laura Almar, Sonia Escolástico, Wenyu Zhou Ba(Zr,Ce,Y)O _{3-δ} proton-conducting materials: manufacture, performance and stability
16:35 - 16:50 St.James-O1	<u>Wen YANG</u> (<i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK-14)</i>), Christian Rodenbücher, Jiangshui Luo, Carsten Korte A solid proton conductor realized by the encapsulation of ionic liquids in the metal-organic framework ZIF-8
16:50 - 17:05 St.James-O2	<u>Kehan Huang</u> (<i>Faculty of Engineering, Department of Materials, Imperial College, London</i>), Yidong Han, Stephen Skinner Exploring the Protonic Conduction in W- and Mo-substituted LaNbO ₄ Materials at Reducing Conditions
17:05 - 17:20 St.James-O3	<u>Giulio Cordaro</u> (<i>Université Paris-Saclay, CentraleSupélec, CNRS, Lab. SPMS, Gif-sur-Yvette 91190, France</i>), Juande Sirvent, Omar Rahmouni, Federico Baiutti, Dominique Thiaudière, Alex Morata, Albert Tarancón, Guilhem Dezanneau Structural and Chemical Study of Electrolytes for Protonic Ceramic Cells Using a High-Throughput Approach
5A4 Advanced Techniques. Room: Moore Chair: Ifan Stephens	



16:05 - 16:35 Moore-K1	<u>Koji Amezawa</u> (<i>Tohoku University</i>), Masaharu Yanagi, Yuta Kimura, Takashi Nakamura, Hirokazu Katsui, Oki Sekizawa, Kiyofumi Nitta, Yasutoshi Iriyama, Tatsuya Kawada 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 Moore-O1	<u>Christian Melcher</u> (<i>TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria</i>), Andreas Nenning, Florian Schrenk, Kirsten Rath, Christoph Rameshan, Alexander Karl Opitz Exploring Metal-Support Interactions in Solid Oxide Electrolysis Cathodes by in-situ Surface Analytics
16:50 - 17:05 Moore-O2	<u>Francesco Chiabrera</u> (<i>Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.</i>), Paul Nizet, Yunqing Tang, Nerea Alayo, Philipp Langner, Federico Baiutti, Alex Morata, Albert Tarancón Optoionic Impedance Spectroscopy (OIS) for In-situ Investigation of Ion Insertion in Mixed Ionic-Electronic Conductors
17:05 - 17:20 Moore-O3	<u>Julian Taubmann</u> (<i>Department of Energy Conversion and Storage, Technical University of Denmark (DTU)</i>), Christodoulos Chatzichristodoulou, Henrik Lund Frandsen Fundamental Insights into the Degradation of Nickel/Yttria Stabilised Zirconia Fuel Electrodes of Solid Oxide Cells by Model Electrode Testing
17:20 - 17:35 Moore-O4	<u>Yen-Po Liu</u> (<i>Peter Grünberg Institute, Electronic Materials (PGI-7), Forschungszentrum Jülich GmbH, 52425 Jülich, Germany</i>), Moritz L. Weber, Dylan Jennings, Felix Gunkel, Regina Dittman Phase-separated nanostructures of Ni:STO studied using low temperature Scanning Tunneling Microscopy and Spectroscopy
5A5 Batteries. Room: Abbey Chair: Eric Wachsman	
16:05 - 16:35 Abbey-K1	<u>Magda Titirici</u> (<i>Department of Chemical Engineering, Imperial College London, London, SW7 2AZ, UK</i>) Beyond Li: Na, K and Al based batteries-progress, challenges and prospects
16:35 - 16:50 Abbey-O1	<u>Daiana Ferreira</u> (<i>Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.</i>), Antonio Gianfranco Sabato, Marc Nuñez Eroles, Alex Morata, Marc Torrell, Albert Tarancón Advanced manufacturing processes of NASICON-based all-solid-state lithium-metal batteries
16:50 - 17:05 Abbey-O2	<u>Artur Tron</u> (<i>AIT Austrian Institute of Technology GmbH, Center for Low-Emission Transport, Battery Technologies, Giefinggasse 2, 1210 Vienna, Austria</i>), Alexander Beutl, Ander Orue, Pedro López-Aranguren, Andrea Itziar Pitillas Martinez, Maria Helena Braga, Ville Kekkonen Round-robin test of sulfide-based solid-state battery assembly in coin-type cell configuration
17:05 - 17:20 Abbey-O3	<u>Oliver Clemens</u> (<i>University of Stuttgart, Institute for Material Science, Stuttgart</i>), Hong Chen, Tommi Aalto, Vanita Vanita Pushing to the Limits - Effect of Uniaxial Stack Pressure on the Performance of All-Solid-State Fluoride-Ion-Batteries
17:20 - 17:35 Abbey-O4	Ana De La Fuente Duran, Nicholas Siemons, Adam Marks, Tyler Mefford, Alberto Salleo, <u>William Chueh</u> (<i>Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA</i>) Effects of electrolyte composition on the electrochemistry of organic mixed conducting polymers
5A6 Solid Oxide Cells. Room: Gielgud Chair: Anne Hauch	
16:05 - 16:35 Gielgud-K1	<u>Scott Barnett</u> (<i>Northwestern University</i>), Qian Zhang, Pattiya Pibulchinda, Dalton Cox, Katsuyo Thornton, Peter Voorhees Microstructural Evolution of Ni-YSZ Electrodes During Solid Oxide Electrolysis Operation
16:35 - 16:50 Gielgud-O1	<u>Kuan-Ting Wu</u> (<i>International Institute for Carbon-neutral Energy Research (WPI-I2CNER), Kyushu University</i>), Tatsumi Ishihara Designing Highly Active Electrode by Infiltration Technique for Co-electrolysis of CO ₂ and H ₂ O
16:50 - 17:05 Gielgud-O2	<u>ARMELLE RINGUEDE</u> (<i>Institut de Recherche de Chimie Paris, CNRS UMR 8247, Chimie ParisTech</i>), André GRISHIN, Simon HUBERT, Valerie ALBIN, Michel CASSIR, Virginie LAIR Transport Mechanisms in Composite Electrolyte for Hybrid Cells
17:05 - 17:20 Gielgud-O3	<u>Sang Eun Lee</u> (<i>Dankook University</i>), Preethi Sudarsan, Hee Jung Park Electrochemical Characteristics of Metal Supported Solid Oxide Fuel Cells with a Buffer Layer Fabricated Using Ultrafine GDC Particles
17:20 - 17:35 Gielgud-O4	<u>Piotr Winiarz</u> (<i>AGH University of Krakow, Faculty of Energy and Fuels, Al. Mickiewicza 30, 30-059 Krakow, Poland</i>), Kun Wang, Konrad Świerczek, Kun Zheng 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 Fleming-T1	<u>Y. Shirley Meng</u> (<i>Division of Chemical Sciences and Engineering, Argonne National Laboratory</i>) 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 Chair: Yiyang Li	
09:45 - 10:15 Fleming-K1	<u>Arumugam Manthiram</u> (<i>The University of Texas at Austin</i>) Pushing the Limits of High-nickel Layered Oxide Cathodes in Lithium-ion Batteries
10:15 - 10:35 Fleming-I1	<u>François WEILL</u> (<i>CNRS, Univ. Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France</i>), Gozde ONEY, Jacob OLCHOWKA, Arnaud DEMORTIERE, Laurence CROGUENNEC Influence of Local Order on Electrochemical Properties of High Voltage Spinel LiNi _{0.5} Mn _{1.5} O ₄
10:35 - 10:50 Fleming-O1	<u>Adrien Fauchier Magnan</u> (<i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, 38000 Grenoble, France</i>), Léa Mangani, Lucas Trassart, Sylvain Franger, Claire Villeveille Understanding the Mixed Ionic Conduction in Composite Electrode (NCM/LPSCI) for All Solid-State Batteries
2B2 Anion Conductors. Room: Westminster Chair: Kotaro Fujii	
09:45 - 10:15 Westminster-K1	<u>PETER CROZIER</u> (<i>School for Engineering of Matter, Transport and Energy, Arizona State University</i>) Towards Visualization of Atomic-Level Transport in Ion Conductors: Characterizing Structural Dynamics with Advanced Electron Microscopy and Data Science
10:15 - 10:35 Westminster-I1	<u>Konrad Świerczek</u> (<i>AGH University of Krakow, Faculty of Energy and Fuels, Department of Hydrogen Energy, al. A. Mickiewicza 30, 30-059 Krakow, Poland</i>) New complex perovskites and related oxides for electrochemical applications
10:35 - 10:50 Westminster-O1	<u>Juliusz Dąbrowa</u> (<i>AGH University of Krakow, Faculty of Materials Science and Ceramics, Al. Mickiewicza 30, 30-059 Krakow, Poland</i>), Jan Adamczyk, Karolina Bar, Klaudia Zielińska, Marek Zajusz, Maria Szymczak, Margarita Nowakowska, Andrzej Mikula, Konrad Świerczek Beyond the high entropy approach – highly functional, Sr-free, multicomponent cathodes for solid oxide fuel cells
2B3 Protonic Materials. Room: St.James Chair: Chuancheng Duan	
09:45 - 10:15 St.James-K1	<u>Nicola Perry</u> (<i>University of Illinois Urbana-Champaign</i>) Toward Descriptors for Near-Zero-Chemical-Strain Perovskites
10:15 - 10:35 St.James-I1	<u>Werner Sitte</u> (<i>Chair of Physical Chemistry, Montanuniversitaet Leoben, Franz-Josef-Strasse 18, A-8700 Leoben, Austria</i>), Christina Nader, Andreas Egger, Edith Bucher, Judith Lammer, Werner Grogger, Rotraut Merkle, Joachim Maier Phase Composition, Cation Distribution and Proton Uptake of Self-Generated Ba(Ce,Fe,In)O _{3-δ} Composites
10:35 - 10:50 St.James-O1	<u>Tomohiro Ishiyama</u> (<i>National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan</i>), Hiroko Arai, Hiroki Nagashima, Hiroyuki Miyamura, Kenji Koga, Aditya Sharma, Takuya Yamaguchi, Takahisa Omata Cermet-supported type phosphate glass electrolyte electrochemical cell for energy conversion devices
2B4 In-situ/In-Operando Techniques. Room: Moore Chair: Catalina Elena Jiménez	
09:45 - 10:15 Moore-K1	<u>SOSSINA HAILE</u> (<i>Department of Materials Science and Engineering, Northwestern University, Evanston</i>) 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 Moore-I1	<u>Cortney Kreller</u> (<i>Los Alamos National Laboratory, Los Alamos, NM 87545, USA</i>), Benjamin Derby, James Valdez, Wang Yongqiang, Franziska Schmidt, Tinsley Benhaddouch, Blas Uberuaga In situ Characterization of Radiation-Induced Transport in Complex Oxides
10:35 - 10:50 Moore-O1	<u>Stefan Kucharski</u> (<i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research</i>), Yoo Jung Sohn, Christian Lenser, Olivier Guillon, Norbert H. Menzler Operando X-ray Diffraction and Spectroscopy of Solid Oxide Electrolyser Cells
2B5 Exsolution/ Surfaces. Room: Abbey Chair: Sivaprakash Sengodan	
09:45 - 10:15 Abbey-K1	<u>Alexander K. Opitz</u> (<i>TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria</i>) Small Tweaks with Big Impact: Manipulating Catalytic Activity of Mixed Conducting Electrodes by Surface Chemistry Modification
10:15 - 10:35 Abbey-I1	<u>Moritz L. Weber</u> (<i>Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California 94720, United States</i>), 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 Space charge effects on the reaction kinetics of metal exsolution and the coalescence of exsolved nanoparticles
10:35 - 10:50 Abbey-O1	<u>Alexander Bonkowski</u> (<i>Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany</i>), Roger A. De Souza A single model for the thermodynamics and kinetics of nanoparticle exsolution from perovskite-oxides
2B6 Materials Discovery/ High Entropy Materials. Room: Gielgud Chair: Miriam Botros	
09:45 - 10:15 Gielgud-K1	<u>Matthew Rosseinsky</u> (<i>University of Liverpool</i>) Digital Routes to Inorganic Materials – A New Pathway for Ion Transport in Solids
10:15 - 10:35 Gielgud-I1	Yue Shui, Yinchun Shi, Lei Zhu, Zhen Huang, <u>Na Ni</u> (<i>School of Mechanical Engineering, Shanghai Jiao Tong University, 800 Dongchuan Rd, 200240, China</i>) Structural Disorder, Sintering and Electrochemical Properties of High Entropy ABO ₃ Solid Oxide Cell Air Electrode Materials



10:35 - 10:50 Gielgud-O1	<u>Florian Strauss</u> (<i>Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany</i>), Shango Li, Jing Lin, Mareen Schaller, Sylvio Indris, Xin Zhang, Torsten Brezesinski, Ce-Wen Nan, Shuo Wang Tuning Ionic Conductivity in High Entropy Lithium Argyrodite Solid Electrolytes
10:50 - 11:20	Coffee Break
	3B1 Lithium Electrodes. Room: Fleming Chair: Arumugam Manthiram
11:20 - 11:40 Fleming-I1	<u>Yiyang Li</u> (<i>University of Michigan</i>) Quantifying Lithium Transport in Individual Battery Particles
11:40 - 11:55 Fleming-O1	<u>Yuta Kimura</u> (<i>Tohoku University</i>), 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 3D Operando Tracking of Electrochemical Reactions in an Active Material Particle Ensemble in Solid-State Battery Electrodes
11:55 - 12:10 Fleming-O2	<u>Masatsugu Oishi</u> (<i>Tokushima University</i>), Raku Hamamoto, Satoshi Hiroi, Koji Ohara Functions of low crystallinity in Li-rich layered oxide electrode evaluated by pair distribution function analysis
	3B2 Anion Conductors. Room: Westminster Chair: PETER CROZIER
11:20 - 11:40 Westminster-I1	<u>Kotaro Fujii</u> (<i>Tokyo Institute of Technology</i>), Masatomo Yashima Exploration and structure science of novel oxide-ion and proton conductors
11:40 - 11:55 Westminster-O1	<u>Davide Chinello</u> (<i>Department of Chemical Sciences, University of Padova, via Marzolo 1, 35131 Padova, Italy</i>), Antonella Glisenti Tailoring B-site doping in molybdenum-based double perovskites: implications on thermo- and electro-catalytic activity
11:55 - 12:10 Westminster-O2	<u>Fanlin Zeng</u> (<i>Institute of Energy and Climate Research, Materials Synthesis and Processing (IEK-1), Forschungszentrum Jülich GmbH, 52425 Jülich, Germany</i>), Wendelin Deibert, Wilhelm Albert Meulenberg, Stefan Baumann Promoting the performance of doped alkaline earth titanates as mixed ionic and electronic conductors for thermal water splitting
12:10 - 12:25 Westminster-O3	<u>Julien Riviere</u> (<i>UMR 8181 -UCCS- Unité de catalyse et de chimie du solide, Equipe chimie du solide. Univ. Lille, CNRS, Centrale Lille Institut, Univ. Artois. F-59000, Lille, France.</i>), Aurélie Rolle, Victor Duffort, Rose-Noelle Vannier Ca ₂ Fe ₂ -x(Co,Mn)xO ₅ +δ as possible La-Free air electrodes for Solid oxide electrolyser cell
12:25 - 12:35 Westminster-S1	<u>Vernon Smith</u> (<i>Bruker Corporation</i>) Bruker AXS X-ray diffraction solutions for the advanced characterization of solid state ionics - from atoms to devices
	3B3 Protonic Materials. Room: St.James Chair: Nicola Perry
11:20 - 11:40 St.James-I1	<u>Chuancheng Duan</u> (<i>Kansas State University</i>), Fan Liu, Liyang Fang, Zixian Wang Approaches to reducing the operating temperature of protonic ceramic electrochemical cells
11:40 - 11:55 St.James-O1	<u>Dongyeon Kim</u> (<i>Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea</i>), Jun Hyuk Kim, Sejong Ahn, Kang Taek Lee, WooChul Jung Advanced Oxygen Electrodes for Protonic Ceramic Electrochemical Cells: The Role of Ta-Stabilized BaCoO _{3-δ}
11:55 - 12:10 St.James-O2	<u>Zhongwei Yue</u> (<i>Foshan Xianhu Laboratory</i>), San Ping Jiang MECHANISMS of GENERATION and EVOLUTION of the PCFC OXYGEN ELECTRODE/ELECTROLYTE INTERFACE
	3B4 In-situ, In-Operando Techniques. Room: Moore Chair: Courtney Kreller
11:20 - 11:40 Moore-I1	<u>Catalina E. Jimenez</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie, 12489 Berlin, Germany</i>), 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 Insights by Advanced Synchrotron-Based Methods at the Solid/Gas Interface of Electrode Materials for Solid Oxide Cells
11:40 - 11:55 Moore-O1	<u>Savita Chaoudhary</u> (<i>Institute of Material Science, TU Darmstadt, 64287 Darmstadt (Germany)</i>), Pengcheng Hu, Binxiang Huang, Kim Alexander Creutz, Yue Liu, Gero Pickel, Vinit Agarwalla, Alexander Frebel, Andreas Klein Operando XPS studies of electrodes and electrolyte/electrode interfaces of solid oxide electrochemical cells
11:55 - 12:10 Moore-O2	<u>Andreas Nennig</u> (<i>TU Wien</i>), Alexander Opitz, Matthäus Siebenhofer, Christoph Riedl, Raffael Rameshan, Christoph Rameshan, Jürgen Fleig What can In-situ XPS Tell us About Reaction Mechanisms on Solid Oxide Cell Electrodes?
12:10 - 12:25 Moore-O3	<u>Arim Seong</u> (<i>Department of Materials Exhibition Road, Imperial College London, London, SW7 2AZ, UK</i>), Santanu Ray, Robert Leah, Subhasish Mukerjee, Stephen Skinner Understanding the evolution of chemistry and microstructure of functional ceramic interfaces under solid oxide cell operation
	3B5 Exsolution/ Surfaces. Room: Abbey Chair: Alexander Opitz
11:20 - 11:40 Abbey-I1	<u>Sivaprakash Sengodan</u> (<i>Khalifa University</i>) Unlocking High-Performance SOFC Anodes: Pd ₃ Mn Alloy Exsolution from PrBaMn ₂ O ₅ +δ
11:40 - 11:55 Abbey-O1	<u>Bianca Dißmann</u> (<i>Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany</i>), Jonathan M. Polfus, Andreas Rosnes, Roger A. De Souza Diffusion of Nickel upon Exsolution from La _{0.5} Sr _{1.5} Ti _{1-x} Ni _x O _{3-δ} Studied by DFT Simulations and Thermogravimetry
11:55 - 12:10 Abbey-O2	<u>Princess Inangha</u> (<i>Faculty of Engineering, Department of Materials, Imperial College, London</i>) Visualizing the Size Evolution of Exsolved Nanoparticles by In-situ X-ray Scattering
12:10 - 12:25 Abbey-O3	<u>Dylan Jennings</u> (<i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research, Materials Synthesis and Processing (IEK-1), 52425 Jülich, Germany</i>), Moritz L. Weber, Yen-Po Liu, Ansgar Meise, Moritz Kindelmann, Ivar Reimanis, Hiroaki Matsumoto, Pengfei Cao, Regina Dittman, Joachim Mayer, Felix Gunkel, Wolfgang Rheinheimer Disparate Behavior in Exsolved Nanoparticles: The Influence of Embedded Nanostructures on Nanoparticle Dynamics
	3B6 Materials Discovery/ High Entropy Materials. Room: Gielgud Chair: Matthew Rosseinsky



