



## **Jinbo Peng (彭金波)**

Associate professor, T. D. Lee Fellow of TDLI,  
Shanghai Jiao Tong University, China

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### **Personal**

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Date of Birth: 30/11/1989

Birthplace: Hubei province, China

Nationality: Chinese

### **Education**

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Ph.D. Physics. Peking University, China, 09/2012-07/2017

B.S. Physics. Central China Normal University, China, 09/2008-07/2012

### **Professional experiences**

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◆ **Postdoctoral. JSPS fellow. University of Tsukuba, Japan, 12/2020-now**

Advisor: Prof. Hidemi Shigekawa and Prof. Shoji Yoshida

◆ **Postdoctoral. Humboldt fellow. University of Regensburg, Germany, 10/2017-11/2020**

Advisor: Prof. Jascha Repp and Prof. Rupert Huber

◆ **Ph.D. Peking University, China, 09/2012-07/2017**

Advisor: Prof. Ying Jiang

### **Professional expertise and research interests**

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**Development of time-resolved scanning probe microscopies technique**

- ◆ Ultrafast STM system via combination with femtosecond optical pulses and THz pulses (~fs temporal resolution)
- ◆ Electric pump-probe AFM (~ns temporal resolution)

**Probing non-equilibrium states of single molecules at atomic scale**

- ◆ Excited states of single molecules
- ◆ Spin dynamics of single atoms and molecules

**Probing the ultrafast dynamics of 2D and strongly correlated materials at atomic scale**

- ◆ Dynamics of charge, phonon, and polaron in materials
- ◆ Novel states such as cooper pair, charge density wave (CDW), etc.

## Publications

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Representative publications: (\*equal contributions, †corresponding author)

1. **Jinbo Peng**†, Sophia Sokolov, Daniel Hernangómez-Pérez, Ferdinand Evers, Leo Gross, John M. Lupton, Jascha Repp†. Atomically resolved single-molecule triplet quenching. *Science* 373, 452 (2021). (Featured in “Perspective” of *Science* 373, 392 (2021)).  
(被 *Science* 审稿人评价为 “里程碑的工作” “AFM 和分子操纵领域的重大进展” )
2. **Jinbo Peng**\*, Duanyun Cao\*, Zhili He\*, Jing Guo, Prokop Hapala, Runze Ma, Bowei Cheng, Ji Chen, Wen Jun Xie, Xin-Zheng Li, Pavel Jelínek, Li-Mei Xu†, Yi Qin Gao†, En-Ge Wang†, Ying Jiang†, The effect of hydration number on the interfacial transport of sodium ions. *Nature* 557, 701 (2018). (Featured in *Nature Reviews Chemistry* 2, 97 (2018), Selected as **Top-ten Science Advances in China, 2018**)  
(入选为 2018 年中国十大科学进展)
3. Xiangzhi Meng\*, Jing Guo\*, **Jinbo Peng**\* (\*Equal contribution), Ji Chen, Zhichang Wang, Jun-Ren Shi, Xin-Zheng Li†, En-Ge Wang†, Ying Jiang†. Direct visualization of concerted proton tunneling in a water nanocluster. *Nature Physics* 11, 235-239 (2015). (Featured in “News and Views” of *Nature Physics* 11, 216 (2015).)
4. **Jinbo Peng**\*, Jing Guo\*, Prokop Hapala\*, Duanyun Cao, Runze Ma, Bowei Cheng, Limei Xu, Martin Ondráček, Pavel Jelinek†, Enge Wang†, Ying Jiang†. Weakly perturbative imaging of interfacial water with submolecular resolution by atomic force microscopy. *Nature communications* 9, 122(2018).
5. **Jinbo Peng**†, Jing Guo, Runze Ma, Ying Jiang†, Water-solid interfaces probed by high-resolution atomic force microscopy. *Surf. Sci. Rep.* 77, 100549 (2022). (Invited review article)

Others:

6. Chaoyu Guo\*, Xiangzhi Meng\*, Huixia Fu\*, Qin Wang\*, Huimin Wang, Ye Tian, **Jinbo Peng**, Runze Ma, Yuxiang Weng, Sheng Meng†, Enge Wang†, Ying Jiang†, Probing nonequilibrium dynamics of photoexcited polarons on a metal-oxide surface with atomic precision. *Phys. Rev. Lett.* 124, 206801(2020).
7. Runze Ma\*, Duanyun Cao\*, Chongqin Zhu\*, Ye Tian\*, **Jinbo Peng**, Jing Guo, Ji Chen, Xin-Zheng Li, Joseph S. Francisco, Xiao Cheng Zeng†, Li-Mei Xu†, En-Ge Wang†, Ying Jiang†, Atomic imaging of edge structure and growth of a two-dimensional hexagonal ice. *Nature* 577, 60 (2020).
8. Duanyun Cao, Yizhi Song, **Jinbo Peng**, Runze Ma, Jing Guo, Ji Chen, Xinzheng Li, Ying Jiang, Enge Wang, and Limei Xu\*, Advances in Atomic Force Microscopy: Weakly Perturbative Imaging of the Interfacial Water. *Front Chem.* 7, 626(2019).
9. **Jinbo Peng**, Jing Guo, Ying Jiang. Probing surface water at submolecular level with scanning probe microscopy. *Sci. Sin. Chem.*, 49,536 (2019). (Invited review)

