THE FARADAY INSTITUTION

University of Nottingham
UK | CHINA | MALAYSIA

Faraday Institution Conference 2026

Next Frontiers in Energy Storage

Tuesday 8 September | East Midlands Conference Centre, University of Nottingham

08:30-10:00	**Registration and refreshments**

10:00-10:10	**Welcome Address | Main Theatre** **Professor Martin Freer, CEO, Faraday Institution**
10:10-10:20	**Host's Welcome | Main Theatre** **University of Nottingham**
10:20-10:30	**Opening Remarks | Main Theatre**
10:30-11:20	**Academic Keynote Talk | Main Theatre** **Professor Yet-Ming Chiang, Kyocera Professor of Materials Science and Engineering, MIT (Massachusetts Institute of Technology)**
11:20-12:00	**Industry Keynote Talk | Main Theatre** **Dr Fanny Bardé, Founder and CTO, SOLiTHOR**

12:00-14:00	**Lunch and Exhibition**

14:00-16:00 *Parallel Session* Main Theatre

Session | Solid State Electrolytes and Cells

Chaired by: Dr Dominic Spencer-Jolly, University of Birmingham

This session focuses on solid-state electrolytes and cells, with perspectives from the SOLBAT project within the Faraday Institution. Discussion will centre on interfacial engineering strategies and dendrite suppression, alongside innovations in garnet, sulfide, and polymer electrolyte materials. Consideration will be given to manufacturability and scalable fabrication routes, reflecting the requirements for practical deployment. In situ analysis of solid–solid contact evolution will be discussed in relation to performance and stability, together with practical cell design considerations and the failure modes that arise in solid-state battery systems.

14:00-14:40	**Plenary talk: Professor Mauro Pasta, Professor of Applied Electrochemistry, University of Oxford** *The lithium-argyrodite interface in solid-state batteries*
14:40-15:00	**Invited Talk: Dr Louise Turner, VP Product Development, Ilika Technologies**
15:00-15:20	**Selected Talk:**
15:20-15:40	**ECR Talk:**
15:40-16:00	**Selected Talk:**

14:00-16:00 *Parallel Session* Breakout 1

Session | Battery Safety and Abuse

This session focuses on battery safety and abuse, with perspectives from the SafeBatt project within the Faraday Institution. Discussion will cover thermal runaway prediction and prevention, as well as tolerance to mechanical and electrical abuse. Topics will include the role of inorganic separators and fire suppression systems, alongside gas generation and venting mechanisms in cells under abuse conditions. Safety standards and certification requirements will also be discussed, reflecting their importance for the safe deployment of battery technologies across applications.

14:00-14:20	**Selected Talk:**
14:20-14:40	**Invited Talk: Professor Paul Shearing, Professor of Sustainable Energy Engineering, University of Oxford**
14:40-15:20	**Plenary talk: Annika Ahlberg Tidblad, Technical Leader Battery Safety and Legislation, Volvo Cars** *Battery Safety from "atom to system" level*
15:20-15:40	**ECR Talk:**

15:40-16:00	**Selected Talk:**

14:00-16:00 *Parallel Session* Breakout 2

Session | Grid Scale and Sustainable Energy Storage

Chaired by: Professor Darren Walsh, University of Nottingham

This session focuses on grid-scale and sustainable energy storage, bringing together perspectives from the NEXGENNA project and UltraStore transformational challenge within the Faraday Institution. Discussion will centre on long-duration energy storage technologies that support resilient, low-carbon power systems, with particular attention to emerging chemistries such as sodium-ion, iron–air, redox flow, magnesium, and calcium batteries. Consideration will be given to system-level sustainability, including lifecycle and environmental impact analysis, alongside the practical challenges associated with large-scale deployment, such as cost, policy frameworks, and community integration. Improving durability and reducing degradation in large-format storage systems will also form a key part of the discussion, reflecting their importance for reliable, long-lived grid infrastructure.