11:20 - 11:40 Gielgud-I1	<u>Yang Xu</u> (<i>University College London, London,</i>) Incorporating K-ions in the Cathode Materials for Sodium-Ion Batteries
11:40 - 11:55 Gielgud-O1	Yanyan Cui, Yushu Tang, Jing Lin, Junbo Wang, Simon Schweidler, Torsten Brezesinski, <u>Miriam Botros</u> (<i>Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany</i>) Photonic Surface Coating of High-Entropy Oxides on NCM Particles
11:55 - 12:10 Gielgud-O2	<u>Jing Lin</u> (<i>Battery and Electrochemistry Laboratory, Institute of Nanotechnology, Karlsruhe Institute of Technology</i>), Mareen Schaller, Sylvio Indris, Jürgen Janek, Aleksandr Kondrakov, Torsten Brezesinski, Florian Strauss Multicationic Substituted High-Entropy Lithium Argyrodite Superionic Conductors
12:10 - 12:25 Gielgud-O3	<u>Alexandros Vasileiadis</u> (<i>Storage of Electrochemical Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2929JB, Delft, The Netherlands</i>), James A. Quirk, Anastasia K. Lavrinenko, Theodosios Famprikis, Jouke R. Heringa, James A. Dawson, Marnix Wagemaker, Victor Landgraf, Pedro B. Groszewicz 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 Chair: Kisuk Kang
14:00 - 14:30 Fleming-K1	<u>Montse Casas Cabanas</u> (<i>Center for Cooperative Research on Alternative Energies (CIC energiGUNE), Basque Research and Technology Alliance (BRTA)</i>), Marcus Fehse, Iciar Monterrubio, Nahom Enkubahri Asres, Juan Miguel López del amo, Marine Reynaud Crystal Chemistry Insights into LiM _{0.5} Mn _{1.5} O ₄ (M = Ni, Fe) Spinels and Influence on Electrochemical Performance
14:30 - 14:50 Fleming-I1	<u>Robert House</u> (<i>Department of Materials, University of Oxford; Oxford, UK</i>), John-Joseph Marie, Miguel Perez-Osorio, Gregory Rees, Mikkel Juulsholt, Jun Chen, Peter Bruce Oxygen-redox Chemistry in High Energy Density Battery Cathodes
14:50 - 15:05 Fleming-O1	<u>Iliia Tertov</u> (<i>Institut de Chimie de la Matière Condensée de Bordeaux, CNRS, France</i>), Emmanuelle Suard, Laurence Croguennec, Christian Masquelier, Thomas Hansen, François Fauth, Pierre-Etienne Cabelguen Exploring Ni/Mn Ordering in LNMO via Comprehensive Neutron and X-ray Diffraction Study
15:05 - 15:20 Fleming-O2	<u>Sou Taminato</u> (<i>Mie University</i>), Ryosuke Goto, Daisuke Mori, Nobuyuki Imanishi Synthesis and Lithium (De-)intercalation Properties of Li ₅ +xFe ₁ -xMn _x O ₄ with Anti-fluorite Type Structure for Lithium Battery Cathode
	4B2 Anion Conductors. Room: Westminster Chair: Tatsumi Ishihara
14:00 - 14:30 Westminster-K1	<u>Brent Melot</u> (<i>Departments of Chemistry, Chemical Engineering, and Materials Science, University of Southern California, Los Angeles, CA, USA</i>) Looking Beyond Alkali Metal Intercalation for Energy Storage
14:30 - 14:50 Westminster-I1	Briséis Mercadier, Samuel Coles, Mathieu Duttine, Christophe Legein, Monique Body, Olaf Borkiewicz, Oleg Lebedev, <u>Benjamin Morgan</u> (<i>Department of Chemistry, University of Bath, Claverton Down, Bath BA2 7AY, United Kingdom</i>), Christian Masquelier, Damien Dambournet Dynamic Lone Pairs and Fluoride-Ion Disorder in Cubic-BaSnF ₄
14:50 - 15:05 Westminster-O1	<u>Stephen Hull</u> (<i>The ISIS Facility, STFC Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire, OX11 0QX, U.K.</i>), Gabriel Perez, Helen Playford, Robbie Shaw Fluoride-ion Conductors for Future Solid State Batteries
15:05 - 15:20 Westminster-O2	<u>Arunkumar Dorai</u> (<i>Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai 980-8577, Japan</i>), Miwa Murakami, Atsushi Mineshige, Reiji Takekawa, Kiyonori Takegoshi, Takahisa Omata, Junichi Kawamura Fluoride ion conduction mechanism Ba ₁ -xSn _x F ₄ solid electrolyte studied using 19F PFG-NMR
15:20 - 15:35 Westminster-O3	<u>Chengchao Zhong</u> (<i>Department of Applied Chemistry, Ritsumeikan University, Japan</i>), Shintaro Tachibana, Tailei Xu, Yu Shintomi, Keiji Shimoda, Takashi Saito, Takashi Kamiyama, Shogo Kawaguchi, Yuki Orikasa F– Conduction in Fluorosulphide La ₂ SrF ₄ S ₂ and Cation-anion Engineering for Conductivity Enhancement
	4B3 Protonic Materials. Room: St.James Chair: TRULS NORBY
14:00 - 14:30 St.James-K1	<u>Tatsuya Kawada</u> (<i>Graduate School of Environmental Studies, Tohoku University, Japan</i>), Taisei Segami, Ryuta Sato, Soichiro Ebata, Satoshi Watanabe, Riyan Budiman, Mina Yamaguchi, Keji Yashiro, Koji Amezawa Stress Distribution in Proton Conducting Oxide under Fuel Cell Operation Conditions
14:30 - 14:45 St.James-O1	<u>Yong-Yun Hsiau</u> (<i>University of Illinois Urbana-Champaign</i>), Yea-Shine Lee, Liz Griffin, Roberto dos Reis, Bernadette Cladek, Vinayak Dravid, Katharine Page, Nicola Perry Growth, Structure, and Kinetics of Triple-conducting Vertically Aligned Nanocomposites
14:45 - 15:00 St.James-O2	<u>Moritz Kindelmann</u> (<i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research</i>), Sonia Escolastico, Laura Almar, Julian Ebert, Dylan Jennings, Wolfgang Rheinheimer, Martin Bram, Jose Serra, Joachim Mayer, Olivier Guillon Acceptor dopant segregation controls the conductivity of barium zirconate based proton conductors
15:00 - 15:15 St.James-O3	<u>Toshiaki Matsui</u> (<i>Kyoto University</i>), Takashi Ozeki, Nahoko Sugioka, Kazunari Miyazaki, Sadahiro Nagasaka, Hiroki Muroyama, Koichi Eguchi, Kenichi Imagawa, Yoshimi Okada Intermediate-temperature proton conductivity of Li+/H+ ion-exchanged material (Li,H)3.5Zn0.25GeO ₄
	4B4 In-situ/in-Operando Techniques. Room: Moore Chair: Nuria Tapia Ruiz
14:00 - 14:30 Moore-K1	<u>William Chueh</u> (<i>Department of Materials Science & Engineering, Stanford University</i>) Oxygen Transport in Lithium Layered Oxides
14:30 - 14:50 Moore-I1	<u>Neil Dasgupta</u> (<i>University of Michigan</i>) Operando Visualization of Solid-State Batteries: From Metal Anodes to Composite Cathodes
14:50 - 15:05 Moore-O1	<u>Jongwoo Lim</u> (<i>Seoul National University, Seoul, South Korea</i>) lithium insertion dynamics at multi-length-scale
15:05 - 15:20 Moore-O2	<u>Sivakkumaran Sukumaran</u> (<i>Department of Materials, Imperial College London, South Kensington Campus, London, SW7 2AZ, U.K.</i>), Sarah Fearn, Stephen Skinner In situ TOF-SIMS Investigation of the Dynamic Metallic Anode Solid-Electrolyte Interface in Solid-State Sodium-ion Batteries



15:20 - 15:35 Moore-O3	Valerie Siller, Barthélemy Lelotte Lelotte, Robin Wullich, Marta Mirolo, Laura Höltzsch, Vincent Pelé, Christian Jordy, Carlos A. F. Vaz, Camelia Borca, Thomas Huthwelker, Petr Novák, <u>Mario El Kazzi</u> (<i>Electrochemistry Laboratory, Paul Scherrer Institute, Forschungstrasse 111, 5232 Villigen PSI, Switzerland</i>) Operando XPS/XAS/XPEEM: Exploiting Complementary Techniques to Probe the Interfaces in All-Solid-State Batteries
4B5 Exsolution/ Surfaces. Room: Abbey Chair: Ilan Riess	
14:00 - 14:30 Abbey-K1	<u>WooChul Jung</u> (<i>Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea.</i>) An Ideal Surface Reveals How Active It Is and Why It Degrades: Atomically Flat SrTi _{0.5} Fe _{0.5} O _{3-δ} Model Thin Film – a Case Study
14:30 - 14:50 Abbey-I1	<u>Simone Mascotto</u> (<i>Institute of Integrated Natural Science, University of Koblenz, Germany</i>), Filippo Colombo, Anastasios Tsiotsias, DongHwan Oh, Maria Goula, WooChul Jung Switchable catalysts realized via exsolution
14:50 - 15:05 Abbey-O1	<u>Jakub Lach</u> (<i>Department of Hydrogen Energy, Faculty of Energy and Fuels, AGH University of Krakow, al. A. Mickiewicza 30, 30-059 Krakow, Poland</i>), Kun Zheng, Alicja Klimkowicz, Michał Gogacz, Cristian Radu, Jie Luo, Damian Kaufmann, Paweł Czaja, Yihan Ling Tuning nanofibrous electrode materials (Sm/Nd)0.9Ba0.9Mn1.8-xFeNi0.1Co0.1O6-δ with in situ Exsolved Nanocatalysts for Symmetrical Solid Oxide Cells
15:05 - 15:20 Abbey-O2	<u>Alfonso J. Carrillo</u> (<i>Instituto de Tecnología Química, UPV-CSIC, Av. de los Naranjos s/n, 46022 Valencia, Spain</i>), Andrés López-García, Sonia Remiro-Buenamañana, Dragos Neagu, Jose Manuel Serra Compositional optimization of multicomponent metallic nanoparticles via high-pressure exsolution from double perovskite electrodes
15:20 - 15:35 Abbey-O3	<u>Jonathan Cavazzani</u> (<i>Department of Chemical Sciences, University of Padova, Via F. Marzolo 1, 35131, Padova, Italy</i>), Antonella Glisenti 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 Chair: Kosova Krecka	
14:00 - 14:30 Gielgud-K1	Anatoly Frenkel, Yue Qi, Ellen Wachtel, David Ehre, <u>Igor Lubomirsky</u> (<i>Dept. of Molecular Chemistry and Materials Science, Weizmann Institute of Science, Rehovot, 7610015, Israel</i>) Electrostriction in Ionic Conductors: Origin and Implications
14:30 - 14:50 Gielgud-I1	<u>Aleksandra Mielewczyk-Gryń</u> (<i>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</i>), Daniel Jaworski, Arkadiusz Dawczak, Sebastian Wachowski, Tadeusz Miruszewski, Tamilarasan Subramani, Hanna Kavaliuk, Alexandra Navrotsky, Maria Gazda High Entropy Oxides a buzz word or a new opening for proton conducting ceramics
14:50 - 15:05 Gielgud-O1	<u>Seemun Oh</u> (<i>Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea</i>), Dongyeon Kim, Hyeonggeun Kim, Kang Taek Lee Designing Highly Stable and Catalytic Oxygen Electrodes for Protonic Ceramic Electrochemical Cells Using High-Entropy Materials
15:05 - 15:20 Gielgud-O2	<u>Sebastian Wachowski</u> (<i>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</i>), Hanna Kavaliuk, Iga Szpunar, Aleksandra Mielewczyk-Gryń, Tadeusz Miruszewski, Ragnar Strandbakke, Maria Balaguer 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 Chair: Montse Casas Cabanas	
16:05 - 16:35 Fleming-K1	<u>Kisuk Kang</u> (<i>Center for Nanoparticle Research, Institute of Basic Science, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul 151-742, Republic of Korea</i>) A series of new Li-excess layered transition metal oxide with high energy density and no voltage fades
16:35 - 16:50 Fleming-O1	<u>Chia-Chin Chen</u> (<i>Department of Chemical Engineering, National Taiwan University, Taipei 10617, Taiwan</i>) Mixed Ion-Electron Transport in Composite Battery Electrodes
16:50 - 17:05 Fleming-O2	<u>Hirotsada Gamo</u> (<i>National Institute of Advanced Industrial Science and Technology (AIST), Kansai Center</i>), Hikaru Sano, Tetsu Kiyobayashi, Zyun Siroma, Yasushi Maeda Understanding Mechanism of Microscopic Conduction in Cathode Composites for All-Solid-State Batteries via Scanning Spreading Resistance Microscopy
17:05 - 17:20 Fleming-O3	<u>Sabrina Siculo</u> (<i>Technical University, Darmstadt</i>), Marcel Sadowski, Kilian Vettori, Matteo Bianchini, Juergen Janek, Karsten Albe Off-Stoichiometry, Vacancy Trapping, and Pseudo-irreversible First-Cycle Capacity in LiNiO ₂
17:20 - 17:35 Fleming-O4	<u>Takashi Nakamura</u> (<i>Tohoku University</i>), Yuta Kimura, Koji Amezawa, Juergen Janek Anion Defect Engineering for Spinel-Type Cathode LiMn ₂ O ₄
17:35 - 17:50 Fleming-O5	<u>Chun-Yen Yang</u> (<i>National Taiwan University, Taiwan</i>), Chia-Chin Chen Anomalous lithium storage in self-activated metal-organic frameworks driven by structural transformation
5B2 Anion Conductors. Room: Westminster Chair: Brent Melot	
16:05 - 16:35 Westminster-K1	<u>Tatsumi Ishihara</u> (<i>Kyushu University, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Japan</i>), Maksymilian Kluczny, Song Juntae, Watanabe Motonori Mixed anion conductivity in PbB ₂ iO ₂ Cl doped with Ca and Ga
16:35 - 16:50 Westminster-O1	<u>Kanghee Jo</u> (<i>Pusan National University</i>), Taeheun Lim, Jiseung Ryu, Ryan O'Hayre, Heesoo Lee Surface charge transfer in oxygen reduction reaction of A-site doped PrBaCo _{1.9} Cu _{0.1} O _{5+δ} for IT-SOFC
16:50 - 17:05 Westminster-O2	<u>Rosario Suarez Azorena</u> (<i>Dept. Interface Design, Helmholtz-Zentrum für Materialien und Energie GmbH (HZB), Albert-Einstein-Straße 15, 12489 Berlin, Germany</i>), Catalina E. Jiménez, Lucía M. Toscani, Mauro Melone, Virginia Pérez-Dieste, Ignacio J. Villar-García, Daniel Többsen, 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 Ni-Fe/CeO ₂ -based Electrodes for Intermediate Temperature Solid Oxide Cells
17:05 - 17:20 Westminster-O3	<u>Alejandro Natoli</u> (<i>Universidad San Pablo-CEU, CEU Universities, Facultad de Farmacia, Departamento de Química y Bioquímica, Urbanización Montepríncipe, Boadilla del Monte, Madrid, E-28668, Spain.</i>), Ulises Amador, Susana García-Martín, Flaviano García-Alvarado SrFe _{1-x} Sb _x O _{3-δ} AS POTENTIAL AIR ELECTRODE FOR SOLID OXIDE ELECTROLYZER CELLS
17:20 - 17:35 Westminster-O4	<u>Juan Bisquert</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castellò, Spain</i>) Hysteresis processes in ionic, electronic and biological devices