10. Jing Guo J, Sifan You, Zhichang Wang, **Jinbo Peng**, Runze Ma, Ying Jiang. Probing the Structure and Dynamics of Interfacial Water with Scanning Tunneling Microscopy and Spectroscopy. *J. Vis. Exp.* (135), e57193, doi:10.3791/57193 (2018).
11. **Jinbo Peng**, Jing Guo, Runze Ma, Xiangzhi Meng, Enge Wang, and Ying Jiang<sup>†</sup>. Atomic-scale imaging of the dissolution of NaCl islands by water at low temperature. *J. Phys. Condens. Matter.* 29, 104001(2017).
12. Jing Guo, Xin-Zheng Li, **Jinbo Peng**, En-Ge Wang, Ying Jiang, “Atomic-scale investigation of nuclear quantum effects of surface water: Experiments and theory”, *Prog. Surf. Sci.* 92, 203 (2017). (Invited review article)
13. Jing Guo\*, Jing-Tao Lü\*, Yexin Feng\*, Ji Chen, **Jinbo Peng**, Zeren Lin, Xiangzhi Meng, Zhichang Wang, Xin-Zheng Li<sup>†</sup>, En-Ge Wang<sup>†</sup>, Ying Jiang<sup>†</sup>, Nuclear quantum effects of hydrogen bonds probed by tip-enhanced inelastic electron tunneling. (Selected as **2016 Top-ten Science Advances in China**)
14. Ji Chen \*, Jing Guo \*, Xiangzhi Meng \*, **Jinbo Peng**, Jiming Sheng, Limei Xu, Ying Jiang<sup>†</sup>, Xin-Zheng Li<sup>†</sup> & En-Ge Wang<sup>†</sup>, An unconventional bilayer ice structure on a NaCl(001) film. *Nature Communications* 5,4056 (2014).
15. Jing Guo\*, Xiangzhi Meng\*, Ji Chen\*, **Jinbo Peng**, Jiming Sheng, Xin-Zheng Li, Limei Xu, Jun-Ren Shi, Enge Wang<sup>†</sup>& Ying Jiang<sup>†</sup>, “Real-space imaging of interfacial water with submolecular resolution”, *Nature Materials.* 13, 184 (2014).

### **Honors and awards**

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- ◆ JSPS Fellowship for postdoctoral researchers (10/2021)
- ◆ Humboldt Research Fellowship for postdoctoral researchers (03/2018)
- ◆ First author work was selected as “2018 Top-ten Science Advances in China”, Ministry of Science and technology of China (01/2019)
- ◆ Outstanding graduate of Peking University (07/2017)
- ◆ First prize award in the 15th "Zhong Shengbiao Education Fund" Graduate Academic Forum of the School of Physics in Peking University (06/2017)
- ◆ Outstanding Research Award of Peking University (12/2016)
- ◆ Invited participant of the 66th Lindau Nobel Laureate Meeting (06/2016)
- ◆ The National Scholarship for graduate students (10/2016)
- ◆ Best oral report prize in the forum of PhD students from Five Universities (12/2016)
- ◆ Best poster prize in the Meeting of Chinese Chemical Society (08/2014)
- ◆ Outstanding graduate of Central China Normal University (05/2012)
- ◆ Boya scholarship for outstanding student (10/2010,2011)
- ◆ National Encouragement Scholarship (10/2009)

## Presentations

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### Invited talks:

- ◆ June 2022, Max-Planck-Institute for Solid State Research, Prof. Klaus Kern group, Germany, Probing the triplet lifetimes of a single molecule by AFM
- ◆ December 2021, Zhejiang University Qizhen Youth Forum-Department of Physics, Zhejiang University, China  
“Probing non-equilibrium states with atomic resolution”
- ◆ December 2021, International Ultrafast Knowledge Coffee House meeting hosted by Prof. Hrvoje Petek  
“Atomically probing molecular triplet lifetimes by electric pump-probe AFM”
- ◆ November 2021, The 9th International Symposium on Surface Science (ISSS-9), Japan  
“Atomically resolved single-molecule triplet quenching”
- ◆ August 2021, Seminar, RIKEN, Japan  
“Probing triplet lifetimes of a single molecule by atomic force microscopy”
- ◆ December 2019, Seminar, Institute of applied physics, University of Tsukuba, Japan  
“Single ion hydrates under the SPM tip and the pursuit of optics at atomic scale”
- ◆ April 2017, Seminar, Institute of physics, University of Stuttgart, Germany  
“Probing interfacial water-ion interaction with submolecular resolution”

### Contributed talks:

- ◆ ICSPM29, 2021, online, Japan  
Contributed talk, “Probing single molecule triplet lifetime by atomic force microscopy”
- ◆ ICSPM27, 2019, Shizuoka, Japan  
Contributed talk, “Single ion hydrates under the SPM tip”
- ◆ DPG meeting 2019, Regensburg, Germany  
Contributed talk, “Single ion hydrates under the SPM tip”
- ◆ APS March Meeting 2019, Boston, America  
Contributed talk, “Single ion hydrates under the SPM tip”
- ◆ NC-AFM 2017. Suzhou, China, 2017.  
Contributed talk, “Submolecular-resolution non-invasive imaging of interfacial water with atomic force microscopy.”
- ◆ The forum of PhD students from Five Universities. Beijing, China, 2016.  
Contributed talk, “Direct visualization of concerted proton tunneling in a water nanocluster.”
- ◆ Chinese Physical Society Fall Meeting. Beijing, China, 2016.  
Contributed talk, “Structure and dynamics of ion hydrates at atomic scale.”
- ◆ APS March Meeting. Baltimore, USA, 2016.  
Contributed talk, “High-resolution imaging of interfacial water by noncontact AFM”
- ◆ Chinese Physical Society Fall Meeting. Changchun, China, 2015.  
Contributed talk, “Submolecular imaging of interfacial water with atomic force microscope.”