European Materials Research Society

2025 Spring Meeting

May 26 - 30 | Strasbourg Convention Centre

View symposium details

SYMPOSIUM L

Solid state batteries: materials, processing and advanced characterization

Oral sessions : BERLIN - GROUND FLOOR
Poster sessions : ETOILE - FIRST FLOOR

Symposium Organizers:

Alex MORATA (Main organizer), Catalonia Institute for Energy Research (IREC), Spain

Francesco CIUCCI, University of Bayreuth, Germany

Kelsey B. HATZELL, Princeton University, Department of Mechanical and Aerospace Engineering USA

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Monday May 26

LO1 Electrolytes (I)

View session abstracts

08:45	1528	Stable Hydroborate Solid-State Lithium Battery with High-Voltage NMC811 Cathode **BATTAGLIA Corsin (Invited)**
09:15	2619	The Impact of Fluorination/Iodization on the Li Metal|Single-Ion Conducting Polymer Electrolyte Interface **OWENSBY Kyra**
09:30	2971	Understanding the LiBr–LiOH Phase Diagram and its Implications for Antiperovskite Solid Electrolyte Synthesis **MILAN Emily**
09:45	679	Hybrid solid electrolytes for lithium and sodium ion batteries: from ionogels to eutectogels. **HARDY An**

Monday May 26

LO2 Anodes

View session abstracts

10:30	1839	Lithium metal anodes: strategies for safer batteries, from liquid to solid state. **ARBIZZANI Catia (Invited)**
11:00	2368	Techno-economic assessment of thin lithium metal anodes for solid-state batteries **BURTON Matthew**
11:15	801	Enhancing All-Solid-State Fluoride-Ion Batteries with Nickelate- and Titanate-Based Oxyfluorides as High Cyclic Stability Anode Materials **AALTO Tommi**
11:30	1201	Designing Lithium Alloy Anodes for Solid-State Batteries **ASPINALL Jack**
11:45	3189	Scalable Strategies for Silicon Anodes in All-Solid-State Batteries: Overcoming Expansion and Interface Challenges **Song Jiangxuan**

Monday May 26

LO3 Ion transport and interfaces (I)

View session abstracts

13:45	2946	Atomistic Insights into Solid Electrolyte Materials: Conduction Mechanisms and Interface Effects **ISLAM Saiful (Invited)**
14:15	2448	Uncovering the Relationship Between Electrolyte Chemistry and Solid Electrolyte Interphase Growth in Solid-State Batteries **JAGGER Ben**
14:30	2909	Assessing the Impact of Cellulose and Single-ion Conducting Polymer coatings on Solid State Lithium Metal batteries. **Vargas-Ordaz Mariana**
14:45	2548	High-Performance Thin-Film Silicon Anodes with SiOx and Protective Layers for Solid-State Lithium-Ion Batteries **Loka Chadrasekhar**
15:00	1749	Improved interface stability in NASICON-type solid electrolytes with oxide and oxide-metal interlayers **CASTELLÓ LUX Kevin**
15:15	2488	A removable self-stratifying epoxy vitrimer /PVDF coating for lith-ium metal batteries **KERRACHE Alban**
15:30	2627	Development of mixed ion-electronic conducting garnet architecture for dendrite-free solid-state lithium-metal batteries **Choi Sung Ryul**
15:45	2975	Investigating interfaces in solid-state batteries with PLD-fabricated Li-metal anodes and sulfide electrolyte thin films **ORUE Ander**

Monday May 26

LP01 Poster session

View session abstracts

16:30	01_1080	Quasi-solid-state electrolytes based on polyimide paper and ionic liquid **ZHENNI He**
16:30	02_1081	Is the Li-ion transport number an accurate descriptor of the performance of lithium metal batteries using localized highly concentrated electrolytes? **ISHFAQ Hafiz Ahmad**