17:35 - 17:50 Westminster-O5	<u>Christian Rodenbücher</u> (<i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK-14)</i>), Gustav Bihlmayer, Kristof Szot, Carsten Korte Influence of Dislocations on the Redox Processes in Strontium Titanate
5B3 Protonic Materials. Room: St.James Chair: Tatsuya Kawada	
16:05 - 16:35 St.James-K1	<u>TRULS NORBY</u> (<i>Department of Chemistry, Centre for Materials Science and Nanotechnology, University of Oslo</i>) Mechanisms and Polarisation of Electrodes for Proton Ceramic Electrochemical Cells
16:35 - 16:50 St.James-O1	<u>Or Ben Zion</u> (<i>Dept. of Molecular Chemistry and Materials Science, Weizmann Institute of Science, Rehovot, 7610015, Israel</i>), Tahel Malka, David Ehre, Igor Lubomirsky, Isaac Abrahams Effect of hydration on electrical and electromechanical properties of lanthanum-cerium oxides
16:50 - 17:05 St.James-O2	<u>Heejung W. Chung</u> (<i>Massachusetts Institute of Technology (MIT), Department of Materials Science and Engineering (DMSE)</i>), Pjotr Žgung, Ju Li, Bilge Yildiz Quantified oxygen sublattice flexibility correlates with proton-hopping barriers in diverse ternary metal oxides
17:05 - 17:20 St.James-O3	<u>Takahisa Omata</u> (<i>Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University</i>), Aman Sharma, Issei Suzuki, Kei Toyooka, Tomohiro Ishiyama, Junji Junji 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 St.James-O4	<u>Yabing Wen</u> (<i>University of Oslo (UiO)</i>), Yadan Luo, Truls Norby 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 Chair: Peter Bruce	
16:05 - 16:35 Moore-K1	<u>Nuria Tapia-Ruiz</u> (<i>Department of Chemistry, Molecular Sciences Research Hub, White City Campus, Imperial College London, London, W12 0BZ, U.K.</i>), Bin Wang, Jack Fitzpatrick, Adam Brookfield, Alistair Fielden, Emily Reynolds, Jake Entwistle, Jincheng Tong, Ben Spencer, Sara Baldock, Katherine Hunter, Christopher Kavanah Electron Paramagnetic Resonance Spectroscopy as a Fast Diagnostic Tool to Determine the Sodium Charge Storage Mechanism of Hard Carbon Anodes
16:35 - 16:50 Moore-O1	<u>Ozgur Capraz</u> (<i>University of Maryland Baltimore County</i>) Probing Chemo-Mechanical Deformations in Cathode Materials for Alkali Metal Ion Batteries via Operando Stress/Strain Measurements
16:50 - 17:05 Moore-O2	Chao Zhu, Franjo Weber, Till Fuchs, Shiguru Kobayashi, Felix Richter, Taro Hitosugi, Jürgen Janek, <u>Rüdiger Berger</u> (<i>Max Planck Institute for Polymer Research, Ackermannweg 10, 55128 Mainz, Germany</i>) Lithium dendrite growth and space charge layers detected by operando KPFM measurements
17:05 - 17:20 Moore-O3	<u>Boyang Fu</u> (<i>AGH University of Krakow, Faculty of Energy and Fuels, Al. Mickiewicza 30, 30-059 Krakow, Poland</i>), Andrzej Kulka, Konrad Świerczek Interphase Engineering by Electrolyte Additives for Lithium-Rich Layered Oxides: operando XRD studies, operando Raman studies, and electrochemical properties
17:20 - 17:35 Moore-O4	<u>Zhiyuan ZENG</u> (<i>Department of Materials Science and Engineering, City University of Hong Kong, Hong Kong SAR, P.R. China</i>) Electrochemical lithium intercalation & exfoliation in 2D TMDs and its in-situ studies
5B5 Exsolution/ Surfaces. Room: Abbey Chair: WooChul Jung	
16:05 - 16:35 Abbey-K1	<u>Ilan Riess</u> (<i>Physics Department, Technion-IIT, Haifa 3200003, Israel</i>) The unique properties of the surface monomolecular layer of reduced ceria
16:35 - 16:50 Abbey-O1	<u>Yuji Okuyama</u> (<i>Faculty of Engineering, University of Miyazaki, Gakuen-kibanadai-nishi-1-1, Miyazaki, 889-2192, Japan.</i>), Hideaki Iguchi, Yuki Sekitani, Kosuke Yamuchi, Yuichi Mikami, Tomohiro Kuroha, Youya Sasakawa, Nai Shi, Junji Hyodo, Yoshihiro Yamazaki Ni exsolution induced fast proton conduction in Lu and Ni-codoped barium zirconate
16:50 - 17:05 Abbey-O2	<u>Juanita Hidalgo</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA</i>), Florian Schrenk, Filip Grajkowski, Bilge Yildiz Understanding surface chemistry and exsolution mechanisms by in-situ ambient-pressure spectroscopy for optimal nanocatalyst design
17:05 - 17:20 Abbey-O3	<u>Zhishan Li</u> (<i>Foshan Xianhu Laboratory</i>), San Ping Jiang EFFECT OF SURFACE DECORATED CeO ₂ AMOUNT on the ELECTROCHEMICAL PERFORMANCE of RSOC FUEL ELECTRODE
17:20 - 17:35 Abbey-O4	<u>Alexandre Merieau</u> (<i>Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France</i>), Olivier Joubert, Clément Nicolle Surface acidity: an understanding of the catalytic properties in mixed conducting oxides for oxygen exchange reaction
17:35 - 17:50 Abbey-O5	<u>Joe Kler</u> (<i>Institute of Physical Chemistry, RWTH Aachen University</i>), Jacqueline M. Börgers, Roger A. De Souza The Effect of Surface Orientation and Water on the Oxygen Surface Exchange in Strontium Titanate
5B6 Materials Discovery/ High Entropy Materials. Room: Gielgud Chair: Aleksandra Mielewczyk-Gryn	
16:05 - 16:35 Gielgud-K1	Haley Buckner, Joshua Simpson-Gomez, Alexander Bonkowski, Kathrin Rubartsch, Hua Zhou, Roger De Souza, <u>Nicola Perry</u> (<i>University of Illinois Urbana-Champaign</i>) Transforming an Ionic Conductor into an Electronic Conductor Through Crystallization
16:35 - 16:50 Gielgud-O1	<u>Margarita Nowakowska</u> (<i>Faculty of Materials Science and Ceramics, AGH University of Krakow, al. Mickiewicza 30, 30-059 Krakow, Poland</i>), Juliusz Dąbrowa, Anna Stepień, Marek Zajusz, Keyun Li, Klaudia Zielińska, Konrad Świerczek Improving the performance of SrFe _{1-x} MoxO _{3-δ} -based SOFC electrodes by application of the high-entropy approach
16:50 - 17:05 Gielgud-O2	Hasti Vahidi, Huiming Guo, <u>William Bowman</u> (<i>Department of Materials Science and Engineering, University of California, Irvine, Irvine, CA United States 92617</i>) Atomic and Nanoscale Studies of Secondary Phase Formation and Exsolution-Self-Assembly in High Entropy Oxide Electroceramics
17:05 - 17:20 Gielgud-O3	<u>Kosova Kreka</u> (<i>Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.</i>), Antonio Maria, Simon Schweidler, Miriam Botros, Mohana V. Kante, Marc Torrell, Albert Tarancón High Entropy Oxides for Enhanced Performance and Stability at High Current Densities in Solid Oxide Cells



Solid State
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17:20 - 17:35
Gielgud-04

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
Development of Oxygen Electrodes for Solid Oxide Cells based on Multicomponent $\text{La}_{0.6}\text{Sr}_{0.4}\text{Ni}_{0.15}\text{Mn}_{0.15}\text{Fe}_{0.15}\text{Cu}_x\text{Co}_{0.55-x}\text{O}_{3-\delta}$ Perovskite: Role of Copper Substitution, Influence of Entropy and Morphology Modification by Electrospinning

17:35 - 17:50
Gielgud-05

Yoji Kobayashi (*King Abdullah University of Science and Technology (KAUST) - Saudi Arabia*)
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 Chair: Richard Catlow
08:20 - 09:10 Fleming-T1	<u>Aron Walsh</u> (<i>Department of Materials, Royal School of Mines, Imperial College London, London SW7 2AZ, England</i>) 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 Chair: Sean Bishop
09:45 - 10:15 Fleming-K1	<u>Huayang Zhu</u> , Gregory S. Jackson, Joshua Perksy, <u>Robert J. Kee</u> (<i>Mechanical Engineering, Colorado School of Mines, Golden, CO 80401</i>) Gadolinium-Doped Ceria as a Mixed-Conducting Electrolyte in a Membrane-Assisted Water-Gas-Shift Process
10:15 - 10:30 Fleming-O1	<u>Gang Wan</u> (<i>Department of Mechanical Engineering, Stanford University</i>), Arun Majumdar When Free Radicals Meet the Solid, Ion, and Gas in Photochemical Methane Oxidation and Removal
10:30 - 10:45 Fleming-O2	<u>Dongha Kim</u> (<i>University of Toronto</i>), Shijie Liu, David Sinton Direct air capture via two-electrolyser electrocatalysis coupled with carbonate crystallizer
	2C2 Materials Modelling. Room: Westminster Chair: Dane Morgan
09:45 - 10:15 Westminster-K1	<u>Saiful Islam</u> (<i>Department of Materials, University of Oxford; Oxford, UK</i>) From Cathodes to Solid Electrolytes: Atomic-Scale Insights into Battery Materials
10:15 - 10:30 Westminster-O1	<u>Yoshitaka Tateyama</u> (<i>Laboratory for Chemistry and Life Science, Tokyo Institute of Technology, Yokohama, Japan</i>), Zizhen Zhou, Huu Duc Luong, Bo Gao Strain Effects on Li-ion Transport around Cathode-Coating Interfaces: A DFT Study
10:30 - 10:45 Westminster-O2	Marcel Sadowski, Sabrina Sicolo, Leonie Koch, <u>Karsten Albe</u> (<i>TU Darmstadt, Institute of Materials Science, Otto-Berndt-Str. 3, D-64287 Darmstadt, Germany</i>) On the role of dislocations in chemomechanical degradation of layered transition-metal oxides: A computational study
	2C3 Sodium Batteries/Materials. Room: St.James Chair: Emma Kendrick
09:45 - 10:15 St.James-K1	<u>Jürgen Janek</u> (<i>Institute of Physical Chemistry & Center for Materials Research, Justus Liebig University Giessen</i>) High Capacity Anodes in Lithium and Sodium Solid-State Batteries
10:15 - 10:30 St.James-O1	<u>Alice Beardmore</u> (<i>Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK</i>), Svetlana Menkin, Dominic Wright, Clare Grey Elucidating the Effect of Solvent and Binder Choice on SEI Stability Using Novel Electrolytes for Sodium-Ion Batteries
10:30 - 10:45 St.James-O2	<u>Debolina Deb</u> (<i>Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India</i>), Sai Gautam Gopalakrishnan Exploration of Fluoride-Based Compounds as Na-Ion Cathodes
	2C4 Thin Films/Devices. Room: Moore Chair: Dillon Fong
09:45 - 10:15 Moore-K1	<u>Albert Tarancón</u> (<i>ICREA, Passeig Lluís Companys 23, 08010, Barcelona, Spain</i>), Juan de Dios Sirvent, Philipp Langner, Fjorelo Buzi, Paul Nizet, Kosova Kreka, Nerea Alayo, Alex Morata, Federico Baiutti, Francesco Chiabrera The Beginning of the Ion Age: Thin Film Oxides for Solid-State Ionics and Iontronics Devices
10:15 - 10:30 Moore-O1	<u>Nicolas Osenciat</u> (<i>Laboratory for Thin Films and Photovoltaics, Empa - Swiss Federal Laboratories for Materials Science and Technology, CH-8600 Dübendorf, Switzerland</i>), Erica Clinton, André Müller, Joël Casella, Jędrzej Morzy, Moritz Futscher, Kumar Yalamanchili, Yaroslav Romanyuk Sputtering of C- and Si-doped LiPON as thin-film electrolyte separator for all-solid-state Li-ion batteries
10:30 - 10:45 Moore-O2	<u>Mohammadhossein Montazerian</u> (<i>Department of Chemistry and Applied Biosciences, ETH Zürich, Zürich, Switzerland</i>), Adil Baiju, Daniele Pergolesi, Mario El Kazzi, Thomas Lippert, Nikita Shepelin All-Oxide all-solid-state micro Li-ion batteries
	2C5 Batteries. Room: Abbey Chair: Yet-Ming Chiang
09:45 - 10:15 Abbey-K1	<u>Juergen Fleig</u> (<i>TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria</i>) The Chemical Capacitance as the Link between Defect Chemistry and Electrode Potentials in Lithium Ion and Oxygen Ion Batteries
10:15 - 10:30 Abbey-O1	<u>Alexander Schmid</u> (<i>TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria</i>), Barbara Wagner, Jürgen Fleig Rechargeable oxygen ion batteries based on mixed conducting oxides
10:30 - 10:45 Abbey-O2	<u>Weicheng Hua</u> (<i>Norwegian University of Science and Technology (NTNU)</i>), Krisianne Nygård Nilsen Hjelseng, Ann Mari Svensson, Maria Valeria Blanco, Frederico Cova, Johan Jean-Claude Maurice Hamonnet, Pedro Alonso Sanchez, Juan Rubio Zuazo Multi-Pronged Approach for Probing the Reaction Mechanism of SiO ₂ Anodes in Li-ion Batteries
	2C6 Membranes. Room: Gielgud Chair: Ian Metcalfe
09:45 - 10:15 Gielgud-K1	<u>Dong Ding</u> (<i>Energy and Environmental Science and Technology, Idaho National Laboratory, Idaho Falls, ID 83415, USA</i>) Flexible Chemical and Fuel Production at Elevated Temperature using Protonic Ceramic Electrochemical Cells (PCEC) for a Net-Zero World
10:15 - 10:30 Gielgud-O1	<u>Maria Balaguer</u> (<i>Instituto de Tecnología Química (Universitat Politècnica de València - Consejo Superior de Investigaciones Científicas), Av. Los Naranjos, s/n, 46022 Valencia, Spain</i>), Sonia Escolástico, Cecilia Solís, Fidel Toldra-Reig, Simona Somacescu, Uta Gerhards, Ainara Aguadero, Katja Haas-Santo, Roland Dittmeyer, Jose Manuel Serra H ₂ S Promotion of Mixed Protonic-Electronic Transport in La ₅ .4WO ₁₁ .1- 6 Membranes



10:45 - 11:15	Coffee Break
11:15 - 11:45 Fleming-K1	3C1 Catalysis. Room: Fleming Chair: Robert Kee <u>Sean Bishop</u> (<i>Sandia National Laboratories, Albuquerque, NM, USA</i>), Matthew Witman, Keith King, Arielle Clauser, Michael Dzara, Perla Salinas, Joshua Sugar, Pinwen Guan, Bert Debusschere, Eric Coker, David Ginley, Anthony McDaniel Predicting and Evaluating New Water Splitting Materials for Solar Thermochemical Hydrogen Production
11:45 - 12:00 Fleming-O1	<u>Filip Grajkowski</u> (<i>Laboratory for Electrochemical Interfaces, Massachusetts Institute of Technology, Cambridge, MA, USA</i>), Subhash Chandra, Sanaz Koohfar, Dongha Kim, Georgios Dimitrakopoulos, Bilge Yildiz Utilizing the intermediates of oxygen evolution to promote the selective electrochemical oxidative coupling of methane to ethylene
12:00 - 12:15 Fleming-O2	Won Jun Lee, <u>Jeong Woo Han</u> (<i>Department of Materials Science & Engineering, Seoul National University, Seoul, Korea</i>) Highly Active, Stable Ru-free Anode for Direct Ammonia Solid Fuel Cells: Enhanced Performance through Donor-Promoted NiFe Alloy Catalysts
12:15 - 12:30 Fleming-O3	<u>Maha El Bedaiwy</u> (<i>The American University in Cairo</i>), Mostafa Youssef, Mohamed El-Morsi, Mohamed Amr Serag-Eldin The thermochemistry of the water splitter SrTi _{0.5} Mn _{0.5} O _{3-δ} studied using density functional theory (DFT+U)
11:15 - 11:45 Westminster-K1	3C2 Materials Modelling. Room: Westminster Chair: Aron Walsh <u>Dane Morgan</u> (<i>University of Wisconsin-Madison</i>) Molecular Simulations and Machine Learning for Computational Design of Materials with Fast Oxygen Kinetics
11:45 - 12:00 Westminster-O1	<u>Jeongah Lee</u> (<i>Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea.</i>), Sangwoo Kim, Yong Beom Kim, DongHwan Oh, Sejong Ahn, Sung-Yoon Chung, WooChul Jung A study on Ca-substituted LaCoO ₃ perovskite oxides for alkaline water and ethanol oxidation reactions
12:00 - 12:15 Westminster-O2	<u>Mostafa Youssef</u> (<i>The American University in Cairo</i>), Mohamed Abdallah, Sahar Abdel Azeem Understanding Field-Enhanced Ion Transport in Insulating Oxides: Insights from Molecular Dynamics Simulations and Cumulants analysis
12:15 - 12:30 Westminster-O3	<u>Takaya Fujisaki</u> (<i>Faculty of Materials for Energy, Shimane University</i>), Yuta Tsuji, Phuc Hoan Tu, David S. Rivera Rocabado, Aleksandar Tsekov Staykov, Yusuke Shiratori, Keiji Yashiro Effect of hydrogen ion behavior on methane dissociation on CeO ₂ -supported Ni nanoparticles
11:15 - 11:45 St.James-K1	3C3 Sodium Batteries/Materials. Room: St.James Chair: Jürgen Janek <u>Emma Kendrick</u> (<i>University of Birmingham</i>) Critique of critical and other materials in sustainable new battery chemistry developments
11:45 - 12:00 St.James-O1	<u>Qidi Wang</u> (<i>Storage of Electrochemical Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2929JB, Delft, The Netherlands</i>), Chenglong Zhao, Marnix Wagemaker Principles of layered electrode/electrolyte materials for batteries
12:00 - 12:15 St.James-O2	<u>Ester García-González</u> (<i>Departamento de Química Inorgánica, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid 28040, Spain</i>), Chandrasekar M Subramaniyan, Alois Kuhn, Olga Guerrero-Pérez, Enrique Rodríguez-Castellón, Flaviano García-Alvarado The underexplored tunneled-V4O ₉ : a competitive cathode material efficiently synthesized
12:15 - 12:30 St.James-O3	<u>Theodosios Famprikis</u> (<i>Department of Radiation Science & Technology, Faculty of Applied Sciences, Delft University of Technology, The Netherlands</i>), Alexandros Vasileiadis Structure and Dynamics of Inorganic Rotor-Phase Electrolytes
11:15 - 11:45 Moore-K1	3C4 Thin Films/Devices. Room: Moore Chair: Matthew Wells <u>Dillon Fong</u> (<i>Materials Science Division, Argonne National Laboratory</i>) X-ray studies of oxygen vacancies in epitaxial SrCoO _x heterostructures
11:45 - 12:00 Moore-O1	<u>En Ju Cho</u> (<i>Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA</i>), Nicola Perry Optimizing Ionic Conductivity of Pulsed Laser Deposited Li _{1.3} Al _{0.3} Ti _{1.7} (PO ₄) ₃ (LATP) Thin Films for Multilayer Solid-State Battery Electrolytes
12:00 - 12:15 Moore-O2	<u>Frederic Le Cras</u> (<i>Univ. Bordeaux, CNRS, Bordeaux INP, ICMCB, UMR 5026, F-33600 Pessac, France</i>), William Berthou, Maxime Legallais, Bruno Bousquet, Vincent Motto-Ros, Stephanie Sorieul, Gunay Yildirim High Throughput Screening of Thin Film Solid Ionic Conductors using an Experimental Approach: Application to the Li(Si)PON System
11:15 - 11:45 Abbey-K1	3C5 Batteries. Room: Abbey Chair: Juergen Fleig <u>Yet-Ming Chiang</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology</i>), Cole D. Fincher, Vijay D. Veeraraghavan, Colin Gilenbach, Daniela Vallejo, Chiung-Yuan Lo, James LeBeau, Brian W. Sheldon, W. Craig Carter, M. D. Thouless Stability of the Metal Electrode – Solid Electrolyte Subassembly for Solid-State Batteries
11:45 - 12:00 Abbey-O1	Mickael Dolle, <u>Rozita Sadeghzadeh</u> (<i>University of Montreal, Canada</i>), David Lepage, Gabrielle Foran, Arnaud Prébé, David Aymé-Perrot 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 Abbey-O2	<u>Hirotooshi Yamada</u> (<i>Nagasaki University</i>), Tomoko Ito Influence of Stress Buffer in Oxide-based All-solid-state Batteries
12:15 - 12:30 Abbey-O3	<u>Kazunori Nishio</u> (<i>School of Materials and Chemical Technology, Tokyo Institute of Technology, Tokyo 152-8552, Japan.</i>), Daisuke Imazeki, Kosuke Kurushima, Yuki Takeda, Kurei Edamura, Shigeru Kobayashi, Ryo Nakayama, Ryota Shimizu, Taro Hitosugi Quantitative investigation of the interface resistance between sulfide solid electrolyte and positive electrode in all-solid-state Li batteries
11:15 - 11:30 Gielgud-O1	3C6 Young Scientist Awards. Room: Gielgud Chair: Rotraut Merkle <u>Kent Griffith</u> (<i>University of California San Diego, California 92093-0021, United States of America</i>) Designing Crystal Chemistry for High-power, Fast-charging Batteries



