

## Visualization of Interfacial Liquid Water at Nano scale

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#### Abstract

Water-solid interfaces play a pivotal role across diverse fields in material science, electrochemistry, energy storage, and biology. In close proximity to solid surfaces, liquids assume an interfacial layer characterized by a distinct molecular arrangement differing from the bulk. However, our grasp of molecular-level interactions between liquid water and solid interfaces remains incomplete, primarily due to the absence of high-spatial resolution techniques. Scanning probe microscope (SPM) is a powerful technique in this field, providing a window into the nanoscale world and helping researchers understand the unique properties of materials at this scale. In this talk, I will introduce this invaluable tool of SPM and aid in designing new materials and devices with enhanced performance and functionality. We explore the SPM that unveils atomic-scale resolution images of solid-liquid interfaces. This approach promises to illuminate the intricacies of interfacial water behavior, offering new dimensions for enhanced understanding in various scientific domains.

#### Biography



Mingdong Dong is a Professor at Aarhus University in Denmark, where he holds a position in the Interdisciplinary Nanoscience Center. He is an applied physicist with expertise in advanced surface-sensitive scanning probe microscopy (SPM). Professor Dong has made significant contributions to the field by developing several quantitative SPM-based techniques that are used to investigate interfacial phenomena including electronic, mechanical, thermal, chemical, and magnetic properties of nanomaterials. These techniques have helped researchers gain a better understanding of the structure-function relationship. His research has resulted in publications in top international peer-reviewed journals, including Nature, Nature Nanotechnology, Nature Chemistry, Nature Communications, PNAS, Angewandte Chemie, Nano Letters, JACS, ACS NANO, and Advanced Materials. Professor Dong is an active member of various professional organizations, including the Royal Microscopical Society, the American Chemical Society, the Materials Research Society, and the Biophysical Society. He is also a Fellow of the Royal Society of Chemistry.