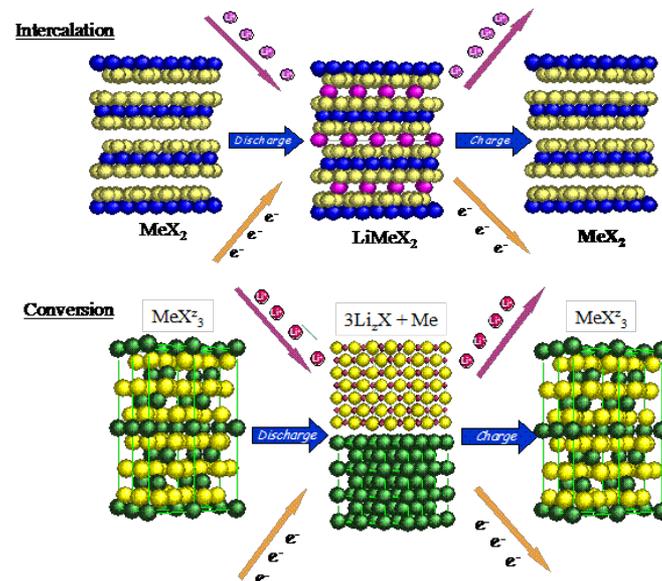


Summary statement: A fundamental understanding of how key electrode reactions occur, including intercalation and conversion, and how they can be controlled is being developed, so as to identify the critical structural and physical properties that are vital to improving battery performance; this information will be used to optimize and design new electrode materials.



RESEARCH PLAN AND DIRECTIONS

The processes that occur in batteries are complex, spanning a wide range of time and length scales. The assembled team of experimentalists and theorists will make use of, and develop new methodologies to determine how electrodes function in real time, as batteries are cycled. The team will determine/control the phases formed and the role overpotential plays.