11:30 - 11:45 Gielgud-02	<u>Chuancheng Duan</u> (<i>Kansas State University, USA</i>) Ionic Synergy in Advancing Ceramic Electrochemical Cells with Composite Electrodes
11:45 - 12:00 Gielgud-03	<u>Andrey Poletavayev</u> (<i>Department of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK</i>), Matthias Hoffmann, James Dawson, Samuel Teitelbaum, Mariano Trigo, Saiful Islam, Aaron Lindenberg Between vibrations and diffusion: the persistence of memory in ion conduction
12:00 - 12:15 Gielgud-04	<u>Qiyang Lu</u> (<i>School of Engineering, Westlake University, Hangzhou, China</i>) Navigating Complexity: Harnessing Ionic Defects for Tailored Oxide Thin Film Properties
12:15 - 12:30 Gielgud-05	<u>Iwnetim Abate</u> (<i>MIT, USA</i>) 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 Chair: Koji Amezawa
13:30 - 14:00 St.James-K1	<u>Philipp Adelhelm</u> (<i>Humboldt-University of Berlin, Germany</i>) Solvent co-intercalation and other chemical surprises in Na-ion batteries
	4C1 Catalysis. Room: Fleming Chair: Aleksey Yaremchenko
14:00 - 14:30 Fleming-K1	<u>Ian Metcalfe</u> (<i>Newcastle University</i>) Mixed ionic and electronic conductors for fuels to hydrogen
14:30 - 14:50 Fleming-I1	<u>Di Chen</u> (<i>Tsinghua University</i>) Enhancing Surface Redox Kinetics in Ceria Thin Films: The Role of Biaxial Strain and Alkaline Oxides
14:50 - 15:05 Fleming-O1	<u>Lisa Winkler</u> (<i>Technical University of Munich</i>), Jennifer Rupp Proton Conducting Ceramic Single Chamber Glucose Fuel Cells for Human Implants
15:05 - 15:20 Fleming-O2	<u>Alessandro Senocrate</u> (<i>Empa-Swiss Federal Laboratories for Materials Science and Technology, CH-8600, Dübendorf, Switzerland</i>), Francesco Bernasconi, Peter Kraus, Corsin Battaglia Controlling CO ₂ and H ₂ O Mass Transport in Gas Diffusion Electrodes for CO ₂ Reduction by Acting on the Substrate
	4C2 Materials Modelling. Room: Westminster Chair: Richard Catlow
14:00 - 14:30 Westminster-K1	<u>Pooja Goddard</u> (<i>Loughborough University</i>), Apoorv Jain, Bassey Oboho, Maurits Houck, Alex Groombridge, Fiona Coomer Solid State Ionic Modelling of Niobium Based Oxides for Battery Applications
14:30 - 14:50 Westminster-I1	<u>Aleksandar Staykov</u> (<i>International Institute for Carbon-Neutral Energy Research (I2CNER), Kyushu University, 744 Motoooka, Fukuoka 819-0395, Japan</i>) Theoretical insights in surface catalytic activity and ionic transport in complex oxides
14:50 - 15:05 Westminster-O1	<u>Shusuke Kasamatsu</u> (<i>Faculty of Science, Yamagata University</i>), Tatsumi Aoyama, Yuichi Motoyama, Kazuyoshi Yoshimi Ab Initio Statistical Thermodynamics of Dopant Segregation and Space Charge Formation at Metal/Ionic Conductor Interfaces
15:05 - 15:20 Westminster-O2	<u>Alexander Shluger</u> (<i>Department of Physics and Astronomy, University College London, Gower Street, London, WC1E 6BT, United Kingdom</i>), Teófilo Cobos Freire Formation, Diffusion and Incorporation of Interstitial Oxygen Ions at the TiN/Oxide Interfaces
15:20 - 15:35 Westminster-O3	<u>Meng Li</u> (<i>Energy and Environmental Science and Technology, Idaho National Laboratory, Idaho Falls, ID, 83415, United States</i>), Dong Ding, Yanwen Zhang Revealing Small Ion Intercalation Dynamics through Data Mining of Trajectories
	4C3 Sodium Batteries/Materials. Room: St.James Chair: Shirley Meng
14:00 - 14:30 St.James-K1	<u>Chuanlian Xiao</u> (<i>Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany</i>), Yue Zhu, Joachim Maier Solid State Ionics of Lithium or Sodium Storage
14:30 - 14:50 St.James-I1	<u>ANKE WEIDENKAFF</u> (<i>Technical University, Darmstadt</i>) Regenerative Sustainable Materials for a Circular Economy
14:50 - 15:05 St.James-O1	<u>Saneyuki Ohno</u> (<i>Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University</i>), Zheng Huang New Na-ion conducting halide-based solid electrolytes: NaNbCl ₆ and NaTaCl ₆
15:05 - 15:20 St.James-O2	<u>Anastasia GREBENSCHCHIKOVA</u> (<i>Institut de Chimie de la Matière Condensée de Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France</i>), Jacob OLCHOWKA, Loïc SIMONIN, Laurence CROGUENNEC, Christian MASQUELIER Iron and Sulfate Based Positive Electrode Materials for Na-ion Batteries
15:20 - 15:35 St.James-O3	<u>Cristina Garcia</u> (<i>Instituto de Ciencia de Materiales de Madrid, ICMM-CSIC, Sor Juana Inés de La Cruz 3, Madrid, 28049, Spain</i>), Ainara Aguadero, Ricardo Jimenez, Jose Antonio Alonso Engineering of NaSICON-current collector interfaces to optimise the performance of Na solid-state reservoir-free batteries
	4C4 Thin Films/Devices. Room: Moore Chair: Albert Tarancón
14:00 - 14:30 Moore-K1	<u>David Scanlon</u> (<i>School of Chemistry, University of Birmingham, Birmingham, UK</i>) Identifying the ground state structures of point defects in solids
14:30 - 14:50 Moore-I1	<u>Federico Baiutti</u> (<i>Catalonia Institute for Energy Research (IREC), Sant Adrià de Besos, 08930, Barcelona, Spain.</i>), Fjorelo Buzi, Juande Sirvent, Kosova Kreka, Lucile Bernadet, Francesco Chiabrera, Lucile Bernadet, Alex Morata, Albert Tarancon Nanostructured thin-film architectures for high-temperature electrochemistry
14:50 - 15:05 Moore-O1	<u>Xin Xu</u> (<i>The Polytechnic School, Arizona State University</i>) Ultra-thin Surface Doping for Regulating Li Intrusion in Garnet Solid Electrolytes
15:05 - 15:20 Moore-O2	<u>Matthew Wells</u> (<i>University of Cambridge.</i>), Judith MacManus-Driscoll Performance Enhancement of Low-Temperature Solid Oxide Cells with Vertically Aligned Nanocomposite Films
15:20 - 15:35 Moore-O3	<u>Tim K. Hecker</u> (<i>Institute of Experimental Physics I, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany</i>), Markus S. Friedrich, Alexander G. Strack, Paul Tuchecker, Peter J. Klar Impact of Hydrogen-Induced Structural Phase Transition on Diffusion in Tungsten Trioxide Thin-Films



4C5 Batteries. Room: Abbey Chair: Philipp Adelhelm	
14:00 - 14:30 Abbey-K1	<u>Clare Grey</u> (<i>University of Cambridge</i>) Linking Transport with Intercalation Mechanisms, Cracking, and Dendrite Formation in Conventional and Solid-State Batteries.
14:30 - 14:50 Abbey-I1	<u>Chun Ann Huang</u> (<i>Department of Materials, Imperial College London, London, UK</i>) Novel processing and 3D correlative imaging of electrodes for batteries
14:50 - 15:05 Abbey-O1	<u>Dominika Gastol</u> (<i>School of Metallurgy and Materials, University of Birmingham, Birmingham B15 2TT, UK</i>), Yongxiu Chen, Mathew Capener, Alexis Maurel, Ana Cristina Martinez Maciel, Yirong Lin, Eric MacDonald, Emma Kendrick 3D printing of dual-chemistry and dual-structured electrodes for high energy and controlled recycling of Li-ion batteries
15:05 - 15:20 Abbey-O2	<u>Amna Rafique</u> (<i>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</i>), Lorenzo Fallarino, Pedro López-Aranguren, Arianna Pesce Interfacial design and engineering of anode-less ceramic LLZO Batteries
15:20 - 15:35 Abbey-O3	<u>Yejin Kang</u> (<i>Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea</i>), Seungsoo Jang, Joonam Park, Hyeongseok Kim, Kang Taek Lee An Electro-Chemo-Mechanical Modeling for Anode Degradations using Heterogeneous Graphite Electrodes of Lithium-Ion Batteries
4C6 Membranes. Room: Gielgud Chair: Markus Kubicek	
14:00 - 14:30 Gielgud-K1	<u>Jean-Marc BASSAT</u> (<i>CNRS, Univ. Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France</i>), Pierre-Marie GEFFROY, Elise BONNET, Romuald FRUGIER, Zonghao SHEN, Jérôme LAURENCIN, Jacinthe GAMON Recent advances in materials, shaping and characterization tools for efficient SOFC and SOEC devices operating at intermediate temperatures
14:30 - 14:50 Gielgud-I1	<u>Leonard Kwati</u> (<i>International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan.</i>), Mariya E. Ivanova, Christain Dellen, Moritz Kindelmann, Wilhelm A. Meulenber, Tatsumi Ishihara, Hiroshige Matsumoto Processing Ceramic Protonic Membranes with Optimized Electrode/Electrolyte Interface for PCEC/PCFC Application.
14:50 - 15:05 Gielgud-O1	<u>Marwan Laqdiem</u> (<i>IIstituto de Tecnología Química (Universitat Politècnica de València - Consejo Superior de Investigaciones Científicas), Av. Los Naranjos s/n, E-46022 Valencia, Spain</i>), Jose Manuel Serra Alfaro, Laura Almar, Alfonso J. Carrillo, Alvaro Represa, Sonia Escolastico, David Catalán-Martinez, Julio Garcia-Fayos Electrifying Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} for focalized heating in oxygen transport membranes
15:05 - 15:20 Gielgud-O2	<u>Håkon Andersen</u> (<i>Department of Chemistry, Centre for Materials Science and Nanotechnology, University of Oslo</i>), Yngve Larring, Reidar Haugsrud Kinetic study of novel oxygen carriers for chemical looping for hydrogen production: Ca _{0.6} La _{0.4} Ti _{0.1} CrxMn _{0.9-x} O _{3-δ} (x = 0, 0.3, 0.45 & 0.9)
15:20 - 15:35 Gielgud-O3	<u>Philipp Brünner</u> (<i>IONTOF GmbH</i>), Thomas Grehl, Jona Schuch, Sebastian Klemenz, Till Frömling Low Energy Ion Scattering analysis of Co ₂ B 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
08:30 - 09:20 Fleming-T1	Plenary Session 4. Room: Fleming Chair: Stephen Skinner
	<u>Bilge Yildiz</u> (<i>Massachusetts Institute of Technology Laboratory for Electrochemical Interfaces, Departments of Nuclear Science and Engineering, and Materials Science and Engineering</i>) Lattice Dynamics to Uncover Fast Proton Conductors
09:20 - 09:35	Poster Awards Ceremony. Room: Fleming
09:35 - 09:45	Session Change
09:45 - 10:15 Fleming-K1	2D1 SOFC Electrodes. Room: Fleming Chair: Zonghao Shen
	<u>Rose-Noëlle Vannier</u> (<i>Univ. Lille, CNRS, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France</i>), Fatima-Ezzahra El Bassiri, Aurélie Rolle Innovative Solid Oxide Cell air electrode: a review
	<u>George Harrington</u> (<i>University of Bath</i>) Understanding the role of acidity on the surface exchange reaction in mixed conductors: The case for water species
	<u>Insaf Abdouli</u> (<i>Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France</i>), Clément Nicollet Effect of Transition Metal Oxides Infiltration on Oxygen Exchange Kinetics and Adsorption Properties in Mixed Ionic and Electronic Conducting Oxides.
09:45 - 10:15 Westminster-K1	2D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster Chair: Felix Gunkel
	<u>Regina Dittmann</u> (<i>Peter Gruenberg Institute (PGI-7), Forschungszentrum Juelich GmbH and JARA-FIT, Juelich, 52425, Germany</i>), Alexandros Sarantopoulos, Christopher Bengel, Alexander Gutsche, Felix Cüppers, Susanne Hoffmann-Eifert, Stephan Menzel Engineering the switching kinetics of valence change memory for neuromorphic computing
	<u>Yiyang Li</u> (<i>University of Michigan</i>) Phase Separation in Amorphous Metal Oxides Enables Information Retention
	<u>Matthaeus Siebenhofer</u> (<i>Laboratory for Electrochemical Interfaces, Massachusetts Institute of Technology, Cambridge, MA, USA</i>), Pjotr Zguns, Bilge Yildiz Ion migration in mixed conducting oxides for fast conductivity modulation in neuromorphic devices
09:45 - 10:15 St.James-K1	2D3 Protonic Triple Conductors. Room: St.James Chair: Ming Li
	<u>Rotraut Merkle</u> (<i>Max Planck Institute for Solid State Research, Stuttgart, Germany</i>), Maximilian F. Hoedl, Andrew Chesnokov, Christian Berger, Giulia Raimondi, Tolga Acartürk, Ulrich Starke, Denis Gryaznov, Eugene A. Kotomin, Joachim Maier Proton Mobility in Triple-conducting Perovskites - Insights from Experiment and Theory
	<u>Yue Qi</u> (<i>School of Engineering, Brown University</i>), Jiyun Park, Boyuan Xu, Dawei Zhang, Wei Li, Xingbo Liu, Jian Luo, Stephan Lany Accurate prediction of oxygen vacancy concentration in Compositionally Complex Perovskite Oxides (CCPO)
	<u>Yewon Shin</u> (<i>Colorado School of Mines</i>), Michael Sanders, Michael Walker, Bernadette Cladek, Kennedy Agyekum, Jue Liu, Erica Truong, Katharine Page, Yan-Yan Hu, Sossina Haile, Ryan O'Hayre Investigating proton transport in the triple-conducting oxide BaCo _x Fe _{0.8-x} Zr _{0.1} Y _{0.1} O _{3-d} (BCFZY, 0.1 ≤ x ≤ 0.7) system by correlative characterizations: ToF-SIMS/ND/SSNMR
09:45 - 10:15 Moore-K1	2D4 Grain Boundaries/Interfaces. Room: Moore Chair: David Mebane
	<u>Jennifer Rupp</u> (<i>Department of Chemistry, Technical University of Munich</i>) Lithium, Interfaces & Action: Designing Next Solid Battery Materials – From Engineered Grain Boundaries to Novel High Entropy Amorphous Phases
	<u>Kulbir Ghuman</u> (<i>Institut National de la Recherche Scientifique - Énergie, Matériaux et Télécommunications, Université du Québec</i>) Unraveling the Role of Interfaces and Grain Boundaries in LLTO: A Molecular Dynamics Investigation
	<u>Adrian Usler</u> (<i>Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany</i>), Fabian Ketter, Roger De Souza Reading between the grains of oxide-ion conductors: the thermal history of space-charge layers
09:45 - 10:15 Gielgud-K1	2D6 New Materials. Room: Gielgud Chair: Ieuan Seymour
	Zhihong Du, Yang Zhang, Leyu Shen, <u>Hailei Zhao</u> (<i>University of Science and Technology Beijing</i>) Modulation of electrode reaction kinetics of B-site double perovskite-based materials for SOFC
	<u>Taner Akbay</u> (<i>Materials Science and Nanotechnology Engineering Department, Yeditepe University, Istanbul, Turkey</i>) Atomistic Elucidation of Anion Adsorption on Charged Graphene
	Takeru Miyagawa, Manuel Grumet, Namita Krishnan, Christian Reverón Baecker, <u>Waldemar Kaiser</u> (<i>Department of Physics, TUM School of Natural Sciences, Technical University of Munich, 85748 Garching, Germany</i>), David A. Egger Ion Migration in Anharmonic Solid-State Ion Conductors from Machine-Learning Molecular Dynamics
10:50 - 11:20	Coffee Break
11:20 - 11:40 Fleming-I1	3D1 SOFC Electrodes. Room: Fleming Chair: Rose-Noëlle VANNIER
	<u>Zonghao Shen</u> (<i>CNRS, Univ. Bordeaux, Bordeaux INP, ICMCB UMR 5026, F-33600 Pessac, France</i>), Jean-Marc Bassat, Sebastien Fourcade, Alain Demourgues, Etienne Durand, Lionel Teule-Gay, Mathieu Duttine, Jacinthe Gamon Is fluorine incorporation in the La _{0.6} Sr _{0.4} Co _{0.2} Fe _{0.8} O _{3-δ} improving its electrochemical behaviour for solid oxide cells applications?
11:40 - 11:55 Fleming-O1	<u>Takuya Katsumata</u> (<i>Tohoku University</i>), Ryotaro Aso, Yuta Kimura, Koji Amezawa, Takashi Nakamura Effect of Electrochemical F doping on Oxygen Evolution Reaction