16:30	03_1101	Enhancing Aqueous Zinc-Ion Batteries with ZnO Nanowire-Decorated Anodes: A Path to Superior Stability and Performance **Adhami Sadaf**
16:30	04_121	Unified Strategies for Optimizing the Electrode-Electrolyte Interface in Aluminum-Metal Batteries **KUMAR Sonal**
16:30	05_125	Unlocking the potential of a chemically modified blue phosphorene as anode materials for high-performance sodium-ion batteries **REGRAGUI Nohayla**
16:30	06_1334	Enhancing the sinterability and performance of garnet-structure-based electrolytes via liquid-phase sintering for all-solid-state batteries **YOO Seojeong**
16:30	07_1426	Transforming Solid-State Garnet Interfaces into High-Performance Oxyhalide Electrolytes through Low-Temperature Processing **JO Unhyeon**
16:30	08_1494	Molecular engineering in quasi-solid polymer electrolyte enabling stable electrode-electrolyte interface for high-performance sodium metal battery **SASIKUMAR KALA Vineeth**
16:30	09_1572	A Multifunctional SPAN Cathode Additive to Fix the Capacity-loss of Room-temperature Sodium-Sulfur Pouch Cell **SUNGJEMMENLA Sungjemmenla**
16:30	10_1644	NEXTCELL Project: Development of new generation Lithium-Ion Batteries **RAVIOLO Sofia**
16:30	11_1662	Interface design for all-solid-state lithium metal batteries **NAM Ki-Hun**
16:30	12_1757	A Practical Quasi-Solid-State Electrolyte for Fluoride-ion Batteries at Room Temperature **CUI Hong**
16:30	14_2133	Flash lamp annealing of $LiCoO_2$ thin films for all-solid-state batteries **VELS Wouter**
16:30	15_2168	Metallic Silver Nanoparticles as Innovative Fillers for High-Performance PEO-Based Solid Electrolytes **LEE Daeun**
16:30	16_2374	A comprehensive study of an alkali-tolerant PAA-based gel polymer electrolyte membrane with high water retention for zinc-air batteries **KUMARI Vandana**
16:30	17_2421	PECVD method for default engineering of manganese oxide as cathode material to achieve performant aqueous Zinc Ion Batteries (ZIB). **Seydi Yacouba**

16:30	20_2548	High-Performance Thin-Film Silicon Anodes with SiOx and Protective Layers for Solid-State Lithium-Ion Batteries **Loka Chadrasekhar**
16:30	22_2922	Operando SAXS/WAXS Reveals Solution-Mediated Li_2O_2 Growth in Lithium-Air Batteries: Redefining Discharge Mechanisms and Capacity Limitations **Hurtado Pedro**
16:30	23_2937	Mechanism of Bilayer Polymer-Based Electrolyte with Functional Molecules in Enhancing the Capacity and Cycling Stability of High-Voltage Lithium Batteries **LIU Jinhai**
16:30	24_2978	Optimal Control Strategies to Suppress Lithium Dendrites in Solid-State Batteries **NGONGANG NDJAWA Guy Olivier**
16:30	25_3006	Coatings Based On Single-Ion Conducting Polymers For High-Voltage Cathode Materials **Guerrero Mejía Luis Miguel**
16:30	26_3015	Exploring Irreducible electrolytes for Next Generation Sodium solid state batteries." **SASIKUMAR Ganga**
16:30	29_520	Coprecipitation Strategy and Atmospheric-Dependent In Situ Analysis: Unveiling the Structural and Atmospheric Evolution of Li_3InCl_6 Solid-State Electrolyte **BILO Josanelle Angela**
16:30	30_528	Eco-Friendly CMC-Citric Acid Cross-linked Gel Electrolyte for Long-Life, Dendrite-Free Quasi-Solid-State Zinc-Ion Batteries **GANGULY Sreshtha**
16:30	31_637	Introducing vitrimers in electrolytes for lithium-metal batteries **FROMENT Oriane**
16:30	32_853	Exploring the correlation between the chemical potentials of lithium and oxygen in the lithium-ion battery cathode material $LiMn_2O_4$ **BOCK Johannes**
16:30	29_1019	Thick cathode composite electrode for High energy density all solid state batteries **KIM Kyungsu**

Tuesday May 27

LO5 Manufacturing

View session abstracts

08:30	1877	Computational modeling and optimization of the manufacturing process of solid state battery electrodes **FRANCO Alejandro (Invited)**
09:00	828	Precision Laser Cleaving of Thin Ceramics for Solid-State Batteries **COLLINS Adam**
09:15	2780	Thin electrolyte layer of NASICON obtained by tape casting followed by spark plasma sintering for sodium all-solid-state battery. **CHARRIER Sébastian**
09:30	172	Oxide-based all-solid-state batteries: cutting costs using reactive sintering **FINSTERBUSCH Martin (Invited)**

Tuesday May 27

LO6 Ion Transport and Interfaces (II)

View session abstracts

10:30	3148	Lithium, Speed & Interfaces - Designing Interfaces for Next Solid Battery Materials **RUPP Jennifer L.M (Invited)**
11:00	1438	Study of structural disorder and electrochemical degradation in bromine-rich argyrodites for all-Solid-State lithium-ion Batteries **QU Yaxin**
11:15	3024	Lithiation depth profiling in metal Li-ion battery components investigated by ion beam analysis **GALINDO SANZ Arturo**
11:45	2861	Improving Lithium-Polymer Interface with LiNO3 in a Single Ion Polymer Electrolyte **SHAO Yunfan**

Tuesday May 27

LO7 Electrolytes (II)

