SEMINAR

Title: **Electrolytes, Interfaces, Interphases and AI-4-Batteries**

Date: **27 December, 2025 (Saturday)**
Time: **11:30 a.m.**
Venue: **The Tam Wing Fan Innovation Wing Two HKU**

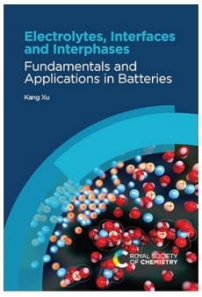
Speaker: **Professor Kang Xu**
MRS Fellow, ECS Fellow,
ARL Fellow (emeritus),
Chief Technology Officer, SES AI Corp.,
Woburn, MA, USA

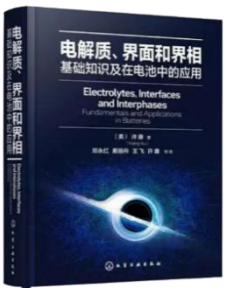
Abstract:

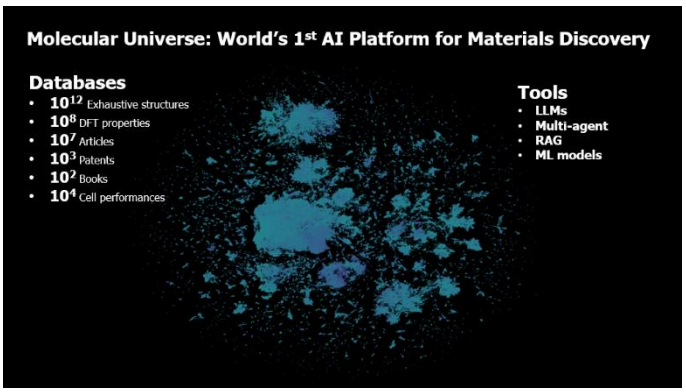
Electrolyte is a unique component in electrochemical device, because it must interface with every other components in the device, be it active (anode, cathode or other redox species), assisting (conductive additive, binder) or inactive (current collectors, separators and packaging materials). These interfaces often dictate whether the device could work according to the designed electrochemical pathways.

Rechargeable batteries represent the best example for the importance of electrolytes, interfaces, and interphases, which evolves from interface if electrodes operate beyond the stability limits of the electrolytes.

In this talk, I will cover the fundamentals of these concepts and their practical applications. The design of better electrolytes and interfaces for the Next-Gen batteries assisted by AI will also be briefly discussed.







Biography:

Kang Xu is an MRS Fellow, ECS Fellow, ARL Fellow (emeritus), and currently the Chief Technology Officer of SES AI Corp based in Boston, MA. He has been conducting electrolytes and interphasial chemistry research for the past 38 years, published 350+ papers, wrote/edited 5 books/chapters, and obtained 20+ US Patents, with total citation of 84,000+ and an h-index of

138. He is a Clarivate's highly-cited author since 2018, and one of the top 2% most influential researchers in the Stanford Database.

Among his numerous publications, he is best known in the field for the two comprehensive reviews published at *Chemical Reviews* in 2004 and 2014, and a textbook entitled "*Electrolytes, Interfaces and Interphases*" published by RSC Press in April 2023. His work has received many recognitions and awards, including multiple Depart of the Army R&D Awards, the 2015 UMD Invention of the Year, 2017 International Battery Association Technology Award, and 2018 ECS Battery Research Award. Upon his retirement from federal service 2023, he received an Army Civilian Service Medal. Then he went to industry and started the venture in the frontier of AI-driven materials discovery. He led the development of the Molecular Universe (molecular-universe.ses.ai/search), the world's first AI-platform for end-to-end materials discoveries, which was initially released to the industry on April 29, 2025 and has been repeatedly updated with powerful features and functions.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. Chunyi Zhi at cyzhi@hku.hk.