11:55 - 12:10 Fleming-O2	<u>Ozden Celikbilek</u> (<i>Univ. Grenoble Alpes, CEA-Liten, DTCH, 38000 Grenoble, France</i>), Karthikeyan Saravanabavan, Giuseppe Sassone, Cintia Hartmann, Maxime Hubert, Jerome Laurencin Investigating the Impact of Humidity on the Degradation of Oxygen Electrodes in Solid Oxide Cells
12:10 - 12:25 Fleming-O3	Nguyen Xua Dong, Lee Sang Won, Kim Hye Young, <u>Tae Ho Shin</u> (<i>Low-carbon & DX R&D Division, Korea Institute of Ceramic Engineering and Technology, Jinju-si, Gyeongsangnam-do 52851, Republic of Korea.</i>) Boosting Electrochemical High-Performance via Extra-Role of Doped CeO ₂ -δ Interlayer for “Oxygen Provider” at High-Current SOFC Operation
3D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster Chair: Regina Dittmann	
11:20 - 11:40 Westminster-I1	<u>Felix Gunkel</u> (<i>Forschungszentrum Jülich GmbH, Peter Grünberg Institute, Electronic Materials (PGI-7), 52425 Jülich, Germany</i>) Solid state ionics for a tailored ionic-electronic structure in oxide thin films and heterostructures for electronics and energy applications
11:40 - 11:55 Westminster-O1	<u>Alexandros Sarantopoulos</u> (<i>Peter Gruenberg Institute (PGI-7), Forschungszentrum Juelich GmbH and JARA-FIT, Juelich, 52425, Germany</i>), Kristof Lange, Francisco Rivadulla, Stephan Menzel, Regina Dittmann Resistive switching acceleration induced by thermal confinement.
11:55 - 12:10 Westminster-O2	<u>Takashi Tsuchiya</u> (<i>National Institute for Materials Science, Japan</i>), Daiki Nishioka, Wataru Namiki, Kaoru Shibata, Tomoki Wada, Makoto Takayanagi, Masataka Imura, Yasuo Koide, Tohru Higuchi, Kazuya Terabe Ion-gating Reservoirs Operating on Electric Double Layer and Redox Mechanisms for High Performance Physical Reservoir Computing
12:10 - 12:25 Westminster-O3	<u>Philipp Langner</u> (<i>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</i>), Francesco Chiabrera, Nerea Alayo, Paul Nizet, Luigi Morrone, Alex Morata, Albert Tarancón Beyond the von Neumann Bottleneck: A Solid-State Oxide-Ion Synaptic Transistor for Analog Computing
3D3 Protonic Triple Conductors. Room: St.James Chair: Rotraut Merkle	
11:20 - 11:40 St.James-I1	<u>Ming Li</u> (<i>University of Nottingham</i>) Enhancing/Suppressing Oxide Ion Conductivity in Perovskite Oxides
11:40 - 11:55 St.James-O1	<u>Minkyong Jo</u> (<i>HMC, Department of Nanotechnology and Advanced Materials Engineering, Sejong University, 209 Neungdong-ro, Gwangjin-gu, Seoul 05006, Republic of Korea</i>), Minji Kim, Jun-young Park High-performance air-electrode for reversible proton ceramic cells with alkali metal doping
11:55 - 12:10 St.James-O2	<u>Mayuri Kushare</u> (<i>Mechanical Engineering, Colorado School of Mines, Golden, CO 80401</i>), Kingsley Egbo, Sandrine Ricote, Su Jeong Heo, Jesse Fosheim, Andriy Zakutayev, Gregory Jackson The Study of Surface Chemistry of Water Splitting on Pr ₂ NiO ₄ +δ Electrodes with and without Ba(Zr,Y,Pr)O ₃ -δ Overlayers in Proton-Ceramic Electrolysis Cells
12:10 - 12:25 St.James-O3	<u>Ryoga Sato</u> (<i>Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan</i>), Akihiro Ishii, Itaru Oikawa, Hitoshi Takamura Electron-Hole Incorporation into Ba-Zr-Based Proton Conductors by High-Pressure Oxidation
3D4 Grain Boundaries/Interfaces. Room: Moore Chair: Jennifer Rupp	
11:20 - 11:40 Moore-I1	<u>David Mebane</u> (<i>West Virginia University</i>) 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 Moore-O1	<u>Zijie Sha</u> (<i>Department of Materials, Imperial College London, London, SW7 2AZ, United Kingdom.</i>), James Douglas, Lluís Yedra, Stephen Skinner, John Kilner Understanding grain boundary transport in mixed conducting perovskite electrodes
11:55 - 12:10 Moore-O2	<u>Jan L. Dornseifer</u> (<i>Institute of Experimental Physics I, Justus Liebig University, Heinrich-Buff-Ring 16, 35392 Giessen, Germany</i>), Janis K. Eckhardt, Matthias T. Elm, Christian Heiliger, Peter J. Klar Correlation between Microstructure and Impedance in Polycrystalline Ceria Thin Films
3D5 Battery Degradation/Dendrites. Room: Abbey Chair: William Chueh	
11:20 - 11:40 Abbey-I1	Hung Q. Nguyen, Feng Jin, Florian Flatscher, Juraj Todt, Peter Siffalovic, Günther J. Redhammer, Jozef Keckes, <u>Daniel Rettenwander</u> (<i>Department of Material Science and Engineering, NTNU Norwegian University of Science and Technology, 7034 Trondheim, Norway.</i>) Studying solid-state batteries during operation using X-rays
11:40 - 12:00 Abbey-I2	<u>Yue Qi</u> (<i>School of Engineering, Brown University</i>), Harsh Jagad, Sydney Morris, Changmin Shi, Stephen Harris, Brian Sheldon Blocking Lithium Dendrites in Solid Electrolytes with Ion-Exchange Induced Residual Stresses – Theory and Experiments
12:00 - 12:15 Abbey-O1	<u>Sundeep Vema</u> (<i>Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK</i>), Dipayan Mukherjee, Joe Stallard, Supreeth Nagendran, Norman Fleck, Vikram Deshpande, Clare Grey Factors governing lithium-metal dendrite initiation in ceramic solid electrolytes
12:15 - 12:30 Abbey-O2	<u>Gang Wan</u> (<i>Department of Mechanical Engineering, Stanford University</i>), Chia-Chin Chen, Zonghai Chen, Kang Xu Self-discharge of Layered Oxide Cathodes Induced by Carbonate-mediated Hydrogenation
3D6 New Materials. Room: Gielgud Chair: Hailei Zhao	
11:20 - 11:40 Gielgud-I1	<u>Ieuan Seymour</u> (<i>Department of Chemistry, School of Natural and Computing Sciences, University of Aberdeen, King's College, Aberdeen, AB24 3UE, U.K.</i>), Kit Barker, Sarah McKinney, Raul Artal, Nuria Tapia-Ruiz, Ricardo Jimenez, Stephen Skinner, Ainara Aguadero Understanding the role of A-site cations on the ionic conductivity of halide solid-state electrolytes for solid-state batteries
11:40 - 11:55 Gielgud-O1	<u>Ana Carolina Coutinho Dutra</u> (<i>Newcastle University</i>), James A. Dawson Exploring the Links between Dynamics and Dimensionality in Anti-Perovskite Solid Electrolytes
11:55 - 12:10 Gielgud-O2	<u>Juliane Fiates</u> (<i>Department of Chemistry, Newcastle University, Bedson Building</i>), James Dawson Simulating Electrolytes and SEI Formation in Anode-Free Batteries
12:10 - 12:25 Gielgud-O3	<u>Bora Karasulu</u> (<i>Department of Chemistry, University of Warwick, CV4 7AL, Coventry, United Kingdom.</i>) 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 Chair: Elisabeth Djurado
14:00 - 14:30 Fleming-K1	<u>Teruhisa HORITA</u> (<i>National Institute of Advanced Industrial Science and Technology</i>) Overview of Mass Transports by Impurity Poisoning at (La,Sr)(Co,Fe)O ₃ based cathode in Solid Oxide Fuel Cells
14:30 - 14:45 Fleming-O1	<u>Fatima-Ezzahra EL BASSIRI</u> (<i>Univ. Lille, CNRS, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France</i>), Aurélie Rolle, Rose-Noëlle Vannier In-depth study of the oxygen reduction reaction of the Ca ₃ Co ₄ O ₉ +6 / CGO composite
14:45 - 15:00 Fleming-O2	<u>Aurélie Rolle</u> (<i>UCCS - Unité de Catalyse et Chimie du Solide, UMR CNRS 8181, Univ. Lille, Centrale Lille, Univ. Artois, F-59000 Lille, France</i>), Laurine Verfaillie, Ibtissam Kehal, Sylvie Daviero-Minaud, Rose-Noëlle Vannier Investigation of Ba ₂ Co ₉ O ₁₄ as potential electrode material for Solid Oxide Fuel Cell
15:00 - 15:15 Fleming-O3	<u>Riyan Achmad Budiman</u> (<i>Graduate School of Environmental Studies, Tohoku University, Japan</i>), Junichi Sakuraba, Mina Yamaguchi, Shin-ichi Hashimoto, Keiji Yashiro, Tatsuya Kawada Determining the enhancement factors of porous La 0.6 Sr 0.4 CoO 3-6 – Ce 0.9 Gd 0.1 O 1.95 composite for solid oxide fuel cell cathode
15:15 - 15:30 Fleming-O4	<u>Masahiro Yasutake</u> (<i>Next-Generation Fuel Cell Research Center (NEXT-FC), Kyushu University</i>), Han Gil Seo, Yohei Nagatomo, Junko Matsuda, Kazunari Sasaki, Harry Tuller Degradation and Recovery of LSCF Reversible Solid Oxide Cell Air Electrodes by Controlled Surface Acidity
	4D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster Chair: Davide Moia
14:00 - 14:30 Westminster-K1	<u>Derek C Sinclair</u> (<i>Department of Materials Science and Engineering, University of Sheffield, Sheffield, UK</i>), James H Killeen, Sadi Ege Parim, Thomas E Hooper, Erin Carroll, Julian S Dean The Influence of A-site Deficiency on the Functionality of Niobate-based Perovskites and Tungsten Tetragonal Bronzes.
14:30 - 14:45 Westminster-O1	<u>Drew Buzzell</u> (<i>Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology (MIT), Cambridge, MA 02139, USA</i>), Fran Kurnia, Hyunwon Chu, Lingping Kong, Jesus del Alamo, Jennifer Rupp Tailoring Li ₄ Ti ₅ O ₁₂ thin film carrier kinetics through solid solution doping for Battery and Memristor Applications
14:45 - 15:00 Westminster-O2	<u>Fran Kurnia</u> (<i>Department of Chemistry, Technical University of Munich, 85748 Garching, Germany</i>), Drew Buzzell, Thomas Defferriere, Lukas Wolz, Yang Wang, Johanna Eichhorn, Harry Tuller, Bettina Lotsch, Jennifer Rupp Opto-Ionics for Memristive Switching in Lithium Titanate
15:00 - 15:15 Westminster-O3	<u>Miranda Schwacke</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology</i>), Thomas Defferriere, Matthäus Siebenhofer, Harry Tuller, Bilge Yildiz Modulation of Space Charge Resistances in Polycrystalline WO ₃ Films by Mg Ion Intercalation in ECRAM Devices
15:15 - 15:30 Westminster-O4	Alan Zhang, Catalin Spataru, Joshua Sugar, A. Alec Talin, Suhas Kumar, <u>Elliot Fuller</u> (<i>Sandia National Laboratories, Livermore, CA, USA</i>) Tuning the insulator metal transition in rare earth nickelates through dynamic electrochemical ion insertion
	4D3 Protonic Triple Conductors. Room: St.James Chair: Joachim Maier
14:00 - 14:30 St.James-K1	<u>Hiroshige Matsumoto</u> (<i>International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan.</i>), Veeramani Vedyappan, Leonard Kwati, Bhuvaneshwari Manivannan, Paulo Wiff Controlling transport of electrode reaction species to suppress electronic leakage in proton-conducting oxide cells
14:30 - 14:45 St.James-O1	<u>Genki Kobayashi</u> (<i>RIKEN - Japan</i>), Yoshiki Izumi, Fumitaka Takeiri, Kei Okamoto, Takashi Saito, Takashi Kamiyama, Akihide Kuwabara Electropositive Metal Doping into Lanthanum Hydride for H- Conducting Solid Electrolyte Use at Room Temperature
14:45 - 15:00 St.James-O2	<u>Xiaolan Kang</u> (<i>Max Planck Institute for Solid State Research, Stuttgart, Germany</i>), Rotraut Merkle, Joachim Maier Water Adsorption and Surface Protonics of Mixed Conducting Oxides
15:00 - 15:15 St.James-O3	<u>Maria Szymczak</u> (<i>Faculty of Materials Science and Ceramics, AGH University of Krakow, al. Mickiewicza 30, 30-059 Krakow, Poland</i>), Juliusz Dąbrowa, Marek Zajusz, Wojciech Skubida, Konrad Świerczek Modifying Ba-based Triple-Conducting Perovskites for Enhanced PCFC Air-Electrode Performance
15:15 - 15:30 St.James-O4	<u>Takuma Shiraiwa</u> (<i>Tohoku University</i>), Tomoyuki Yamasaki, Takahisa Omata Mixed Protonic and Electronic Conductivity of Nb-doped TiO ₂ Under Hydrogen Atmosphere
	4D4 Grain Boundaries/Interfaces. Room: Moore Chair: Katherine Bagarinao
14:00 - 14:30 Moore-K1	Thomas Defferriere, Colin Gilgenbach, James LeBeau, Han Gil Seo, Yong Beom Kim, Woo Chul Jung, <u>Harry Tuller</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology</i>) Engineering of Grain Boundaries in Gd-Doped Ceria Solid Electrolytes
14:30 - 14:45 Moore-O1	<u>Gen Hasegawa</u> (<i>National Institute for Materials Science (NIMS)</i>), Naoaki Kuwata Grain boundary diffusion analysis in solid electrolytes by lithium isotope SIMS imaging
14:45 - 15:00 Moore-O2	<u>Jan Dippell</u> (<i>Helmholtz Institute Ulm for Electrochemical Energy Storage (HIU), Ulm, Germany</i>), Timo Danner, Arnulf Latz Simulating Impedances of Interfaces between Solid Electrolytes
15:00 - 15:15 Moore-O3	<u>James Quirk</u> (<i>Department of Chemistry, Newcastle University, Bedson Building</i>), James Dawson Design Principles for Grain Boundaries in Solid Electrolytes
15:15 - 15:30 Moore-O4	<u>Vaibhav Arun Deshmukh</u> (<i>Department of Materials- and Geo-Sciences, Technische Universität Darmstadt, Darmstadt, Germany</i>), Jochen Rohrer, Karsten Albe Molecular Dynamics Simulations of Na-ion Transport at Grain Boundaries in NaSICON-Type Na~3Zr ₂ Si ₂ PO ₁₂ Solid Electrolytes
	4D5 Battery Degradation/Dendrites. Room: Abbey Chair: Louis Piper
14:00 - 14:30 Abbey-K1	<u>Peter Bruce</u> (<i>Department of Materials, University of Oxford; Oxford, UK</i>), Dominic Melvin, Ziyang Ning, Dominic Spencer-Jolly, Guanchen Li, James Marrow, Charles Monroe Challenges in solid state batteries at the lithium/ceramic electrolyte interface
14:30 - 14:45 Abbey-O1	<u>Cole Fincher</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139, USA</i>), Colin Gilgenbach, Rachel Osmundsen, Christian Roach, Aubrey Penn, Michael Thoullass, W. Craig Carter, Brian Sheldon, James Lebeau, Yet-Ming Chiang Direct observations of dendrite growth in ceramic electrolytes



14:45 - 15:00 Abbey-02	<u>Tovoki Okumura</u> (<i>National Institute of Advanced Industrial Science and Technology (AIST), Kansai Center</i>), Tomonari Takeuchi, Machiko Ode, Kazunori Takada Self-assembled composite texture of layered rock-salt electrode / LISICON-type electrolyte for oxide-based all-solid-state battery
15:00 - 15:15 Abbey-03	<u>Dimitrios Chatzogiannakis</u> (<i>Institut de Ciencia de Materials (ICMAB), Campus UAB, Bellaterra, 08193, Spain</i>), Montse Casas-Cabanas, M. Rosa Palacin Understanding material specific contribution and charge transfer dynamics in blended positive electrodes for Li-ion batteries
4D6 New Materials. Room: Gielgud Chair: Orkun Furat	
14:00 - 14:30 Gielgud-K1	<u>Francesco Ciucci</u> (<i>University of Bayreuth</i>) Cobalt-Free Air Electrodes for Protonic Ceramic Cells
14:30 - 14:45 Gielgud-O1	<u>Yoshihiro Yamazaki</u> (<i>Platform of Inter-Transdisciplinary Energy Research (Q-PIT), Kyushu University</i>), Kota Tsujikawa, Junji Hyodo, Susumu Fujii, Shusuke Kasamatsu Materials discovery by interpretation: a case of proton-conducting oxides
14:45 - 15:00 Gielgud-O2	<u>Steffen Neitzel-Grieshammer</u> (<i>FH Münster University of Applied Sciences</i>) Modelling Proton and Oxygen Ion Conductivity in Yttrium Doped Barium Zirconate from First Principles
15:00 - 15:15 Gielgud-O3	<u>Armando Morin Martinez</u> (<i>Department of Energy Conversion and Storage, Technical University of Denmark (DTU)</i>), Benjamin Sjølin, R Baby Dhanalakshmi, Vincenzo Esposito, Ivano Castelli Autonomous Workflows for the Discovery of Ionic Oxide Conductors at Low Temperatures
15:30 - 16:00	Coffee Break
5D1 SOFC Electrodes. Room: Fleming Chair: Teruhisa Horita	
16:00 - 16:20 Fleming-I1	<u>Elisabeth Djurado</u> (<i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, F-38000 Grenoble</i>), Lydia Yefsah, Maxime Hubert, Ozden Celikbilek, Dario Ferreira Sanchez, Karine Couturier, Jérôme Laurencin PrO1.833 as an Innovative Nanostructured Oxygen Electrode for High-Temperature Electrolysis: Performance and Stability
16:20 - 16:35 Fleming-O1	<u>Taeheun Lim</u> (<i>Pusan National University</i>), Kanghee Jo, Woo Jin Kim, Yong-Nam Kim, Heesoo Lee Valence electronic structure on oxygen reduction reaction kinetics of Fe-based perovskite oxides for intermediate-temperature solid oxide fuel cells
16:35 - 16:50 Fleming-O2	<u>Yue Liu</u> (<i>Institute of Material Science, Technische Universität Darmstadt, Germany</i>), Stefanie Frick, Nicole S. Bein, Katharina N.S. Schuldt, Adrián López Vergara, Andreas Klein Charge Transition Level of Co ²⁺ /3 ⁺ in Perovskite Oxides
16:50 - 17:05 Fleming-O3	<u>Ryszard Kluczkowski</u> (<i>Institute of Power Engineering, Mory 8, 01-330 Warsaw, Poland</i>), Yevgeniy Naumovich, Anna Niemczyk, Krystian Machaj, Piotr Winiarz, Konrad Świerczek, Keyun Li Copper As Cobalt Surrogate In The Electrodes Of Solid Oxide Cells: Challenges And Solutions
17:05 - 17:20 Fleming-O4	<u>Juande Sirvent</u> (<i>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</i>), 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 A combinatorial (La,Sr)(Mn,Co,Fe)O ₃ library for screening oxygen electrodes in solid oxide fuel cells: high throughput for performance and thermal degradation
17:20 - 17:35 Fleming-O5	<u>Paul Nizet</u> (<i>Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930, Sant Adrià de Besòs, Spain</i>), Francesco Chiabrera, Nicolau López-Pintó, Nerea Alayo, Philipp Langner, Federico Baiutti, Alex Morata, Jordi Sort, Albert Tarancón Oxygen-ion control and functional properties of Sr-doped lanthanum ferrites
17:35 - 17:50 Fleming-O6	<u>Sejong Ahn</u> (<i>Department of Materials Science and Engineering, KAIST, Daejeon, Republic of Korea</i>), Kyu In Sim, Jun Hyuk Kim, Jeong Woo Han, WooChul Jung The effect of cubic phase stabilization on oxygen reduction kinetics in barium cobaltite
5D2 Memristors/ Materials for Neuromorphic Computing. Room: Westminster Chair: Derek Sinclair	
16:00 - 16:15 Westminster-O1	<u>James Killeen</u> (<i>Department of Materials Science and Engineering, University of Sheffield, Sheffield, UK</i>), Julian Dean, Derek Sinclair The Role of A-Site Vacancies on the Dielectric Response of the NaNbO ₃ - La _{1/3} NbO ₃ Solid Solution
16:15 - 16:30 Westminster-O2	<u>Davide Moia</u> (<i>Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany</i>), Joachim Maier Defect chemical and equivalent circuit models for photo-active mixed ionic-electronic conducting devices
16:30 - 16:45 Westminster-O3	<u>Mina Jung</u> (<i>Max Planck Institute for Solid State Research, Stuttgart, Germany.</i>), Masaud Almalki, Michael Graetzel, Davide Moia, Joachim Maier Evidence for ionically-generated space charges in halide perovskites and their impact on photovoltaics
16:45 - 17:00 Westminster-O4	<u>Ya-Ru Wang</u> (<i>Max Planck Institute for Solid State Research, Stuttgart, Germany.</i>), Marko Mladenović, Ursula Rothlisberger, Jovana V. Milić, Davide Moia, Michael Grätzel, Joachim Maier Photo De-Mixing in Mixed Bromide-Iodide Perovskites: Dimensionality and Encapsulation Effects on Ionic & Electronic Transport Properties
17:00 - 17:15 Westminster-O5	Thijs Smolders, Roger De Souza, Alison Walker, <u>Matthew Wolf</u> (<i>Institute of Physical Chemistry, RWTH Aachen University, 52074 Aachen, Germany</i>) Diffusivity tensors of Br and Cs vacancies in biaxially strained perovskite CsPbBr ₃
5D3 Protonic Triple Conductors. Room: St.James Chair: Hiroshige Matsumoto	
16:00 - 16:20 St.James-I1	Einar Vollestad, <u>Ragnar Strandbakke</u> (<i>SINTEF Industry, Sustainable Energy Technology, Oslo, Norway</i>) Approaching a Mechanistic Understanding of Electrode Processes and Surface Protonics for Proton Ceramic Electrochemical Cells
16:20 - 16:35 St.James-O1	<u>Kosuke Kawai</u> (<i>Waseda University</i>), Seong-Hoon Jang, Jun Kikkawa, Koji Yazawa, Kazuma Gotoh, Yuta Igarashi, Yoshitaka Tateyama, Atsuo Yamada, Masashi Okubo Strain-free proton intercalation of Mo ₃ Nb ₂ O ₁₄ anode in aqueous rechargeable batteries
16:35 - 16:50 St.James-O2	<u>Seongwoo Nam</u> (<i>Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea.</i>), Jinwook Kim, Hyunseung Kim, Byeom Gyun Jung, WooChul Jung Understanding Electrochemical Reactions Occurring in Air Electrodes for Protonic Ceramic Cell



