

# *Physical Chemistry McElvain Seminar*

11:00 AM

Tuesday, January 19, 2016

Room 1315

## Organization and Electric Fields at Aqueous Surfaces - Understanding Ions and Lipids in Water



### Prof. Heather Allen

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The Ohio State University

Host:

Michael Shaloski/Nathanson Group

Magnesium, calcium, sodium, chloride, and sulfate are among the most abundant ions in ocean waters as well as in biology. Lipids are similarly so. We investigate these ions and lipids at aqueous surfaces to better understand their impact and organization to then inform on surface reactivity and interfacial transport of water and potential reactants. Intermolecular interactions of the lipids are modified by salts, their properties, and their concentrations. Research is first presented on the bare aqueous salt surfaces revealing surface propensity of anions versus cations, with charge density, polarizability and shape playing a role in surface electric fields. Then lipid monolayers are explored. We utilize surface tensiometry, Brewster angle microscopy, and vibrational probes such as sum frequency generation (SFG) and infrared reflection absorption spectroscopy (IRRAS) to reveal the interactions and binding.