

# Seminar



## Dr. Kang Xu

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U.S. Army Research Laboratory

**February 6, 2019 at 4:00-5:00pm**

In Widtsoe 330

**Host: Tianbiao Liu**

## Before Li-Ion Batteries

**Abstract:** As one of the most prominent technologies in human history, Li-ion batteries (LIBs) have significantly reshaped our life since their initial commercialization in early 1990s, while continuous improvements in materials and chemistries of their derivative descendants might dictate our energy future.

Unlike many scientific discoveries, LIB was not born at a single “Eureka” moment. Battery (or any electrochemical device) is a system consisting of multiple components. For such a system to function, all components must be electrochemically synchronized. The lengthy history of LIB development witnessed such painful synchronization, which proceeded simultaneously with the development of intercalation science as well as its many individual components.

This talk aims to recount the history between the discovery of Li element to the commercialization of LIB in 1990s. As taught by Winston Churchill, “*The farther back you can look, the farther forward you are likely to see*”, such historical retrospective bring us inspiration and insight into the future, because being able to scrutinize the antique literature with contemporary hindsight offers us the advantageous angle to witness how accidental discoveries, intentional breakthroughs, and deceiving misconceptions interplayed to generate the unique chemistries and materials for such a sophisticated electrochemical device.