

1. Record Nr.	UNINA9910682563203321
Autore	Cao Duanyun
Titolo	Structures and Dynamics of Interfacial Water / / by Duanyun Cao
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789811969218 9789811969201
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (149 pages)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5061
Disciplina	612.01583
Soggetti	Surfaces (Physics) Condensed matter Molecular dynamics Surface and Interface and Thin Film Structure of Condensed Matter Phase Transition and Critical Phenomena Two-dimensional Materials Molecular Dynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- The Theoretical Research Methods Involved in this Paper -- Structure and Growth Mechanism of Two-dimensional Ice on Hydrophobic Metal Surface -- Structure and Phase Transition of Water Coating on Hydrophilic Metal Surface -- Structure and Kinetics of Ion Hydrates At The Interface -- Summary and Prospect.
Sommario/riassunto	This thesis highlights the study into the structures and dynamics of interfacial water, which is a cutting edge issue in condensed matter physics. Using the first principles calculation, classical molecular dynamics simulation and the simulation of atomic force microscopy (AFM), combined with the experimental results of AFM, the book systematically studies interfacial water at the atomic scale, especially the structure and growth mechanism of two-dimensional ice on hydrophobic Au (111) surface, the structure and the interconversion of the Eigen/Zundel hydrated proton on the Au(111) and Pt(111) surfaces, the microstructure and the hydration effect of the diffusion of ion

hydrates on NaCl surface. This book displays the atomic scale information about the interaction between water and surface, and achieves many innovative results. Furthermore, the research methods included in this book can be further extended to study the more complex interfacial systems.

---