14:00-14:20	**Selected Talk:**
14:20-14:40	**ECR Talk:**
14:40-15:00	**Selected Talk:**
15:00-15:20	**Invited Talk: Dr Nuria Tapia-Ruiz, Associate Professor in Energy Materials, Imperial College London**
15:20-16:00	**Plenary talk: Dr Alexandre Ponrouch, Institute of Materials Science of Barcelona (ICMAB-CSIC)**

16:00-16:40	**Break**

16:45-18:15

Accelerating Innovation: Partnerships and Pathways to Battery Commercialisation | Main Theatre

Chaired by: Ian Ellerington, Technology Transfer Director, Faraday Institution

Translating cutting-edge battery research into commercial products requires more than technical excellence – it demands the right partnerships, facilities, and support structures. This session explores the practical pathways that enable technologies to progress from laboratory innovation to market deployment. Through real-world case studies, speakers will highlight how collaboration between academia, industry, and technology transfer organisations can accelerate commercialisation. Attendees will gain insight into how to engage with supportive organisations, access industry-scale facilities, and navigate the technology transfer process to de-risk and scale emerging technologies.

Invited Talk: Dr Keri Goodwin, Chief Technologist, CPI

Battery Materials Scale-up: From Lab to Market

Invited Talk: Dr Richard LeCain, Chief Technology Officer, UKBIC

Invited Talk: Gelion Technologies

Invited Talk: Dr Ruth Sayers, Founder and CEO, AmpliSi

Q&A

18:15-20:30	**Exhibition Session**
18:15-20:30	**Poster Session**
18:15-20:30	**Welcome Networking Reception** **East Midlands Conference Centre, Beeston Ln, Nottingham NG7 2RJ** Catch up with existing colleagues and make new acquaintances at our welcome networking reception held on the first evening of the conference. Delegates will be treated to an evening of networking, exhibition and poster sessions all-in-one. This event is free to attend but must be pre-booked via the conference registration form. Food and drink will be provided.

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Wednesday 9 September | East Midlands Conference Centre, University of Nottingham

09:00-09:50	**Academic Keynote Talk | Main Theatre** **Professor Jürgen Janek, Professor of Physical Chemistry at Justus Liebig University in Giessen (JLU); Director of the JLU Center for Materials Research; and Scientific Director of the BELLA lab at KIT, Karlsruhe** *Will the Future of Batteries be Solid?*

09:50-10:30	**Morning Refreshments**

10:30-12:30 *Parallel Session* Main Theatre

Session | High Energy Batteries for Next-Gen Applications

Chaired by: Professor Lee Johnson, University of Nottingham

This session focuses on high-energy batteries for next-generation applications, drawing on perspectives from the LiSTAR project HighPerCell transformational challenge within the Faraday Institution. Discussion will encompass lithium-sulfur and lithium-air battery systems, alongside developments in high-energy cathodes and novel anode materials. Reaching energy densities of 500 Wh kg^{-1} will be a central theme, considered alongside the associated safety constraints and practical implementation challenges. Topics will also include lithium metal interface stabilisation and the ageing mechanisms that influence performance, reliability, and lifetime in high-energy cells.

10:30-11:10	**Plenary Talk: Professor Sir Peter Bruce, Wolfson Professor of Materials, University of Oxford** *The rechargeable lithium-air battery: Challenges and Progress*
11:10-11:30	**Invited Talk: TBC**
11:30-11:50	**Selected Talk:**
11:50-12:10	**ECR Talk:**
12:10-12:30	**Selected Talk:**

10:30-12:30 *Parallel Session* Breakout 1

Session | Recycling and Reuse of Batteries

Chaired by: Dr Jake Yang, University of Leicester

This session focuses on the recycling and reuse of batteries, with perspectives from the ReLiB project within the Faraday Institution. Discussion will cover approaches to direct recycling and chemical recovery, highlighting the advantages and challenges of each method. Topics will also include the use of automation and AI for efficient battery disassembly, strategies for second-life deployment of used batteries, and the recovery of critical materials to support sustainable supply chains. Broader circularity frameworks will also be explored, reflecting the role of recycling and reuse in enabling environmentally responsible and economically viable battery technologies.

