

Warwick Battery Days (WBD 2024) University of Warwick 20-21 June 2024



Time Speaker / event Title / venue 09:00 **Registration opens / Coffee** Scarman Reception / Lounge area 10:00 Bora Karasulu **Opening Remarks** Session 1 Chair: Louis Piper 10:10 David Greenwood (keynote) Future battery needs of the automotive industry, University of Warwick / WMG and the UK R&D infrastructure needed to support it 10:50 Paul R. Shearing Understanding battery materials using advanced University of Oxford X-ray and correlative imaging methods 11:20 Matteo Bianchini P2-type sodium layered oxides doped with redox-inactive elements and halide solid University of Bayreuth electrolytes for Na-ion and Na-solid state batteries 11:50 Raj Pandya Femto and picosecond charge dynamics in University of Warwick battery cathodes 12:05 Lunch Scarman Lakeview Restaurant Session 2 **Chair: Matteo Bianchini** 13:00 Saiful Islam (keynote) From Lithium-Rich Cathodes to Thiophosphate University of Oxford Solid Electrolytes: Insights into Battery Materials on the Atomic Scale 13:40 Rhodri Jervis Uncovering cracking using advanced in situ x-ray University College London imaging methods 14:10 Siân Dutton The role of the Fe metal impurity in the University of Cambridge electrochemical properties of MgFeB₂O₅ 14:40 Ferran Planella Brosa Continuum models for lithium-ion batteries: a University of Warwick mathematical approach 15:00 Coffee break (poster set-up) Scarman Lounge Area Session 3 Chair: Ioan-Bogdan Magdau Large-scale quantum atomistic and multiscale 15:30 Chris-Kriton Skylaris University of Southampton simulations of batteries 16:00 Huseyin Sener Sen Atomistic Simulations of Interfaces within All-University of Warwick Solid-State Batteries: A special case of Lithium 16:15 Paolo Melgari Performance Enhancement of Nickel University of Warwick / WMG Manganese Cobalt Oxide Cathodic Material by **Advanced Coatings** 16:30 -Space 24 (Free refreshments served in Space 25) Poster Session 18:00 19:00 Conference Dinner Scarman Lakeview Restaurant (ticketed event)

Day 1 – Thursday, 20th June

All talks will take place in the Tiered Lecture Theatre



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Day 2 – Friday, 21st June

Time	Speaker / event	Title / venue
09:00	Registration / Morning Coffee Session 4 – Battery Industry	Scarman Reception / Lounge area Chair: Chris-Kriton Skylaris
10:00	Emma Kendrick (keynote) University of Birmingham	Sustainable Battery Design
10:40	Felix Hanke Dassault Systèmes BIOVIA	Automated workflows for battery material performance and degradation
11:00	Alice Merryweather illumion	Charge photometry: visualising single-particle state-of-charge and morphology changes
11:20	Jacob Gavartin Schrodinger Technologies Ltd	Atomistic modelling for battery materials development
11:40	Rowena Brugge Nyobolt	Bringing fast charging batteries to the market: the road to commercialisation for new anode materials
12:00	Lunch	Scarman Lakeview Restaurant
	<u>Session 5</u>	<u>Chair: Ivana Hasa</u>
13:00	Mark Phipps TA Instrument / Waters	Measuring impedance under rheological shear conditions in slurries as a predictor for conductive networks in finished electrodes
13:15	Peter Slater University of Birmingham	Towards new battery electrode materials through synthesis and structure control
13:45	Pooja Goddard Loughborough University	Solid State Ionic Modelling of Niobium Based Oxides for Battery Applications
14:15	Masoud Jabbari University of Leeds	Modelling battery electrode manufacturing: coating, drying, and calendaring
14:30	Ioan-Bogdan Magdau Newcastle University	New Frontiers for Molecular Modelling: the Li-ion Battery from First Principles
14:50	Poster prizes	Tiered Lecture Theatre
15:00	Coffee break	Scarman Lounge Area
	Session 6	<u>Chair: Bora Karasulu</u>
15:30	leuan Seymour University of Aberdeen	The role of Na substitution on structural transformations in layered Na-ion battery cathode materials
15:50	Ivana Hasa University of Warwick / WMG	Elucidating Dehydration of Prussian White cathodes: A Journey from Lab to Upscaled Sodium-ion Cell Prototypes
16:10	Alex Robertson University of Warwick	Identifying and preventing degradation in metal anodes
16:30		Closing remarks

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