

The Richard Olsen Lecture Series



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Hosted By: Dr. Yi Rao

WHEN: Wednesday, April 3, 2019

WHERE: Eccles Science Learning Center
Rm 046

Refreshments: 3:45pm *TIME:* 4:00pm

Electric Fields, Ion Pairing, and the Salty Aqueous Surfaces

the Allen lab investigates ocean and sea spray aerosol systems to understand interfacial speciation and organization to then inform on atmospheric aerosol, cloud, and marine surface reactivity, correlating to climate change and its contributing uncertainties. Surface selective experiments reveal surface propensity of hydrated ions and ion pairs and generation of electric fields inherent to the ordering of electrical double layers at aqueous surfaces. Magnesium solvent shared ion pairing with sulfate is one example where relatively few ion pairs produce a significant electric field at an aqueous surface. In recent work, we investigate iron(III) hydration and speciation. Lipid and fatty acid – ion binding and surface domain formation is investigated to shed light on trace metal enrichment of the ocean's sea surface microlayer and of sea spray aerosol surfaces. The surface electric field is measured using a Kelvin probe technique and surface potentiometry using radioactive Americium, a new method being refined in our laboratory. Surface tensiometry, Brewster angle microscopy (BAM), and surface vibrational probes of sum frequency generation (SFG), and Infrared reflection absorption spectroscopy (IRRAS) are discussed.

Website link: <https://chemistry.osu.edu/people/allen.697>

Please visit chem.usu.edu for more info on Seminar Series and to see Dr. Allen's Bio.