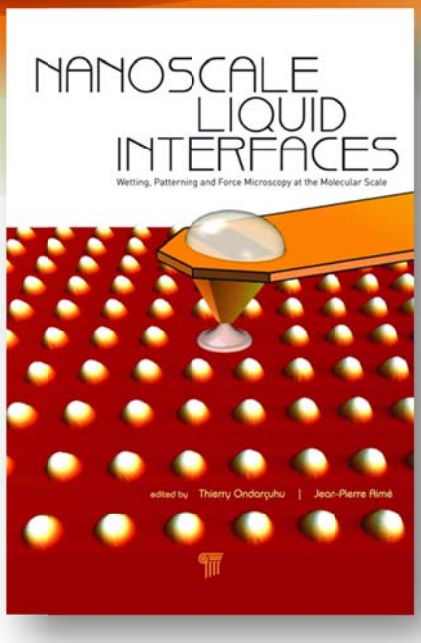
Nanoscale Liquid Interfaces

Wetting, Patterning and Force Microscopy at the Molecular Scale



edited by **Thierry Ondarçuhu** *(CEMES-CNRS, France)* & **Jean-Pierre Aimé** *(IECB-CBMN, France)*

"This book offers a broad survey of single and multiphase flows at the nanoscale. Many topics of current interest are surveyed, including characterization of interfaces as well as various wetting phenomena. A reader will find many subjects discussed well, with a good interplay of experiments and modeling."

Prof. Howard A. Stone - Princeton University, USA

Key Features

- Provides a unique comprehensive review of the studies of liquid at nanometer scale, involving nanopatterning methods and atomic force microscopy in liquids. No book is currently available on the subject.
- Collection of 19 papers by an international panel of prominent scientists in the field, covering a wide spectrum of both theoretical and experimental aspects.
- Gather scientists to bridge studies of physical properties of liquid at nanometer scale with investigation of biological systems and molecules.

Description

This book addresses the most recent developments in the investigation and manipulation of liquids at the nanoscale. This new field has shown important breakthroughs on the basic understanding of physical mechanisms involving liquid interfaces, which led to applications in nanopatterning. It has also consequences in force microscopy imaging in liquid environment. The book proposes a timely review of these various aspects. It is co-authored by 25 among the most prominent scientists in the field.

Starting from a description of static and dynamic properties of liquids at interfaces, the recent works on nanowetting (droplets, meniscus and bubbles) are thoroughly described. The book then reviews some applications that emerge in the field of nanopatterning due to the development of new tools to manipulate ultrasmall liquid quantities. Atomic force microscopy imaging in liquids raises new questions on hydrodynamic interaction in the confined space between an oscillating tip and a surface, especially for high-speed atomic force microscopes. The understanding of these interactions is of importance for the development of imaging of biological samples, which is one of the open challenges of the high-speed AFM techniques.

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Readership

Students and researchers in physics, nanoscience, nanotechnology, physics of fluids and biology.

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