Richard G. Hennig

Title:
Computational Nanoscale Science at the Interface

Abstract:
The need to describe and understand the surfaces and interfaces of atomically and chemically dissimilar materials is at the heart of essentially all modern-day critical technologies and presents one of the grand challenges in science that requires new advances in materials simulation methods. The importance of materials interfaces is apparent when considering key industrial segments such as the microelectronics, chemical, and energy industries. Particularly at the nanoscale, interfaces and surfaces often control the properties of materials and the surface structure and chemistry are one of the most important, yet least understood aspects of nanoscale materials synthesis and functionalization.
In recent years new methods have been developed for materials interfaces. These methods range from efficient sampling techniques, to hybrid methods that couple quantum mechanical models to classical and continuum approaches. I will present a short overview of some of the recent advances in the development of methods for solid/liquid interfaces and provide a perspective on potential future developments needed to advance the field of computational nanoscale science of interfaces.

Bio:
Professor Hennig received his Diploma in Physics at the University of Göttingen in 1997 and his Ph.D. in Physics from Washington University in St. Louis in 2000. After working as a postdoctoral researcher and research scientist at Ohio State University, he joined the faculty of the Department of Materials Science and Engineering at Cornell in 2006 as an Assistant Professor. In 2014 he moved to the University of Florida as an Associate Professor.