View session abstracts

13:45	2315	UCl3-Typed Halide Superionic Conductor: Non-Close-Packed Anion Framework **YAO Hongbin (Invited)**
14:15	513	3D Printing of all solid state (polymer) Li-Ion Batteries by Fused Filament Fabrication for In-Space Applications **DUPONT Loic**
14:30	827	Thermal Properties and Stability of LPSCl Solid Electrolytes **SEDYKH Alexander**
14:45	2912	Kinetically-enhanced gradient modulator enables wide-temperature ultralong-life all-solid-state lithium-sulfur batteries **LI Hao**
15:00	2940	Solvent-free extrusion process of PEO-polycarbonate blends as electrolytes for Li-ion batteries **GASTALDI Matteo**
15:15	2862	Polyester-based Polymer Electrolytes with an Extended Electrochemical Stability Window for Solid-State Lithium Metal Batteries **SHAO Yunfan**
15:30	432	Pioneering Wet Chemical Synthesis Route for High-Purity and Scalability of Sodium Solid State Electrolyte: Boosting Ion Conductivity in Next-Gen Solid-State Sodium Batteries **SHAIKH Saddam Shoukat Ali**
15:45	2599	Stimuli-responsive electrolytes: Dynamic self-assembly/healing meets Lithium Metal Batteries **Deniger Bertrand**

Tuesday May 27

LO8 Electrolytes (III)

View session abstracts

16:30	2442	Improving cyclability of sulfide-based all solid-state batteries **Shao Minhua (Invited)**
17:00	257	Wet-Approach of Halide Solid-State Electrolytes: From Synthesis to Atmospheric-Dependent In-Situ Characterization **FANG Mu-Huai**
17:15	2550	Development and Study of Solid-State Electrolyte (SSE) based on Sodium Manganese Chloride (SMC): Synthesized by Facile Annealing Process **SINGH Gaganjot**

17:30	1135	Li-ion battery electrolyte achieved through the encapsulation of ionic liquids based lithium-containing ionic liquid within the metal-organic framework ZIF-8 **YANG Wen**
17:45	1770	Development of a PVDF-PC-LiTFSI Gel Polymer Electrolyte via Solvent-Free Processing for Lithium-Ion Batteries **NEL-LO Marc**
18:00	2764	Quasi-Solid Polymer Electrolytes for High-Voltage Li Metal Batteries **BOARETTO Nicola**
18:15	514	Elucidating the Li-ion solvation structure in PVDF-based quasi-solid electrolytes **CERIBELLI Nicole**

Wednesday May 28
L09 Beyond Lithium

View session abstracts

08:30	2955	Advanced Polymer-Based Electrolytes with High Ionic Mobility and Sustainable Solutions for Safe Solid-State Battery Operation **DARJAZI Hamideh (Invited)**
09:00	745	Effects of 3D-continuous NASICON Framework in Hard Carbon Electrode Layer for Na-ion All Solid-State Batteries **HASEGAWA George**
09:15	910	Operando and Pressure analysis: Unblocking the Potential of Conversion-based BiF3 Cathodes in All-Solid-State Fluoride-Ion Batteries **CHEN Hong**
09:30	482	Sodium-Ion Battery Multi-scale Parameterization and Performances **Ovhal Manoj**
09:45	169	Suppressing chemical reactivity of Na metal with Na3PS4-derived solid-state electrolytes by heteroatom doping: a computational-experimental approach **BEKAERT Lieven**

Wednesday May 28
L10 Materials exploration and operando characterization

View session abstracts

10:30	2807	Exploring the Compatibility of Halide Bilayer Separators in All-Solid-State Batteries **CANEPA Pieremanuele (Invited)**
11:00	18	Hybrid Machine Learning Optimization of Polymer-Based Materials to Enhance Fire Safety in Lithium-Ion Batteries **WUDIL Yakubu Sani**

11:15	798	Unveiling Nanoscale Dynamics in Thin Film Cathodes via Operando Tip-Enhanced Raman Spectroscopy **LAURENTI Beatrice**
11:45	1800	Applications of rapid operando impedance to solid-state batteries **HUANG Jake**

Wednesday May 28
L11 Thin film batteries

View session abstracts

13:45	2031	Epitaxial interface engineering for thin film microbatteries **HUIJBEN Mark (Invited)**
14:15	2164	Thin-film Me-Li-F conversion cathodes for high-energy solid-state batteries **CASELLA Joel**
14:30	1609	Pulsed Laser Deposited $Li_4Ti_5O_{12}$ Integrated on Silicon for Thin Film Microbatteries and Neuromorphic Applications **BAIJU Adil**
14:45	1986	Role of lithium precursors in tuning conformality of potential 3D thin-film microbattery components **PHILIP Anish**
15:00	1783	Development of PLD-grown $LiMn_2O_4$ and $LiFePO_4$ cathodes for solid-state thin film batteries with LiPON and NASICON electrolytes **GONZALEZ-ROSILLO Juan Carlos**
15:15	884	All-oxide all-solid-state micro Li-ion batteries **MONTAZERIAN Mohammadhossein**