10:30-10:50	**Selected Talk:**
10:50-11:10	**Invited Talk: Professor Mohamed Mamlouk, Professor of Electrochemical Engineering, Newcastle University**
11:10-11:50	**Plenary Talk: Professor Peter Slater, Professor in Materials Chemistry, University of Birmingham** *Li/Na ion battery recycling: taking the direct approach*
11:50-12:10	**Selected Talk:**
12:10-12:30	**ECR Talk:**

10:30-12:30 *Parallel Session* Breakout 2

Session | AI-Powered Discovery, Optimisation, and Manufacturing for Batteries

Chaired by: Dr James Le Houx, University of Greenwich

This session focuses on AI-driven discovery, optimisation, and manufacturing for batteries. Discussion will cover AI-guided discovery automation and the application of Bayesian optimisation frameworks for materials development. Topics will also include the standardisation of shared datasets, the development of cross-institution digital lab platforms, and the automation and robotisation of laboratories and manufacturing processes with integration into AI workflows, supporting faster, more efficient research, development, and production of battery technologies.

10:30-10:50	**Selected Talk:**
10:50-11:10	**ECR Talk:**
11:10-11:30	**Selected Talk:**
11:30-11:50	**Invited Talk: Dr Sam Cooper, Chief Scientist, Polaron AI** *Polaron: Small features; big impact*
11:50-12:30	**Plenary talk: Professor Tejs Vegge, Technical University of Denmark**

12:30-14:00	**Lunch and Exhibition**

14:00-16:00 *Parallel Session* Main Theatre

Session | Advanced Characterisation and Degradation

Chaired by: Dr Matthew Lacey, Scania

This session focuses on the characterisation of batteries at both the laboratory and facility scale, with perspectives from the Faraday Institution Degradation Project. Understanding and mitigating the mechanisms that limit battery life will be a major focus. Discussion will cover in situ and operando characterisation techniques, software and simulation tools, and advanced electrochemical methods used to investigate structural and morphological changes across multiple scales. Strategies for tracking battery health throughout its lifetime will also be explored, providing a foundation for developing longer-lasting and more reliable battery systems.

14:00-14:40	**Plenary talk: Professor Dame Clare Grey, Geoffrey Moorhouse Gibson Professor of Chemistry, University of Cambridge**
14:40-15:00	**Invited Talk: Dr Bethan Davies, Research Associate, Imperial College London**
15:00-15:20	**Selected Talk:**
15:20-15:40	**ECR Talk:**
15:40-16:00	**Selected Talk:**

14:00-16:00 *Parallel Session* Breakout 1

Session | Manufacturing, Formation and Supply Chain

Chaired by: Dr Keri Goodwin, CPI

This session focuses on manufacturing, formation, and the battery supply chain, drawing on perspectives from the Nextrode and FAST projects within the Faraday Institution. Discussion will include advances in dry electrode processing, as well as approaches to rapid formation and electrolyte wetting. Topics will cover supply chain localisation and the role of inline diagnostics and quality control in manufacturing environments. Net-zero manufacturing strategies will also be discussed, reflecting efforts to reduce the environmental impact of battery production while maintaining performance and scalability.

14:00-14:20	**Selected Talk:**
14:20-14:40	**Invited Talk: Dr Gabriele Pupo, Founder & CEO, FluoRok** *Next Generation Fluorochemicals Manufacturing for Li-ion Batteries*
14:40-15:20	**Plenary talk: Professor Emma Kendrick, Chair of Energy Materials, University of Birmingham**

15:20-15:40	**ECR Talk:**
15:40-16:00	**Selected Talk:**

14:00-16:00 *Parallel Session* Breakout 2

Session | Batteries for Aviation

Chaired by: Ritvik Anand, ATI

This session focuses on batteries for aviation, with an emphasis on high specific power and mass-optimised designs for flight. Discussion will cover the structural integration of cells within aircraft components and thermal management strategies for aerospace environments. Topics will also include certification and regulatory frameworks for airborne batteries, as well as hybrid systems and electrified propulsion approaches that support next-generation aviation technologies.

14:00-14:20	**Selected Talk:**
14:20-14:40	**ECR Talk:**
14:40-15:00	**Selected Talk:**
15:00-15:20	**Invited Talk: Sophie Chittam, Chief Project Engineer, Rolls-Royce**
15:20-16:00	**Plenary talk: TBC**

16:00-18:00	**Exhibition Session**
16:00-18:00	**Poster Session**
19:00-23:30	**Faraday Institution Conference Dinner & Community Awards** **St Mary's Church, High Pavement, Nottingham NG1 1HN** A must-attend for all registered delegates! Take advantage of more networking opportunities at the pre-dinner drinks reception, followed by a sit-down three-course dinner with fellow attendees. This year's dinner will take place in the historic and magnificent St Mary's Church, the City of Nottingham's largest remaining medieval building. Grade 1 listed and constructed over 500 years ago, the building is an icon of the prosperity that Nottingham enjoyed at the time. As is now tradition, as well as a pre-dinner drinks reception and three course meal, dinner guests will celebrate the winners of our Faraday Institution Community Awards announced on the night.

