

COLLOQUIUM ANNOUNCEMENT

THURSDAY, 18.05.2017
16:00 h ZEMOS 0.17/0.19

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“Understanding Ion Solvation Structure, Energetics and Kinetics in Super- concentrated Electrolytes for Energy Storage”

In this presentation the impact of electrolyte formulation on the energetics and kinetics of ion-coupled electron transfer reactions and the formation mechanisms of solid electrolyte interphase (SEI) at electrode/electrolyte interfaces of rechargeable batteries will be discussed. A series of spectro-electrochemical studies of a variety of Li⁺ and Na⁺ salts in common solvents at various concentrations will be discussed in relation to their influence upon model electrode materials. Raman spectroscopy of the electrolytes show a broadened background, often attributed to fluorescence arising from degraded electrolyte products (SEI). Yet, we recently proposed that the broad background results from anharmonic coupling of high and low energy vibrational modes within a solvated ion network. Our results suggest that concentration, anion identity and degree of cation solvation all influence the degree of interaction such influencing the kinetics for formation of compositionally distinct SEI layers and in the measured charge transfer kinetics and diffusional properties at various electrode materials.

Guests are very welcome!