

Department of Electrical and Computer Engineering
Texas Center for Superconductivity
Materials Engineering Program
Center for Integrated Bio and Nano Systems
10:30 a.m., March 26, 2021

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Electrochemical Energy Storage: From Materials Science to Prototype Batteries and Manufacturing

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Abstract: Electrochemical energy storage has been a very hot topic in the last decade. Many efforts have been pursued in identifying new battery materials or technologies for a broad range of applications such as grid energy storage, vehicle electrification, mobile electronics and so on. This talk will highlight the importance of this interdisciplinary research and emphasize the urgent need to identify and address real challenges at relevant scales for battery research, prototyping and manufacturing. Three examples will be discussed: (1) Single crystal Ni-rich cathode for advanced Li-ion batteries; (2) next-generation of rechargeable lithium metal battery; and (3) microbattery technologies for miniaturized sensors to encourage the integration of materials chemistry, electrochemistry and engineering to overcome the roadblocks for developing and manufacturing advanced battery technologies.



Short Bio: Dr. Jie Xiao is currently a Laboratory Fellow and Technical Group Manager of Battery Materials & System Group at Pacific Northwest National Laboratory. Dr. Xiao obtained her Ph.D degree in Materials Chemistry from State University of New York Binghamton. She has been leading research thrusts on both practical applications and fundamental study of energy storage materials and systems, spanning from micro-batteries for acoustic fish tags to advanced battery technologies for vehicle electrification and grid energy storage. She is the recipient of awards such as ECS Battery Technology Award, Materials Today Rising Star Award, R&D100, Federal Laboratory Consortium (FLC) Award for Excellence in Technology Transfer etc. She has published more than 100 peer-reviewed journal papers, 2 book chapters and holds 17 US patents in the area of energy storage research. Dr. Xiao has been named top 1% Clarivate Analytics Highly Cited Researcher since 2017.

Please contact Dr. Yan Yao (yyao4@central.uh.edu) or Dr. Jiming Bao (jbao@uh.edu) if you want to meet with the speaker.