Faraday Institution Conference 2026

Next Frontiers in Energy Storage

Thursday 10 September | East Midlands Conference Centre, University of Nottingham

10:00-12:00 *Parallel Session* Main Theatre

Session | Advanced Lithium-Ion and Intercalation Electrodes

Chaired by: Professor Robert House, University of Oxford

This session focuses on advanced lithium-ion batteries, drawing on perspectives from the 3D-Cat and Degradation projects within the Faraday Institution. Discussion will encompass emerging cathode materials, including Li-rich, lithium nickel oxide (LNO), NMC811, and disordered rock-salt structures. Topics will include 3D electrode architectures and their role in enabling high-rate capability, as well as electrolyte additives and SEI design. Diagnosing and mitigating degradation mechanisms will be discussed alongside approaches to ultra-fast charging. The transition toward cobalt-light or cobalt-free chemistries will also form part of the discussion, reflecting ongoing efforts to improve sustainability and supply-chain resilience.

10:00-10:40	**Plenary Talk: Professor Gleb Yushin, Co-Founder & CTO, Sila Technologies and Professor at Georgia Institute of Technology** *Nanostructured Materials Define the Future of Li-ion Batteries*

10:40-11:00	**Invited Talk: TBC**
11:00-11:20	**Selected Talk:**
11:20-11:40	**ECR Talk:**
11:40-12:00	**Selected Talk:**

10:00-12:00 *Parallel Session* Breakout 1
Session | Battery Modelling
Chaired by: Dr Mona Faraji Niri, Associate Professor of Battery Modelling, WMG – University of Warwick
This session focuses on modelling and digital approaches for batteries, with perspectives from the Multi-Scale Modelling project within the Faraday Institution. Discussion will encompass multiphysics and multi-scale modelling, alongside the use of digital twins for predictive ageing. Topics will also include the integration of physics-based and machine learning models, as well as high-fidelity battery management system (BMS) integration to support performance prediction, optimisation, and safety.

10:00-10:20	**Selected Talk:**
10:20-10:40	**Invited Talk: Dr Monica Marinescu, Associate Professor, Imperial College London**
10:40-11:20	**Plenary Talk: Professor Weihan Li, Junior Professor for Artificial Intelligence and Digitalization for Batteries, RWTH Aachen University**
11:20-11:40	**Selected Talk:**
11:40-12:00	**ECR Talk:**

12:00-13:20	**Lunch and Exhibition**

13:20-13:50	**Invited Talk	Main Theatre** **Dr Halle Cheeseman, Program Director, ARPA-E** *In Pursuit of Transformational Battery Technology - Moonshots to Muddy Boots*
13:50-14:20	**Headline Sponsor Talk	Main Theatre** **TBC**
14:20-15:00	**Closing Panel Discussion – The Future of Batteries	Main Theatre** As the closing session of the Faraday Institution Conference 2026, this high-level panel will bring together four of the world's leading voices in battery science and innovation to reflect on the breakthroughs, challenges, and opportunities shaping the next era of energy storage. Tying together the conference theme of "Next Frontiers in Energy Storage," the discussion will explore how advances in materials, manufacturing, sustainability, and system integration are redefining what batteries can achieve in a rapidly evolving energy landscape. **With panellists:** • Prof Sir Peter Bruce, Wolfson Professor of Materials, University of Oxford • Prof Dame Clare Grey, Geoffrey Moorhouse Gibson Professor of Chemistry, University of Cambridge • Prof Jürgen Janek, Professor of Physical Chemistry at Justus Liebig University in Giessen • Dr Fanny Bardé, Founder and CEO, SOLiTHOR
15:00-15:10	**Poster Awards Presentation	Main Theatre**
15:10-15:30	**Closing Remarks	Main Theatre** **Professor Martin Freer, CEO, Faraday Institution**