**Prof. Ying Jiang was invited by Surface Science Reports to publish a review article on probing interfacial water by AFM**

Recently, Prof. Ying Jiang’s research group from the International Center for Quantum Materials and Research Center for Light-Element Advanced Materials of Peking University was invited to publish a review article entitled "[Water-solid interfaces probed by high-resolution atomic force microscopy](https://doi.org/10.1016/j.surfrep.2021.100549)" in *Surface Science Reports*, which introduces the applications of atomic force microscopy (AFM) in interfacial water science, and prospects the future research directions and challenges faced by this field.

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*Surface Science Reports* is an international authoritative journal with high impact in the field of surface science. It invites worldwide renowned experts to review important research directions of surface science. In recent years, Jiang’s research group has taken the lead in applying ultrahigh resolution AFM to the investigation of the water-solid interface, and has achieved a series of breakthrough results, including non-invasive submolecular-level imaging of water molecules (***Nat. Commun*.** 9, 122 (2018)), the first atomic-level imaging of single ion hydrates and revealing the magic number effect of ion transport (***Nature*** 557, 701 (2018)), experimental observation of the first genuine two-dimensional ice (***Nature*** 577, 60 (2020)), revealing new mechanism of anti-corrosion at a solution-solid interface (***Nature*** 586, 390 (2020)), etc.

The invited review starts from the research background of the water-solid interface and pointed out various problems/debates in this field. Next, the authors introduce the latest advances in ultrahigh-vacuum (UHV) and liquid environment AFM technology, which opens up the possibility of understanding water-solid interfaces at atomic level. Then, the article introduces the application of AFM technology in various water systems in detail, including water clusters, ion hydrates, water chains, water monolayers/multilayers and bulk water/ice on different surfaces under UHV or ambient environments, etc. Finally, the authors present an outlook on the directions of future AFM studies of water at interfaces, the challenges faced by this field as well as possible solutions.

The authors of the article include Dr. Jinbo Peng (JSPS Postdoc. of Tsukuba Uni.), Prof. Jing Guo (Beijing Normal Uni.), Dr. Runze Ma (Weill Cornell Medical College) and Prof. Ying Jiang (Peking Uni.). Jinbo Peng and Ying Jiang are the corresponding authors. Related work was supported by funding from Ministry of Science and Technology of China, Ministry of Education of China, National Natural Science Foundation of China, Chinese Academy of Sciences, and Interdisciplinary Institute of Light-Element Quantum Materials.

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