16:50 - 17:05 St.James-03	<u>Wei Wu</u> (<i>Idaho National Laboratory</i>), Dong Ding, Ju Li Revitalizing performance and expanding lifetime of protonic ceramic cells by interfacial acid etch
17:05 - 17:20 St.James-04	<u>Chenyang Liao</u> (<i>Department of Materials, Royal School of Mines, Imperial College London, London SW7 2AZ, England</i>), Kehan Huang, Zijie Sha, Miguel Gonzalez, Stephen Skinner Probing the Protonic Conduction in Barium Based Perovskite System in Medium-low Temperature
17:20 - 17:35 St.James-05	<u>Angus Pedersen</u> (<i>Department of Materials, Royal School of Mines, Imperial College London, London SW7 2AZ, England</i>), Rafael Snitkoff-Sol, Yan Yurko, Jesús Barrio, Rongsheng Cai, Theo Suter, Guangmeimei Yang, Sarah Haigh, Dan Brett, Rhodri Jervis, Magda Titirici, Ifan Stephens, Lior Elbaz 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 Chair: Harry Tuller	
16:00 - 16:20 Moore-11	<u>Katherine Develos-Bagarinac</u> (<i>National Institute of Advanced Industrial Science and Technology (AIST)</i>), Qingchuan Bai, Takuya Yamaguchi, Toshiaki Yamaguchi, Haruo Kishimoto Elucidating the role of the interdiffusion layer at GDC/YSZ heterointerfaces
16:20 - 16:35 Moore-01	<u>Colin Gilgenbach</u> (<i>Department of Materials Science and Engineering, Massachusetts Institute of Technology</i>), Thomas Defferriere, Harry Tuller, James LeBeau Coupled Electrochemical and Structural Analysis of Interfaces Using Multislice Electron Ptychography
16:35 - 16:50 Moore-02	<u>Claudia Steinbach</u> (<i>Institute of Chemical Technologies and Analytics, Technische Universität Wien, 1060 Vienna, Austria</i>), Alexander Schmid, Andreas Nanning, Florian Fahrnberger, Herbert Hutter, Markus Kubicek, Juergen Fleig Prediction of Space Charges at SrTiO ₃ Mixed Ionic and Electronic Conducting Oxide Heterojunctions from Defect Chemistry
16:50 - 17:05 Moore-03	<u>Kaichuang Yang</u> (<i>Westlake University</i>), Qiyang Lu Differentiating Oxygen Exchange Reaction Mechanisms across Phase Boundaries
17:05 - 17:20 Moore-04	<u>San Ping Jiang</u> (<i>Curtin University</i>) Development of nanostructured lanthanum strontium cobalt ferrite/gadolinium-doped ceria composite electrodes of solid oxide cells formed by in situ polarization
5D5 Battery Degradation/Dendrites. Room: Abbey Chair: Konrad Świerczek	
16:00 - 16:20 Abbey-11	<u>Louis Piper</u> (<i>WMG, University of Warwick</i>) Seeing degradation in NMC 811/graphite pouch cells with operando X-ray studies
16:20 - 16:35 Abbey-01	<u>Kieran Mylrea</u> (<i>Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK</i>), Xiaorui Shi, Svetlana Menkin, Jonathan Slaughter, Jana Fritze, Dominic Wright, Clare Grey EIS-NMR Study of Interphase Evolution in 'Anode-Free' Li Metal Battery Self-Discharge
16:35 - 16:50 Abbey-02	<u>Dominic Spencer-Jolly</u> (<i>School of Metallurgy and Materials, University of Birmingham, Edgbaston, Birmingham, B15 2SE, UK</i>), Varnika Agarwal, Peter Bruce Towards understanding silver-carbon composite interlayers in anode-free solid-state batteries
16:50 - 17:05 Abbey-03	Jinkyu Chung, Junho Bae, Hanbi Choi, Chihyun Nam, Danwon Lee, Bonho Koo, Namdong Kim, <u>Jongwoo Lim</u> (<i>Seoul National University, Seoul, South Korea</i>) Dynamic coupling of internal strain field and lithium pathway within individual battery particles in solid state batteries
17:05 - 17:20 Abbey-04	<u>Moumita Rana</u> (<i>Delft University of Technology, The Netherlands</i>), Wolfgang Zeier Route to high performance silicon-based composite anode for solid state battery through modulating charge carrier transport
17:20 - 17:35 Abbey-05	<u>Edward Mu</u> (<i>Department of Chemistry, Stanford University</i>), 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 A new high-valent Fe redox couple in intercalation electrodes
17:35 - 17:50 Abbey-06	<u>Jenny Pringle</u> (<i>Institute for Frontier Materials, Deakin University, 221 Burwood Highway, Burwood, Victoria 3125, Australia</i>), Faezeh Makhlooghiyazad, Luke O'Dell, Azra Sourjah, Maria Forsyth The Development of New Ionic Electrolytes for Energy Storage Devices
5D6 New Materials. Room: Gielgud Chair: Francesco Ciucci	
16:00 - 16:20 Gielgud-11	<u>Orkun Furat</u> (<i>Ulm University, Institute of Stochastics</i>), Anja Bielefeld, Jürgen Janek, Volker Schmidt Generative Adversarial Framework for Calibrating Stochastic Geometry Models to ASSB Cathode Microstructures
16:20 - 16:35 Gielgud-01	<u>Sona Guluzade</u> (<i>Department of Chemistry, University of Bath, Claverton Down, Bath BA2 7AX, UK</i>), Christian Masquelier, Saiful Islam, Benjamin Morgan Computational Screening for Novel Fast-Ion Conductors in the Li-Si-S Chemical Space
16:35 - 16:50 Gielgud-02	<u>Ronald Kam</u> (<i>Department of Materials Science and Engineering, University of California, Berkeley, CA, 94720, USA</i>), Aaron Kaplan, Luca Binci, Tucker Holstun, Nicola Marzari, Gerbrand Ceder 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 Gielgud-03	<u>Marcel Sadowski</u> (<i>Institute of Materials Science, Technical University of Darmstadt, Germany</i>), Laura Fieber, Karsten Albe Kinetics of Pore Formation at the Interface Between Solid Electrolyte and Metal Anodes in All-Solid-State Batteries During Discharge
17:05 - 17:20 Gielgud-04	<u>Sai Gautam Gopalakrishnan</u> (<i>Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India</i>), Vijay Choyal Machine learning guided exploration of amorphous materials as cathodes for Mg-batteries
17:20 - 17:35 Gielgud-05	<u>Reshma Devi Parthasarathy</u> (<i>Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India</i>), Keith Tobias Butler, Sai Gautam Gopalakrishnan Enhancing Material Property Predictions by Leveraging Transfer Learning Techniques
17:35 - 17:50 Gielgud-06	<u>Dereje Bekele Tekliye</u> (<i>Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India</i>), Sai Gautam Gopalakrishnan 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 Chair: Bilge Yildiz
08:30 - 09:20 Fleming-T2	<u>Joachim Maier</u> (<i>Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany</i>) Nanoionics: More Than a Fashionable Slogan
09:20 - 10:10 Fleming-T1	<u>John Kilner</u> (<i>Imperial College London, Department of Materials, London SW7 2AZ, UK.</i>) 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 Chair: David Muñoz-Rojas
10:45 - 11:15 Fleming-K1	<u>M. Rosa Palacin</u> (<i>Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)</i>) Prussian Blue type compounds as positive electrodes for Mg and Ca based batteries
11:15 - 11:45 Fleming-K2	<u>Venkataraman Thangadurai</u> (<i>Department of Chemistry, University of Calgary</i>) Advanced Electrolytes for High-Performance Solid State Metal Batteries
11:45 - 12:00 Fleming-O1	<u>Clarissa Glaser</u> (<i>Institute of Physical Chemistry, Justus Liebig University, Heinrich-Buff-Ring 17, 35392 Giessen, Germany</i>), Marcus Rohnke, Jürgen Janek MgB ₂ X ₄ (B = Sc, Er, Tm, Y; X = S, Se) Spinel as Promising Mg-Ion Conductors for Almost-Solid-State Mg Batteries
12:00 - 12:15 Fleming-O2	<u>Zhixuan Wei</u> (<i>Institute of Physical Chemistry & Center for Materials Research, Justus Liebig University Giessen</i>), Jürgen Janek Investigation of Magnesium Metal Deposition in Solid-State Mg Batteries on NASICON/IL Hybrid Solid Electrolyte
12:15 - 12:30 Fleming-O3	Tsuyoshi Ohnishi, Isao Sakaguchi, <u>Kazunori Takada</u> (<i>National Institute for Materials Science</i>) Surface treatment of garnet-type solid electrolyte for lithium metal anode
12:30 - 12:45 Fleming-O4	<u>Naoki Kuwata</u> (<i>National Institute for Materials Science (NIMS)</i>), Gen Hasegawa Lithium Diffusion in Perovskite-Type Solid Electrolytes Revealed by PFG-NMR
	2E2 Machine Learning/Materials Modelling. Room: Westminster Chair: Seungwu Han
10:45 - 11:15 Westminster-K1	<u>Paul Shearing</u> (<i>The ZERO Institute, The University of Oxford, Holywell House, Oxford OX2 0EST</i>) Understanding battery materials using advanced X-ray and correlative imaging methods
11:15 - 11:35 Westminster-I1	<u>Samuel Cooper</u> (<i>Dyson School of Design Engineering, Imperial College London, Exhibition Road, London SW7 2AZ, United Kingdom</i>), Steve Kench, Isaac Squires, Amir Dahari, Ronan Docherty, Sam Hair Machine learning for the characterisation and design of electrode materials
11:35 - 11:50 Westminster-O1	<u>Wenhao Sun</u> (<i>Materials Science and Engineering, University of Michigan, Ann Arbor</i>) Navigating phase diagram complexity to guide robotic inorganic materials synthesis
11:50 - 12:05 Westminster-O2	<u>Sonia Ambaum</u> (<i>Institute of Physical Chemistry, RWTH Aachen University</i>), Neil L. Allan, Regina Dittmann, Roger A. De Souza Oxygen Diffusion in Brownmillerite Sr ₂ Fe ₂ O ₅ is Two-Dimensional: Results from a Molecular Dynamics Study
12:05 - 12:20 Westminster-O3	<u>Ying Zhou</u> (<i>Newcastle University, Newcastle upon Tyne, NE1 7RU, United Kingdom.</i>), James Dawson Modelling Solid Electrolyte Materials using Machine Learning Potentials
12:20 - 12:35 Westminster-O4	<u>Annalena R. Genreith-Schrieffer</u> (<i>Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK</i>), 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 Probing Jahn-Teller Distortions and Antisite Defects in LiNiO ₂ with Ab-initio Molecular Dynamics, Variable-Temperature X-Ray Diffraction, and 7Li NMR Spectroscopy
	2E3 Battery Materials. Room: St.James Chair: Michele Riva
10:45 - 11:15 St.James-K1	<u>Jeff Sakamoto</u> (<i>Materials and Mechanical Engineering Departments, University of California, Santa Barbara</i>) Mechano-electrochemical Phenomena in Solid-State Batteries
11:15 - 11:35 St.James-I1	<u>Till Frömling</u> (<i>Fraunhofer IWKS</i>), Lukas Porz, Qaisar Khushi Muhammad, Jürgen Rödel Introduction of dislocations as a strategy for modifying properties of functional ceramics
11:35 - 11:50 St.James-O1	<u>Nidhi Kapate</u> (<i>Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA;</i>), Stephen Kang, Jimmy Kuo, Hongbo Zhao, William Chueh Understanding the Kinetic Origins of GITT Voltage Relaxation and Low-Frequency EIS Measurements in Porous Electrodes
11:50 - 12:05 St.James-O2	<u>Jaekwang Lee</u> (<i>School of Materials science and Engineering, Pusan National University</i>), Tae Won Nam, Min Chul Shin, Heesoo Lee Solution combustion synthesis and electrochemical properties of nickel oxide/carbon nanotube composites
12:05 - 12:20 St.James-O3	Hiroto Katsuragawa, Yusuke Tago, Sawako Mori, Shota Maeda, Shuichi Matsuda, Ryo Nakayama, Shigeru Kobayashi, Taro Hitosugi, <u>Makoto Moriya</u> (<i>Graduate School of Science and Technology, Shizuoka University, Shizuoka 422-8529, Japan.</i>) Molecular Crystalline Electrolyte Consisting of LiTFSa and Succinonitrile with High Li-ion Transference Number and 5 V-class Electrochemical Stability
12:20 - 12:35 St.James-O4	<u>Victor Landgraf</u> (<i>Delft University of Technology, The Netherlands</i>) Entropy-induced high conductivity in fully-reduced solid-electrolytes thermodynamically stable against Li metal
	2E4 Solid Oxide Cells/Protonics. Room: Moore Chair: Na Ni
10:45 - 11:15 Moore-K1	<u>Olga A. Marina</u> (<i>Pacific Northwest National Laboratory, USA</i>), Surendra Karki, Chris Coyle, Long Le, Dan Edwards, Tian Liu, Jie Bao LSCF Phase Evolution During Solid Oxide Electrolysis Cell Operation
11:15 - 11:35 Moore-I1	<u>MIGUEL A. LAGUNA-BERCERO</u> (<i>Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Zaragoza, 50009, Spain</i>), ALODIA ORERA, ANGEL LARREA, ANDRES ACIN, JOSE I. PEÑA, RUTH LAHOZ 3D laser machining: a potential tool to develop new architecture designs for solid state energy devices



