

Ann Deml



Graduate Institution: Colorado School of Mines

Location: Golden, CO

Graduate Discipline: Materials Science

Hometown: Medford, WI

Research Interests:

I am interested in research at the interface of chemistry, physics, and materials science. I find it fascinating that we can examine systems from molecular and atomic perspectives to study the fundamental science determining material properties and behavior.

My current research is in the area of nanoionics and, more specifically, the study of space charge phenomena at ionic material interfaces. My group aims to use such properties to develop means of purposefully manipulating ionic conductivity for applications in electrochemical energy conversion and storage. In order to elucidate further knowledge of such ionic space charge effects, I am developing an ionic field effect transistor based on Nafion, a polymeric proton-conducting membrane. In addition to providing insight into the fundamental science dominant at ionic material interfaces and surfaces, this device may eventually also prove to be of interest for applications analogous to those of the semiconductor MOSFETs such as electrochemical logic operations.

About me:

I am a graduate student in the Renewable Energy Materials Research Science and Engineering Center (REMRSEC) focused on materials science advances in photovoltaic, membrane, and clathrate storage technology. I am involved in its education outreach programs and graduate student community as well as its diversity initiatives, which I find especially rewarding. It is my intention to develop a research career likely in a national lab setting where I can continue to be intellectually stimulated and challenged.

Overall balance and mental wellbeing are also important in my life, and I attain such satisfaction through a variety of recreational activities, relationships, and hobbies including gardening, baking, hiking, rock climbing, skiing, traveling, and more. I am quite interested in others' cultures and in broadening my perspectives.



U.S. DEPARTMENT OF
ENERGY

Office of
Science