



The Department of Chemical Engineering Presents



Dr. Kang Xu
Battery Science Branch
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Lithium-ion Battery

Abstract: Lithium-ion battery (LIB) is the most popular electrochemical device ever invented in the history of mankind, the first-ever battery that operates on dual-intercalation chemistries, and the very first battery that relies on interphases to ensure reversibility of its cell reactions at extreme potentials far beyond the thermodynamic equilibria.

Facing these challenges, its invention experienced a tortuous journey that lasted nearly two decades and scattered on three continents. Since its commercialization three decades ago, it has revolutionized our life in almost every aspect, from portable communication, computation and networking to transportation and grid.

This seminar will examine the key technological milestones that marked such tortuous journey, and interpret the fundamental science underneath them. Retrospect examination of this history will help us addressing the future challenges in designing better energy storage devices.

Wednesday September 21, 2022
The Gowen Room, 10:30-11:30 am



Bio: Kang Xu is an ECS Fellow, ARL Fellow, and team leader at Battery Science Branch of U. S. Army Research Laboratory in Adelphi, Maryland. He received Ph. D. in Chemistry under the tutelage of Prof. Austen Angell at Arizona State University, and has been conducting electrolytes and interphasial chemistry researches for the past 30 years. He has published 300+ papers, wrote/edited 5 books/chapters, and obtained 20+ US Patents, with total citation of 47,000+ and an h-index of 106. He is a highly-cited author per Web-of-Science, and one of the top 2% most influential researchers in the Stanford Database.

Besides the numerous publications, he is best known in the field for the two comprehensive reviews published at *Chemical Reviews* in 2004 and 2014, and a new book entitled "*Electrolytes, Interfaces and Interphases*" to be published by RSC Press in January 2023. His work has received numerous recognitions and awards within DoD and in the field, including the 2015 UMD Invention of the Year, 2017 International Battery Association Technology Award and 2018 ECS Battery Research Award.