11:35 - 11:50 Moore-O1	<u>Tomoyuki Yamasaki</u> (<i>Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University</i>) Mixed conduction in Lanthanum oxyhydrides
11:50 - 12:05 Moore-O2	<u>Hinuma Yoyo</u> (<i>National Institute of Advanced Industrial Science and Technology (AIST), Kansai Center</i>) Why are there two activation barriers for H diffusion in LaH ₂ .7500.125?
12:05 - 12:20 Moore-O3	<u>Jinwook Kim</u> (<i>Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology</i>), Seongwoo Nam, Sejong Ahn, Hyunseung Kim, Jun Hyuk Kim, Byeom Gyun Jeong, Di Chen, WooChul Jung Investigation of Electrochemical Reaction Mechanism at the Fuel Electrode Surface in Proton-Conducting Oxide Cells
12:20 - 12:35 Moore-O4	<u>Motoya Karino</u> (<i>Grad. Sch. of Engineering, Tohoku Univ.</i>), Teruki Yoshioka, Diao Zhou, Yuta Kimura, Takashi Nakamura, Keiji Yashiro, Tatsuya Kawada, Koji Amezawa Effect of Mixed Conduction in Electrolytes on the Impedance Response of Proton Conducting Ceramic Fuel Cell Cathodes
2E5 Electrocatalysis. Room: Abbey Chair: André Weber	
10:45 - 11:15 Abbey-K1	<u>Jose M. Serra</u> (<i>Instituto de Tecnología Química (Universitat Politècnica de València - Consejo Superior de Investigaciones Científicas), Av. Los Naranjos, s/n, 46022 Valencia, Spain</i>), Aitor Domínguez-Saldaña, Alfonso Juan Carrillo, Joaquín Santos, Laura Navarrete, María Balaguer, Beatriz García-Baños, Pedro Plaza-González, David Catalán-Martínez, Jose Manuel Catalá-Civera Microwave-driven Modulation of Redox Properties of Solid-State Ionic Conductors
11:15 - 11:35 Abbey-I1	<u>marie-laure fontaine</u> (<i>SINTEF AS</i>), Didrik Småbråten, einar vøllestad, Ragnar Strandbakke On the development of cost-effective and large-scale H ₂ and NH ₃ production technologies
11:35 - 11:50 Abbey-O1	<u>Xi Xu</u> (<i>Department of Materials Exhibition Road, Imperial College London, London, SW7 2AZ, UK</i>), Stephen Skinner Locally Tuning Sr Segregation Blocking Layers for Mixed Ion and Electron Conduction (MIEC) Using Oriented Crystal Planes
11:50 - 12:05 Abbey-O2	<u>Qiyang Lu</u> (<i>Westlake University</i>) Understanding the Role of Ionic Point Defects in Oxide Electrocatalysts
12:05 - 12:20 Abbey-O3	<u>Kun Zheng</u> (<i>AGH University of Krakow, Faculty of Energy and Fuels, Department of Hydrogen Energy, al. A. Mickiewicza 30, 30-059 Krakow, Poland</i>), Jakub Lach, Michał Gogacz, Muhammad Bilal Hanif, Luo Jie, Amir Sultan, Paweł Czaja, Michał Mosiątek, Yihan Ling The synergistic effect of dual-phase in designing hybrid electrodes for high-performance SOFCs
2E6 SOFC/SOEC. Room: Gielgud Chair: Masatomo Yashima	
10:45 - 11:15 Gielgud-K1	<u>Avner Rothschild</u> (<i>Department of Materials Science and Engineering, Technion - Israel Institute of Technology, Haifa, 3200003, Israel</i>) Decoupled Water Splitting: Reshaping Water Electrolysis for Green Hydrogen Production at Scale
11:15 - 11:35 Gielgud-I1	<u>Aleksey Yaremchenko</u> (<i>CICECO - Aveiro Institute of Materials, University of Aveiro, Portugal</i>), Rui Pinto, Javier Macías, Jorge Frade Vanadate- and Molybdate-Based Anode Components for Biogas-Fueled SOFCs
11:35 - 11:50 Gielgud-O1	<u>Manfred Martin</u> (<i>Department of Materials Science and Engineering, Seoul National University, Seoul, 08826, Republic of Korea</i>) Kinetics of Unmixing Caused by Electrochemical Potential Gradients
11:50 - 12:05 Gielgud-O2	<u>Simon Guillonnet</u> (<i>Institut des Matériaux Jean Rouxel, Université de Nantes</i>), Olivier Joubert, Clément Nicollet Monitoring redox properties of transition metals in spinel type structures for improved oxygen exchange kinetics.
12:05 - 12:20 Gielgud-O3	<u>Hyeonmin Yu</u> (<i>Department of Mechanical Engineering, KAIST, Daejeon, Republic of Korea</i>), Seungsoo Jang, Donghun Lee, Kang Taek Lee Facile Microstructural Tuning via One-step Microwave-assisted Sintering for High Performing Solid Oxide Electrochemical Cells
12:20 - 12:35 Gielgud-O4	Jangwoo Seo, Kwangchul Jung, Insung Lee, <u>Bumsoo Kim</u> (<i>E&KOA co.</i>), Suok Kim 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 Chair: M Rosa Palacin Peiro	
14:00 - 14:20 Fleming-I1	<u>David Muñoz-Rojas</u> (<i>Université Grenoble Alpes, CNRS, Grenoble INP, LMGP, Grenoble, CS 50257, Grenoble Cedex 1 38016, France</i>) Fast, open-air printing of functional thin films for energy applications
14:20 - 14:35 Fleming-O1	<u>Maycol F. Mena</u> (<i>Instituto de Cerámica y Vidrio ICV-CSIC, Madrid, España</i>), Ferley A. Vásquez, Jadra Mosa, Mario Aparicio, Jorge A. Calderon, Nataly Carolina Rosero-Navarro Improving the Electrochemical Performance type-Perovskite Solid Electrolyte through controlled Synthesis Parameters in the Sol-Gel Process.
14:35 - 14:50 Fleming-O2	<u>Marc Bertrand</u> (<i>Université de Montréal</i>), Steeve Rousselot, Maxime Rioux, David Aymé-Perrot, Mickael Dolle Ionic Percolation through Low-Temperature Densification of Glass-Ceramic LAGP Electrolytes for All-Solid-State Batteries
3E2 Machine Learning/Materials Modelling. Room: Westminster Chair: Paul Shearing	
14:00 - 14:20 Westminster-I1	<u>Seungwu Han</u> (<i>Department of Materials Science and Engineering, Research Institute of the Advanced materials, Seoul National University, Seoul 08826, Republic of Korea</i>) Application of pretrained machine learning force fields to Li diffusion in electrolytes
14:20 - 14:35 Westminster-O1	<u>Marcin Kryński</u> (<i>Warsaw University of Technology</i>), Aleksandra Dziegielewska, Konrad Kwatek, Marcin Małys, Jan Jamroz, Hangfeng Zhang, Wojciech Wróbel, Isaac Abrahams, Franciszek Krok Bridging the gap between theoretical modeling and experiments in bismuth oxide based solids
14:35 - 14:50 Westminster-O2	<u>Thorben Böger</u> (<i>Institute of Inorganic and Analytical Chemistry, University of Münster, D-48149 Münster, Germany</i>), Wolfgang G. Zeier Deciphering Thermal Transport in NASICON-Electrolytes: Experimental and Ab-initio Insights into Phonon Dynamics and Heat Transport
14:50 - 15:05 Westminster-O3	<u>Seung-Jae Shin</u> (<i>Thomas Young Centre and Department of Materials, Imperial College London, London, United Kingdom.</i>), Aron Walsh, Alexander C. Forse, Jamie W. Gittins, Matthias J. Golomb Microscopic Origin of Electrochemical Capacitance in two-dimensional Metal Organic Frameworks
3E3 Battery Materials. Room: St.James Chair: Samuel Cooper	
14:20 - 14:35 St.James-O1	<u>Kazuhiro Hikima</u> (<i>Toyohashi University of Technology, Japan</i>), Ryota Kishi, Atsunori Matsuda Electrochemical Properties of Li ₁₀ GeP ₂ S ₁₂ Ionic Conductors Synthesized by the Solution Method
14:35 - 14:50 St.James-O2	<u>Oliver Maus</u> (<i>Institute of Inorganic and Analytical Chemistry, University of Münster, D-48149 Münster, Germany</i>), Wolfgang Zeier A Close Look into Post-synthesis Ball-milling of the Highly Conducting Solid Electrolyte Li ₅ PS ₄ .5Cl _{1.5} for All-solid State Batteries



14:50 - 15:05 St.James-03	<u>Neelam Srivastava</u> (<i>Banaras Hindu University</i>), Dipti Yadav, Kanak Aggarwal Economical, Ecofriendly and Easy to Handle Polymer-In-Salt-Electrolytes
15:05 - 15:20 St.James-04	<u>Vasiliki Faka</u> (<i>University of Muenster</i>), Wolfgang Zeier Pressure-induced dislocations and their influence on ionic transport in Li+ conducting argyrodites
3E4 Solid Oxide Cells/Protonics. Room: Moore Chair: Olga Marina	
14:00 - 14:20 Moore-I1	<u>André Weber</u> (<i>Karlsruhe Institute of Technology (KIT), Institute for Applied Materials - Electrochemical Technologies (IAM-ET)</i>) Interaction of SOFC Fuel Electrodes with different Fuels and therein contained Impurities
14:20 - 14:35 Moore-01	<u>Shunrui Luo</u> (<i>Institut Català de Nanociència i Nanotecnologia (ICN2)</i>), Kai Pei, Bote Zhao, Yu Chen, Jordi Arbiol Optimization Surface/Interface of PrBaCo2O5+δ as Oxygen Electrode for Enhanced Reversible Protonic Ceramic Electrochemical Cells
14:35 - 14:50 Moore-02	<u>Ho-Il Ji</u> (<i>Korea Institute of Science and Technology (KIST)</i>), Seunghyeok Im Proton Uptake Process in Double Perovskite Triple Ionic-Electronic Conducting Oxides for Protonic Ceramic Cells
14:50 - 15:05 Moore-03	<u>Jack Strand</u> (<i>Nanolayers Research Computing</i>), Alex Shluger, David Gao Interplay of Electronic and Ionic Processes in Field-Induced Degradation in Amorphous Oxides
3E5 Electrocatalysis. Room: Abbey Chair: Jose Manuel Serra	
14:00 - 14:20 Abbey-I1	<u>Markus Kubicek</u> (<i>TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria</i>), Matthäus Siebenhofer, Christoph Riedl, Florian Fahrnberger, Herbert Hutter, Andreas Nenning, Jürgen Fleig Near-surface Dipoles on Mixed Ionic Electronic Conducting Oxides: Formation – Measurement – Manipulation
14:20 - 14:35 Abbey-01	<u>Vladislav Kolotygin</u> (<i>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</i>), Antonio María, Lucile Bernadet, Marc Torrell, Albert Tarancón Development of Sr2Fe1.5Mo0.5O6-δ-based Electrodes for Small- and Large-scale SOC Applications
14:35 - 14:50 Abbey-02	<u>Michał Gogacz</u> (<i>AGH University of Krakow, Faculty of Energy and Fuels, Department of Hydrogen Energy, al. A. Mickiewicza 30, 30-059 Krakow, Poland</i>), Kun Zheng, Jie Luo, Jakub Lach, Yihan Ling Engineering high-performance heterostructured electrodes for boosting the performance of SOFCs
14:50 - 15:05 Abbey-03	<u>Haodong Wu</u> (<i>School of Chemistry, University of St Andrews, St Andrews, Fife KY16 9ST, UK</i>), Xiangling Yue A Comparative Investigation of ZDX-SFM Composite-Structured Anode for Hydrocarbon-Fueled Solid Oxide Fuel Cells
3E6 Oxide Materials. Room: Gielgud Chair: Manfred Martin	
14:00 - 14:30 Gielgud-K1	<u>Masatomo Yashima</u> (<i>Tokyo Institute of Technology</i>) DISCOVERY of HIGH PROTON and OXIDE-ION CONDUCTORS via INTRINSIC OXYGEN VACANCIES
14:30 - 14:50 Gielgud-I1	<u>Michele Riva</u> (<i>Technical University of Vienna</i>) Surfaces of La0.8Sr0.2MnO3 at the Atomic Scale
14:50 - 15:20 Gielgud-K2	<u>Richard Catlow</u> (<i>Department of Chemistry, University College London, London, (United Kingdom)</i>) New Insights into Defect and Electronic Properties of Oxides and Nitrides
15:30 - 15:45	Fleming Room - Closing & Awards Ceremony

POSTER PRESENTATION

Poster session Monday 15th

33 - Designing highly lithiophilic interlayers to inhibit lithium dendrite formation in solid-state batteries with garnet-type electrolytes

Choi, Sung Ryul; Yoo, Seojeong; Park, Jun-young*

157 – Understanding Li Ions Diffusion in Sulphide- and Oxide-based Conductors from NMR

Blanc, Frédéric, Duff, Benjamin; _Elliott, Stuart J.; Gamon, Jacinthe; Daniels, Luke M.; Rosseinsky, Matthew J.

280 – Influence of Microstructure on the Material Properties Derived by Brick Layer Model Analysis – A Case Study for LLZO Ceramics

Eckhardt, Janis K.*; Kremer, Sascha; Fuchs, Till; Minnmann, Philip; Schubert, Johannes; Burkhardt, Simon; Elm, Matthias T.; Klar, Peter J.; Heiliger, Christian; Janek, Jürgen

378 – Cyclic voltammetry for batteries: Differences between liquid-state and solid-state

Xiao, Chuanlian*; Usiskin, Robert; Maier, Joachim

474 – Precursor-based gradient doping for stabilization of cathode/sulfide electrolyte interface

Park, Yong Joon*; Ji, Yong Jun

489 – Silicon/graphite anodes for lithium solid-state batteries: How Si content alters the battery performance

Le Pham, Phuong Nam; Zeier, Wolfgang*

501 – Nanoporous silicon fibers enabling superior cycling performance in sulfid-based all-solid-state batteries

Yamamoto, Mari*; Takatsu, Mika; Okuno, Ryota; Kato, Atsutaka; Takahashi, Masanari

504 – Standardized Processing, Measuring and automated Evaluation of Solid Electrolyte Impedance Data for reliable Characterization of Solid Electrolytes

Pescara, Lars*; Kalyk, Fariza; Druschler, Marcel; Vargas Barbosa, Nella; Zeier, Wolfgang

505 – Electrochemical activation of Fe-LiF conversion cathodes in thin-film solidstate batteries

Casella, Joel*; Morzy, Jędrzej; Gilshtein, Evgeniia; Yarema, Maksym; Futscher, Moritz H.; Romanyuk, Yaroslav

507 – 100% Silicon Nanowire Paper Anodes for Solid-State Lithium-Ion Batteries

Sánchez Ahijón, Elena^{*}; Pendashteh, Afshin^{*}; Vilatela, Juan José^{*}

514 – Variable Temperature Phonon Dynamics of Superionic Li Conductor Li₇La₃Zr₂O₁₂

Narun, Leah^{*}; Chueh, Will; Lindenberg, Aaron

522 – Assessing transport limitations of battery materials using thin film model systems

Morzy, Jędrzej^{*}; Aribia, Abdessalem; Futscher, Moritz; Romanyuk, Yaroslav

524 – LiF-Doped Sulfide Solid Electrolytes with Stabilized α -Li₃PS₄ Analog Phase for All-Solid-State Li Metal Batteries

Asakura, Taichi; Izawa, Ryo; Kimura, Takuya; Hotehama, Chie; Kowada, Hiroe; Motohashi, Kota; Sakuda, Atsushi; Tatsumisago, Masahiro; Hayashi, Akitoshi^{*}

530 – Ion dynamics of multicationic Substituted High-Entropy Lithium Argyrodite Superionic Conductors

Schaller, Mareen^{*}; Lin, Jing; Strauss, Florian; Indris, Sylvio

533 – Preparation of Amorphous Li₂O-LiI-MoO₃ Solid Electrolytes and Application to All-Solid-State Batteries

Fujita, Yushi; Asakura, Taichi; Motohashi, Kota; Sakuda, Atsushi^{*}; Hayashi, Akitoshi

535 – Cycling Protocol For Mn-Based Disordered Rock-Salt Li-Ion Cathodes For Improved Cycling Stability

Park, Sang-Wook; Seo, Dong-Hwa^{*}

543 – Superior ionic conductivity of Zr-doped LiTa₂PO₈ ceramics

Kwatek, Konrad^{*}; Ślubowska-Walkusz, Wioleta; Nowiński, Jan; Krawczyńska, Agnieszka; Sobrados, Isabel; Diez-Gomez, Virginia; Sanz, Jesus

547 – First-principles calculation study on lithium-ion conduction mechanisms in halide solid electrolytes

Lee, Chang-Dae; Seo, Dong-Hwa^{*}

548 – Improvement of Electrode Processability and Energy Density in LFP batteries

Park, Yoo-Jong; Kim, Hyun-Woo; Seo, Dong-Hwa^{*}

549 – Investigating the Crystallinity and Ionic Conductivity of LiNbOCl₄

Newnham, Jon^{*}; Rosenbach, Carolin; Hartel, Johannes; de Irujo-Labalde, Xabier Martinez; Zeier, Wolfgang^{*}

552 – Extracting Ion Density and Mobility - Transient Current Method Revisited

Jenatsch, Sandra^{*}; Futscher, Moritz^{*}; Moia, Davide; Schiller, Andreas; Blülle, Balthasar; Romanyuk, Yaroslav; Ruhstaller, Beat

555 – Inducing Partial Cation Disorder Stabilizes Layered Battery Cathode

Lee, Junghwa; Jiang, Zhelong* ; Liang, Nicolas; Park, Jungjin* ; Chueh, William*

556 – Substantial Oxygen Loss and Chemical Expansion in Lithium-Rich Layered Oxides at Moderate Delithiation

Rivera, Diego; Csernica, Peter; Chueh, William* ; McColl, Kit; Busse, Grace; Shapiro, David; Islam, Saiful*

558 – (Electro-)Chemical Stability of Fully Reduced Sulphide Solid Electrolytes against Lithium Metal Anode

Campoy-Félix, Ramón H.; Sayed, Farheen N.; Vema, Sundeep; Grey, Clare P.*

563 – Preparation of LGPS-Type Li₁₀SnP₂S₁₂ Electrolyte by Liquid Phase Process Using Water

Hayashi, Akitoshi*; Tanigaki, Hayata; Kimura, Takuya; Motohashi, Kota; Tatsumisago, Masahiro; Sakuda, Atsushi

564 – Elucidating the role of the central metal substitution of Li₂MCl₆ solid state electrolytes by combining neutron powder diffraction and high frequency electrochemical impedance spectroscopy

Artal, Raül*; Barker, Kit; Andersen, Henrik L.; Alonso, Jose A.; Jiménez, Ricardo; Seymour, Ieuan; Agüero, Ainara

565 – Multi-technique Approach to Identify the Onset of Degradation at the Interface of NMC and LLZO during Sintering

Ramos-Díaz, Ángela; Vema, Sundeep; Sayed, Farheen N.; Grey, Clare P.*

567 – Dual Doping For Improved Electronic Conductivity In Lithium Garnet Electrolyte Li₇La₃Zr₂O₁₂

Pachulska, Klaudia*; Winkowska-Struzik, Magdalena; Struzik, Michał

568 – Exploring electrochemical properties of high conductive Li_{2.25}Fe_{0.25}Zr_{0.75}Cl₆ halide depending on its synthesis route

Arianna, Pesce*; Golov, Andrei; Xiang Lian, Jian; Lannelongue, Pierre; Carrasco, Javier; Lopez-Aranguren, P

569 – Self-Diffusion Mechanism of Li⁺, Na⁺, and K⁺ Ions in Prussian Blue by First-Principles Calculations

Ito, Dan*; Jang, Seong-Hoon; Ando, Hideo; Momma, Toshiyuki; Tateyama, Yoshitaka*

575 – Characterization of all-solid-state Li metal batteries using self-supported C/Au film as interface layer

Kitaura, Hirokazu*; Asakura, Taichi; Deguchi, Minako; Kowada, Hiroe; Hotehama, Chie; Sakuda, Atsushi; Hayashi, Akitoshi; Tatsumisago, Masahi

577 – Kinetics of Mixed Ion-Electron Transport in Composite Electrodes

Lin, Le-Yen^{*}; Chen, Chia-Chin

578 – Space Charge Storage in Mixed Ionic-Electronic Conducting Materials

Chen, Shu-Han^{*}; Chen, Chia-Chin

584 – Understanding Low-Temperature Direct Liquid-to-Solid Synthesis and Chemistry of Li-Garnet Electrolytes for Hybrid and Solid-State Batteries

Quincke, Lucie^{*}; Rupp, Jennifer L.M.

