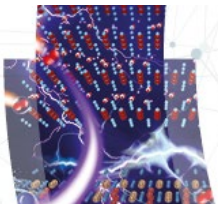
Rechargeable non-aqueous metal-oxygen batteries

18-20 September 2023 | York, UK and online



Faraday Discussions

Monday 18 September 2023 (all timings are BST)

12:00	Registration and lunch
12:45	**Welcome and Introductions** Laurence Hardwick, *Chair of Scientific Committee*
12:55	**Outline of Discussion format** Michael Spencelayh and Kate Tustain, *Royal Society of Chemistry*
13:00	**Introductory Lecture** Clare Grey *University of Cambridge, UK*
	Session 1: Materials for stable metal–oxygen battery cathodes (Session chairs: tbc)
14:00	Refreshments
14:30	**tbc** Nagore Ortiz-Vitoriano *CIC Energigune, Spain*
14:35	**Lithium superoxide stabilization through Ir_3Li/rGO and implication toward high energy capacity Li-O_2 batteries** Hsien-Hau Wang *Argonne National Laboratory, USA*
14:40	**Feasibility of Achieving Two-Electron K-O2 Batterie** Yiying Wu *Ohio State University, USA*
14:45	Discussion
16:00	**Flash poster presentations**
16:30	**Poster session and wine reception**
18:00	Close of sessions

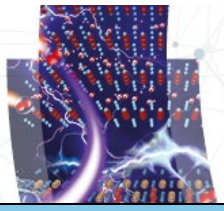
Tuesday 19 September 2023 (all timings are BST)

	Session 2: Mechanism of ORR and OER in non-aqueous electrolytes (Session chairs: tbc)
09:00	**K-O_2 Electrochemistry at Au|DMSO Interface Probed by Spectro- and Computational Electrochemistry** Zhangquan Peng *Laboratory of Advanced Spectroelectrochemistry & Li-ion Batteries, China*
09:05	**Effect of alkali metal cation on oxygen adsorption onto Pt single crystal electrodes in non-aqueous electrolytes** Gary Attard *University of Liverpool, UK*
09:10	**Unraveling the Solvent Stability on the Cathode Surface of the Li-O_2 Battery by Using In Situ Vibrational Spectroscopies** Shen Ye *Tohoku University, Japan*
09:15	Discussion
10:30	Refreshments
	Session 2 continued (Session chairs: tbc)
11:00	**Solid-state Li-O_2 batteries:new discharge and charge mechanisms** Larry Curtiss *Argonne National Lab, USA*
11:05	**Effect of solvent-iodide interactions in the discharge process of iodide-mediated LiO_2 batteries – a molecular dynamics study**

	Erlendur Jónsson *University of Cambridge, UK*
11:10	**Dissolved LiO_2 or adsorbed LiO_2? More reactive superoxide causes side reactions during discharging in Li-O_2 batteries** Yuhui Chen *Nanjing Tech University, China*
11:15	Discussion
12:30	Lunch
	Session 2 continued: (Session chairs: tbc)
13:30	**Singlet oxygen in non-aqueous oxygen redox: direct spectroscopic evidence for formation pathways and reliability of chemical probes** Stefan Freunberger *Institute of Science and Technology Austria, Austria*
13:35	**Detecting and suppressing spurious singlet oxygen in operando Li-O_2 batteries** Ernesto Julio Calvo *CONICET. University of Buenos Aires, Argentina*
13:40	Discussion
14:30	Refreshments
	Session 3: Metal anodes and protected interfaces (Session chairs: tbc)
15:00	**Understanding the stability and kinetics of the Li metal/solid electrolyte interface** Jeff Sakamoto *University of Michigan, USA*
15:05	**Toward Solid-State Li-Air Batteries; An SOFC Perspective of Solid 3D Architectures, Heterogeneous Interfaces, and Oxygen Exchange Kinetics** Eric Wachsman *University of Maryland, USA*
15:10	**Insights into Soft Short Circuit-based Degradation of Lithium Metal Batteries** Svetlana Menkin *University of Cambridge, UK*
15:15	Discussion
16:30	Close of sessions
18:30	Pre-dinner drinks
19:00	Conference dinner

Wednesday 20 September 2023 (all timings are BST)

	Session 4: Towards practical metal–oxygen batteries (Session chairs: tbc)
09:00	**tbc** Lynden Archer *Cornell University, USA*
09:05	**Cycling of a lithium-oxygen battery with a gas diffusion electrode and redox mediators** Xiangwen Gao *University of Oxford, UK*
09.10	**Recent works on the cathode catalyst of molten salt lithium oxygen battery** Yongdan Li *Aalto University, Finland*
09:15	Discussion
10:30	Refreshments
	Session 4 continued



	(Session chairs: tbc)
11:00	**Critical factor for determining performance of practically high energy density designed rechargeable lithium-oxygen batteries** Shoichi Matsuda *National Institute of Materials Science, Japan*
11:05	**Engineering considerations for practical non-aqueous Lithium-air electrolytes** James Ellison *University of Cambridge, UK*
11.10	**A Lithium-air Battery and Gas Handling System Demonstrator** Jack Jordan *University of Nottingham, UK*
11:15	Discussion
12:30	**Concluding remarks lecture** Jürgen Janek *Justus-Liebig-Universität Gießen, Germany*
13:10	**Acknowledgements**
13:15	Close of meeting and lunch

Please note that this is a draft programme and timings may change.