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Virtual SEMINAR SERIES

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Seminar Presentation: 11:00am – 12:00pm PDT

"Enabling Next-Generation High-Performing Sodium Batteries"

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Abstract: The increasing energy demands of society today have led to pursue alternative energy storage systems that can fulfill rigorous requirements like cost-effectiveness and high storage capacities. Based fundamentally on earth-abundant sodium sources, sodium–based batteries are a promising solution in applications where existing lithium-ion technology remains less economically viable, particularly in large-scale stationary systems such as grid-level storage. Although simply replacing lithium with sodium in current lithium-ion batteries is not a viable solution due to deteriorating electron transfer in conventional intercalation cathodes, sodium is highly attractive when leveraging other battery chemistries due to its unique redox reactions. Emerging high-energy sodium batteries, such as sodium-sulfur batteries, present a series of fundamental materials challenges, hindering their widespread applications. In this talk, I will present a series of versatile strategies to realize diverse high-energy sodium battery systems through multi-faceted tactical regulations of the electrode-electrolyte interface, electrode structural design, and electrolyte engineering.

Biosketch: Dr. Weiyang (Fiona) Li is the William P. Harris Career Development Assistant Professor at Thayer School of Engineering, Dartmouth College (Hanover, US) since 2016. She graduated with B.S. and M.S. degrees in Chemistry from Nankai University (Tianjin, China), and a Ph.D. in Biomedical Engineering from Washington University in St. Louis (St. Louis, US). She then worked as a postdoc in the Department of Materials Science & Engineering at Stanford University (Stanford, US). Her lab focuses on the development of rationally designed functional materials with finely tailored composition/architecture to tackle critical problems in diverse energy-related applications, especially in cost-effective and high-energy battery systems. She has published 90+ scholarly publications on high-impact peer-reviewed journals with 25,000+ citations with a high h-index of 58. Dr. Li has received numerous prestigious awards, including a NASA Early Career Faculty Award in 2018 and an Air Force Young Investigator Program Award in 2017. She has been selected as Early Career Advisory Board for Nano Letters and Chemical Reviews (the American Chemical Society). She also serves as the Associate Editor for ACS Applied Materials and Interfaces.