586 – Solid-State (Cryo-)NMR and Conductivity Spectroscopy: A Complementary Approach to Characterize Ion Dynamics in Solid Electrolytes

Stainer, Florian; Jodlbauer, Anna; Spychala, Jonas; Marko, Annika; Hogrefe, Katharina; Gadermaier, Bernhard^{*}; Wilkening, H. Martin

587 – Li ion distribution and local structure in LiTa₂PO₈

Ren, Peng; Kwatek, Konrad; Abrahams, Isaac^{*}

589 – Cathode Particles Studied by Scanning Force Microscopy based Infrared Nano-Spectroscopy

Weber, Franjo; Shi, Bing-Xuan; Muenchinger, Andreas; Kreuer, Klaus-Dieter; Richter, Felix H.; Berger, Rüdiger^{*}

591 – Achieving > 1 mScm⁻¹ ionic conductivity in garnet solid-state electrolytes through comprehensive understanding of dopant local structure and synthesis methodology

Vema, Sundeep^{*}; Grey, Clare

592 – Understanding the defect chemistry and Li⁺ transportation of Ta-doped Li₇La₃Zr₂Ta_{0.5}O_{12-δ} by active ML learning Raman spectroscopy image

Li, Sigi; Weinmann, Steffen; Prein, Thorben; Chu, Hyunwon; Rupp, Jennifer L.M.^{*}

596 – Enhanced Solid Electrolyte Characterization through Solid-State NMR

Samanta, Bibek; Martinez de Irujo Labalde, Xabier; Helm, Bianca; Banik, Ananya; Zeier, Wolfgang G.^{*}; Hansen, Michael Ryan

597 – Investigation of Ion Dynamics and Structure of Li₁₀B₁₀S(20-x)I_x via Solid-State NMR

Kondek, Jędrzej^{*}; Holmes, Sarah; Newnham, Jon; Faka, Vasiliki; Maus, Oliver; Gronych, Lara; Nazmutdinowa, Elina; Cui, Yi; Zeier, Wolfgang; Hansen, Michael

601 – Enhanced Lithium Exchange through Indium Layering: Progress in LLZO-Ta Solid Electrolyte Technology

Sharma, Prince^{*}; Hasegawa, Gen; Kuwata, Naoaki^{*}



602 – Discontinuous Phase Transitions in Graphite Dilute Stages – Single Particle Operando Microscopy Study

Han, Jiho; Merryweather, Alice; Schnedermann, Christoph; Grey, Clare; Rao, Akshay*

604 – The new niobate and tantalate phases: A combined diffraction, EXAFS and NMR spectroscopy study

Sayed, Farheen N.*; Jacquet, Quentin; Groszewicz, Pedro; Nagendran, Supreeth; Emge, Steffen P.; Magusin, P. C. M. M.; O'Keefe, Chris; Dey, Sunita; Grey, Clare P.*

605 – Strain dependent Li-ion conductivity modulation in model amorphous LiPON glassy-type solid electrolyte

Chandra, Subhash; Yildiz, Bilge*

606 – Engineering high conductive percolating networks in Li₆PS₅Cl tapes for solid-state batteries

Tran, Quoc-Anh; Agrawal, Meenal; Häusler, Michael; Todt, Juraj; Fadillah, Laras; Ud Din, Mir Mehraj; Zettl, Roman; Henninge, Volker; Keckes, Jozef; Brunner, Roland; Vullum, Per Erik; Rettenwander, Daniel

609 – Lithium Photo-extraction using all-solid-state photo-rechargeable battery for photo energy conversion and storage

Yoshimoto, Masataka; Tamura, Kazuhisa; Watanabe, Kenta; Shimizu, Keisuke; Horisawa, Yuhei; Suzuki, Kota; Kanno, Ryoji; Hirayama, Masaaki*

612 – Sinter-Free Interface Formation of Oxide-Based TiO₂ Anode Composite for All-Solid-State Batteries

Takahashi, Masanari*; Arai, C.; Yamamoto, M.; Kato, A.

623 – Study of structural and electrochemical evolution of LPSCl during “cold sintering” process

Korjus, Ove*; Mitra, Saptarshee; Berrod, Quentin; Vanpeene, Victor; Appel, Markus; Suard, Emanuelle; Lyonnard, Sandrine; Villevieille, Claire

515 – Inducing cation disordering in sodium layered oxides

Edelman, Dylan; Ramachandran, Hari; Chueh, William*

542 – A Zn²⁺ substituted NaAlCl₄ with enhanced sodium ionic conductivity for solid state batteries

Guo, Hao; Grüninger, Helen*; Haefner, Michael*; Bianchini, Matteo*

553 – Synthesis of Sodium-ion Conducting Sulfide Solid Electrolytes Using Sodium Polysulfides as Self-Flux

Sakuda, Atsushi*; Otono, Tomoya; Asakura, Taichi; Nasu, Akira; Motohashi, Kota; Hayashi, Akitoshi



561 – Mechanochemical Synthesis of Sodium-Ion Conducting Oxychloride in the System NaCl–TaCl₅–Ta₂O₅

Motohashi, Kota^{*}; Tsukasaki, Hirofumi; Sakuda, Atsushi; Mori, Shigeo; Hayashi, Akitoshi

585 – Unlocking Enhanced Na⁺-Ion Conductivity in Co-Doped NASICONs: Insights from Total Neutron Scattering Analysis of Local Structures

Huang, Xuankai^{*}; Qi, Xin; Krok, Franciszek; Abrahams, Isaac

598 – Analysis of the anion redox and ionic diffusion in Na₂MS₂ (M = Fe and Co) active materials with chained tetrahedra

Nasu, Akira^{*}; Miyamoto, Riki; Kobayashi, Hiroaki; Matsui, Masaki

599 – Multi-Scale Analysis of Commercially Available Sodium-Ion Cells

Sander, Luise; Fellingner, Tim-Patrick^{*}; Leonhardt, Robert; Riedel, Jens; Winckelmann, Alexander; Al-Shabbagh, Dominik; Prinz, Carsten; Scholl, Juliane; Krug von Nidda, Jo

607 – Revealing the reaction mechanism and chemo-mechanics of solid-state Na-S batteries

Nguyen, Quoc Hung; Todt, Juraj; Boles, Steven; Keckes, Jozef; Rettenwander, Daniel

500 – Structure - transport correlations in W-substituted K₃SbS₄ as K⁺-conducting solid electrolytes

Hartmann, Matthias^{*}; Zeier, Wolfgang

511 – Electrochemical Characterization of Ti-Doped Zinc Ferrite

Hopster, Julia; Krämer, Susanna; Jüstel, Thomas; Winter, Martin; Neuhaus, Kerstin^{*}

541 – Ion Dynamics Analysis of Superionic Conducting Glass AgI-As₂Se₃ by Machine Learning Force Field

Arakawa, Taisei; Usuki, Takeshi; Kasamatsu, Shusuke^{*}



Poster session Tuesday 16th

49 – Accelerating Discoveries: a Comprehensive Online Analytical System with Standardized Data Pipeline for CO₂ Electroreduction

Senocrate, Alessandro^{*}; Bernasconi, Francesco; Kraus, Peter; Battaglia, Corsin

57 – Achieving high electrocatalytic activities by improvement of triple conducting properties with cobalt-free air electrode material for reversible ceramic cells

Bae, Yeongeun; Kim, Seo-hyun; Park, Jun-young^{*}

154 – Performance and degradation of positrodes for proton ceramic electrolyzers

Wu, Mengxin^{*}

185 – Proton Concentrations in Ba(Fe,Acc)O_{3-d} Perovskites

Merkle, Rotraut^{*}; Raimondi, Giulia; Maier, Joachim

316 – Electronic structure, phase formation, and defect distribution in the Ba(Ce,Fe,Acc)O_{3-d} system investigated by density functional theory calculations

Sitte, W.^{*}; Merkle, R.; Hoedl, M. F.; Chesnokov, A.; Gryaznov, D.; Nader, C.; Egger, A.; Bucher, E.; Kotomin, E. A.; Maier, J.

335 – High-performance tubular protonic ceramic fuel cells by compensating Ba evaporation via a Ba-excess electrolyte

Kim, Youdong; Meisel, Charlie; Hernandezb, Carolina; Rend, Peter; Yang, Jayoon; Sullivan, Neal; O'Hayre, Ryan

358 – A Novel Sample Cell for Innovative Materials Analytics: Detection of Protons in Ceramic Materials through In-Situ Integration of Laser-Induced Breakdown Spectroscopy

Anstiss, Melanie^{*}; Weiss, Maximilian; Limbeck, Andreas; Opitz, Alexander K.; Weil, Matthias

496 – Proton Intercalation into Bronze-type Vanadium Dioxide: Combined Experimental and Computational Analyses

Park, Sunghyun; Nishimura, Shin-ichi; Kitada, Atsushi; Yamada, Atsuo^{*}

510 – Ion Conductivity of Cubic Perovskite BaSn_{1-x}In_xO_{3-δ}H_x Oxyhydrides

Takahashi, Takuya; Kobayashi, Genki; Aoki, Yoshitaka^{*}

523 – Ion Conductivity of BaZr_{0.5}In_{0.5}O_{2.25}H_{0.5} Oxyhydride

Maeda, Ryosuke; Toriumi, Hajime; Aoki, Yoshitaka^{*}

527 – Surface B-site effect of La_{0.9}Sr_{0.1}MO_{3-δ} (M = Al, Ga, In and Yb) on the surface with X-ray and Infrared studies

Lee, Yi-Hsuan^{*}; Liu, Yi-xin; He, Cai-yen; Wu, Jia-ying

531 – Recycling inert cations in double perovskite enables the low-temperature operation of protonic ceramic cells

Xie, Yun; Shi, Nai^{*}; Chen, Ming^{*}

534 – B-Site Elements and Correlation with the Electron and Ionic Conductive Properties of Ba-Based Perovskite Structure Materials

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540 – Anisotropic Proton Migration in Hexagonal Perovskite Related Oxide

Kim, Hye-Sung^{*}; Youn, Yong; Hussain, Basharat; Ullah, Abid; Hong, Jong-Eun; Joh, Dong Woo; Lee, Seung-Bok; Song, Rak-Hyun; Park, Seok-Joo; Kim, Tae Woo; Choi, Yoonseok; Lim, Tak-Hyoung

545 – Structure and electrical properties of high-entropy cobaltites with double perovskites structure

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557 – Relationship between hydration and percolation in the proton conduction of the amino acid peptide Gly-X (X = Pro, Ser) and the creation of recombinant proton conductors based on Gly-Ser.

Semizo, Hitoki^{*}; Ohgishi, Yamato; Nishimura, Hitoshi; Matsuo, Yasumitsu^{*}

576 – Investigation of Ni Doping Effect on Layered Perovskite Air Electrode for Highly Efficient Reversible Protonic Ceramic Cells

Yun, Jiwon; Choi, Sihyuk^{*}

579 – A study on the characteristics of BaZrO₃-based electrolyte supported solid oxide electrochemical cells

Nam, Gyeong Duk; Lee, Gahyeon; Lee, Hyeon Jin; Kim, Tae Woo; Yun, Kyong Sik; Kim, Hye-Sung; Yu, Ji Haeng; Joo, Jong Hoon^{*}

582 – Water adsorption and surface protonic conduction on NiO

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588 – Proton H⁺ Self-Diffusion in Li-H Exchanged Li₆La₃ZrTaO₁₂ as Seen by Solid-State 1H NMR Relaxation

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594 – Modelling and Characterization of Negatrodes in Proton Ceramic Electrochemical Cells

Ewerhardt, Patrick^{*}; Norby, Truls; Bjørheim, Tor; Polfus, Jonathan

595 – Optimization of Hydride-Ion Conductivity of Perovskite-type structure in SrLiH₃–CaLiH₃–NaLiH₂ Quasi-Ternary System

Hirose, Takashi; Matsui, Naoki^{*}; Watanabe, Kenta; Saito, Takashi; Mori, Kazuhiro; Suzuki, Kota; Kanno, Ryoji^{*}; Hirayama, Masaaki^{*}

618 – Optimization of Composite Electrodes with Carbon Mesoporous Material and Functional Materials for Enhanced Supercapacitor Performance

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148 – Innovative architectures for nanostructured SOC oxygen electrodes: La₂NiO_{4+δ} and La₂NiO_{4+δ} – Ce_{0.9}Gd_{0.1}O_{2-δ} composites in focus

Spann, Michael; Steil, Marlu César; Laurencin, Jérôme; Djurado, Elisabeth^{*}

171 – UHV surface science on Solid oxide cell electrodes at controllable oxygen activity

Nenning, Andreas^{*}; Breitwieser, Stanislaus; Melcher, Christian; Kogler, Matthias; Valtiner, Markus; Fleig, Jürgen

202 – Investigating the atomic-scale effects of surface modifications on model surfaces of mixed ionic and electronic conducting oxides

Siebenhofer, Matthaeus^{*}; Nenning, Andreas; Blaha, Peter; Fleig, Juergen; Kubicek, Markus

247 – Ultrathin Interfacial Layers Affect Space Charges between Mixed Ionic and Electronic Conducting Oxides and SrTiO₃

Steinbach, Claudia^{*}; Schmid, Alexander; Boehme, Christin; Fleig, Juergen

364 – Synthesis and characterization of SrCoO_{3-δ}-based materials doped with 4d/5d elements (Ta, Nb, W, Mo) for use as air electrode materials for SOFC applications

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388 – Mechanistic Insights into Photo-current Enhancement in Strontium Titanate Heterojunctions under UV Illumination

Schmid, Alexander^{*}; Enzberger, Ludwig; Fleig, Juergen

425 – On Porous MgO Stabilized Zirconia from Laser Melting of a Preheated Ceramic

Merino, Rosa I.^{*}; Sanjuán, M. Luisa; Oliete, Patricia B.; Peña, José I.

484 – Superior transport and charge transfer in Ba₇Nb₄MoO₂₀ hexagonal perovskite electrochemical cells

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490 – Exploring the Potential of LSCrMn in Oxygen Ion Batteries via Chemical Capacitance Measurements

Wagner, Barbara^{*}; Schmid, Alexander; Fleig, Jürgen



495 – Evaluating the Potential of High Entropy Ruddlesden-Popper Oxides as Solid Oxide Cell Electrodes

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499 – Thermoelectric Properties of Composite Materials Based on Multicomponent Pyrochlore.

Lewoc, Damian^{*}; Miruszewski, Tadeus

512 – Isotopic Exchange Raman Spectroscopy (IERS) multidimensional analysis on Pr and Gd-doped ceria

Shen, Zonghao^{*}; Morales-Zapata, Miguel; Orera, Alodia; Laguna-Bercero, Miguel; Jiménez, Carmen; Burriel, Mónica

513 – Large-area planar Solid Oxide Cells for hydrogen production: evaluation of the electrochemical performance of LSM and LSCF electrodes

de la Torre-Gamarra, Carmen^{*}; Zueco-Vincelle, Juan^{*}; Campos-Galera, Andrés^{*}; Alconchel-Allué, Aida^{*}; Orera, Alodia^{*}; Laguna, Miguel Ángel

521 – Processing-structure-property relationships in BiFeO₃-BaTiO₃ lead-free ferroelectrics

Bishop, Sean^{*}; Neuman, Eric; Lowry, Daniel; Bachman, William; Dong, Wen; O'Brien, Christopher; McCoy, Chad

528 – In Situ NAP-HT-XPS Studies of La_{0.31}Sr_{0.58}Ti_{0.97}Ni_{0.03}O_{3-d} Thin Film SOFC Anode

Nurk, Gunnar^{*}; Kooser, Kuno; Ainsar, Mait; Möller, Priit; Kodu, Margus; Kelp, Glen; Romann, Tavo; Gallet, Jean-Jacques; Kukk, Edwin; Käämbre, Tanel; Hävecker, Michael

529 – EIS Characterization of La_{0.31}Sr_{0.58}Ti_{0.97}Ni_{0.03}O_{3-d} SOFC Thin Film Microelectrodes

Ainsar, Mait^{*}; Kooser, Kuno; Kodu, Margus; Kelp, Glen; Nurk, Gunnar^{*}

536 – Effect of B₂O₃ additive on the Sintering Behavior of Hexagonal Perovskite-related Ba₇Nb₄MoO₂₀

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538 – Heterostructured Double Perovskite Nanoparticle-decorated Perovskite Air Electrode for Solid Oxide Cells

Hong, Jong-Eun^{*}; Kim, Hye-Sung; Joh, Dong Woo; Lee, Seung-Bok; Lim, Tak-Hyoung; Park, Seok-Joo; Song, Rak-Hyun

539 – Novel La_{0.21}Sr_{0.26}Ca_{0.48}Ti_{0.95}Fe_{0.05}O_{3-δ} PERVOSKITES as a Hydrogen Electrode for Solid Oxide Electrolysis Cells

Paydar, Sara^{*}; Volobujeva, Olga; Lust, Enn; Nurk, Gunnar^{*}

544 – Characterization of La₂Ce₂O₇ and Y₂Zr₂O₇ using polarization effects via Kelvin Probe Force Microscopy

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550 – Mapping of Reduction Profiles for Improved Electrochemical Performance in SOCs

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551 – Dopant Clustering and Vacancy Ordering in Neodymium Doped Ceria

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554 – Defect and disorder engineering on tailored rare-earth oxides nanocatalysts

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559 – In situ transmission electron microscopy of phase transformations in solid state ionic materials for carbon capture sorbents and solid oxide cells

Wardini, Jenna; Martinez, Jenny; Bowman, William^{*}

570 – Oxygen Permeability and Structural Stability of BaCo_{0.7}Fe_{0.25}Zr_{0.05}O_{3-δ} Oxygen Transport Membrane for Hydrogen Production

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571 – Effects of the microstructure of the metal support on the performance of metal-supported solid oxide fuel cell

Jin, ZhengDao; Park, HeeJung^{*}; Woo, SungHun

572 – Oxide-Ion Conductivity and Ion Migration Mechanism of Ba₇Nb₄MoO₂₀-based Materials

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573 – Optimization and application of a novel two-volume measurement setup for high-temperature electrolyzer cells

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583 – High-temperature reaction setup for in-situ catalytic experiments

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590 – The Effect of Basic Binary Oxide Infiltration on Oxygen Electrodes

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603 – Lone-pair driven order-disorder phase transition in Bi_{0.8}Pr_{0.2}O_{1.5} oxide ion conductor
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576 – CGO-Cu cermet characterization by in situ scattering measurements with a dilatometer
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502 – Revolutionizing Clean Energy Labs: Robotic Imitation Learning for Efficient Cathode Deposition
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525 – Degradation tests of affordable fuel electrode supported solid oxide cells
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546 – First-Principles Study Exploring the Influence of Structural Vibrational Entropy on Thermally Regenerative Electrochemical Systems
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566 – Finetuning of Bismuth-based Photoelectrodes Through Chemical Solution Deposition Routes Towards Green Hydrogen and CO₂RR
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614 – Ammonia as a Direct Fuel for Solid Oxide Fuel Cells: Long-Term Testing and Durability Analysis
Joh, Dong Woo^{*}; Muneeb Ur Rehman, Mian; Hussain, Amjad; Kim, Tae-Hun; Shin, Ji-Weon; Hong, Jon-Eun; Lim, Ak-Hyoung; Song, Rak-Hyun



580 – Charge Carrier Dynamics of the Mixed Conducting Interphase in All-Solid-State Batteries: Lithiated LATP as a Case Study

Scheiber, Thomas; Marko, Annika; Gadermaier, Bernhard; Finsgar, Matjaz; Wilkening, H. Martin

610 – Reaction Mechanism of Li₂FeSO Cathode Material at All-Solid-State Battery

Hikima, Kazuhiro^{*}; Nishimoto, Maro; Matsuda, Atsunori

532 – Effect of Pb 6s² lone pair on potential flattening of fluoride-ion conduction in CsPbF₃

Matsui, Naoki^{*}; Murakami, Miwa; Mori, Kazuhiro; Saito, Takashi; Shimizu, Keisuke; Suzuki, Kota; Kanno, Ryoji^{*}

560 – Development of Intercalation Anode Materials for Fluoride-ion Batteries : Magnéli Phase Ti_xO

Shimo, Yusuke^{*}; Matsui, Naoki; Kanno, Ryoji

562 – Intercalation Reaction of Y₂C as an Anode Material for Fluoride-Ion Batteries

Tojigamori, Takeshi^{*}; Matsui, Naoki; Kanno, Ryoji

581 – Fluoride ion conductors based on MSnF₄ (M=Pb , Ba) solid electrolyte prepared by mechanical milling

Mineshige, Atsushi^{*}; Sugiura, Maiko