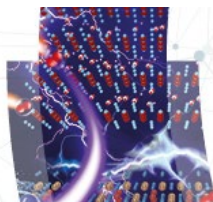


Rechargeable non-aqueous metal-oxygen batteries

18-20 September 2023 | York, UK and online



Faraday Discussions

Monday 18 September 2023 (all timings are BST)

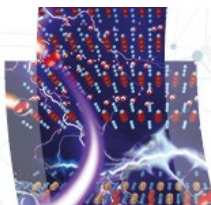
12:00	Registration and lunch
12:45	Welcome and Introductions Laurence Hardwick, <i>Chair of Scientific Committee</i>
12:55	Outline of Discussion format Michael Spencelayh and Kate Tustain, <i>Royal Society of Chemistry</i>
13:00	(Session chair: Laurence Hardwick) Spiers Memorial Lecture - Introductory Lecture Clare Grey <i>University of Cambridge, UK</i>
14:00	Refreshments
	Session 1: Materials for stable metal–oxygen battery cathodes (Session chair: Peter Bruce)
14:30	Bio-based ether solvent and ionic liquid electrolyte for sustainable sodium–air batteries Nagore Ortiz-Vitoriano <i>CIC Energigune, Spain</i>
14:35	Template assisted lithium superoxide growth for lithium–oxygen batteries Hsien-Hau Wang <i>Argonne National Laboratory, USA</i>
14:40	Feasibility of achieving two-electron K–O₂ batteries Yiyang Wu <i>Ohio State University, USA</i>
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 chair: Lee Johnson)
09:00	K–O₂ electrochemistry at Au/DMSO interface probed by <i>in situ</i> spectroscopy and theoretical calculations Zhangquan Peng <i>Laboratory of Advanced Spectroelectrochemistry & Li-ion Batteries, China</i>
09:05	Effect of alkali-metal cation on oxygen adsorption onto Pt single crystal electrodes in non-aqueous electrolytes Gary Attard <i>University of Liverpool, UK</i>
09:10	Unraveling the solvent stability on the cathode surface of Li–O₂ batteries by using <i>in situ</i> vibrational spectroscopies Shen Ye <i>Tohoku University, Japan</i>
09:15	Discussion
10:30	Refreshments
	Session 2 continued (Session chair: Jürgen Janek)
11:00	A solid-state Li–air battery: computational studies of interfaces and relevance to discharge mechanism Larry Curtiss <i>Argonne National Lab, USA</i>

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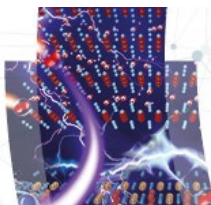
11:05	Solvent-dependent iodide interactions in LiO₂ electrolytes – a molecular dynamics study Erlendur Jónsson <i>University of Cambridge, UK</i>
11:10	Dissolved LiO₂ or adsorbed LiO₂? The reactive superoxide during discharging process in lithium–oxygen batteries Yuhui Chen <i>Nanjing Tech University, China</i>
11:15	Discussion
12:30	Lunch
	Session 2 continued: (Session chair: Clare Grey)
13:30	Singlet oxygen in non-aqueous oxygen redox: direct spectroscopic evidence for formation pathways and reliability of chemical probes Stefan Freunberger <i>Institute of Science and Technology Austria, Austria</i>
13:35	Operando detection and suppression of spurious singlet oxygen in Li–O₂ batteries Ernesto Julio Calvo <i>CONICET. University of Buenos Aires, Argentina</i>
13:40	Discussion
14:30	Refreshments
	Session 3: Metal anodes and protected interfaces (Session chair: Nagore Ortiz-Vitoriano)
15:00	Effect of depth of discharge (DOD) on cycling <i>in situ</i> formed Li anodes Jeff Sakamoto <i>University of Michigan, USA</i>
15:05	Toward solid-state Li–air batteries: an SOFC perspective of solid 3D architectures, heterogeneous interfaces, and oxygen exchange kinetics Eric Wachsman <i>University of Maryland, USA</i>
15:10	Insights into soft short circuit-based degradation of lithium metal batteries Svetlana Menkin <i>University of Cambridge, UK</i>
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 chair: Eric Wachsman)
09:00	Self-sufficient metal–air battery systems enabled by solid-ion conductive interphases Lynden Archer <i>Cornell University, USA</i>
09:05	The accumulation of Li₂CO₃ in a Li–O₂ battery with dual mediators Xiangwen Gao <i>University of Oxford, UK</i>
09:10	A facile coprecipitation approach for synthesizing LaNi_{0.5}Co_{0.5}O₃ as the cathode for a molten-salt lithium–oxygen battery Yongdan Li <i>Aalto University, Finland</i>
09:15	Discussion

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Faraday Discussions

10:30	Refreshments
	Session 4 continued (Session chair: Laurence Hardwick)
11:00	Evaluation of performance metrics for high energy density rechargeable lithium–oxygen batteries Shoichi Matsuda <i>National Institute of Materials Science, Japan</i>
11:05	Engineering considerations for practical non-aqueous lithium–air electrolytes James Ellison <i>University of Cambridge, UK</i>
11:10	A lithium–air battery and gas handling system demonstrator Jack Jordan <i>University of Nottingham, UK</i>
11:15	Discussion
12:30	(Session chair: Laurence Hardwick) Concluding remarks lecture Jürgen Janek <i>Justus-Liebig-Universität Gießen, Germany</i>
13:10	Acknowledgements
13:15	Close of meeting and lunch