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**Electrolytes, interfaces and lithium metal:
Enabling next-generation batteries**

Abstract: Li-ion batteries are a foundational technology for portable electronics, electric vehicles, and energy storage systems. However, continued demand for even higher energy density is motivating the development of new cell chemistries.

Replacing the conventional graphite anode with metallic Li offers one path to higher energy density, but Li-metal batteries face major challenges in lifetime and safety. Electrolyte chemistry is particularly important to Li-metal battery performance, yet the vast chemical design space makes empirical optimization difficult without a clear mechanistic framework. In particular, physically meaningful descriptors linking electrolyte chemistry to lithium corrosion and electroplated Li microstructure—both key determinants of cell performance—remain poorly defined.

In this talk, David will highlight his PhD research combining electroanalytical methods with nanoscale characterization to probe these relationships and identify physical descriptors that can inform the design of longer-lived lithium-metal anodes. He will then discuss broader lessons on how technical work changes between academic research and industrial R&D.

Meet the Speaker
Seminar

2:00 pm, PCB 3144
3:30 pm, King 159