

## Jun Wang

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[Publications](#)



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### Education

Nankai University, China	Physics	B.S., 2006
University of New Hampshire, NH	Physics	Ph.D., 2013

### Professional Experience

2013-p      Postdoctoral Research Associate, Center for Nanophase Materials Sciences,  
Oak Ridge National Laboratory

### Professional and Synergistic Activities

2009-p      Member: American Physical Society  
2010        Member: Materials Research Society  
2012        Member: American Vacuum Society

### Honors and Awards

2012        Dissertation Year Fellowship Award at University of New Hampshire  
2012        AVS Dorothy M. and Earl S. Hoffman Travel Award  
2012        Ming/Chen Student Travel Award at University of New Hampshire  
2011 & 2010    University of New Hampshire Graduate School Travel Awards  
2009        EPSCoR Travel Award to attend the National EPSCoR Conference

### Research Synopsis

1. *Molecular self-assembly on substrates*  
Assemble various organic molecules on metal surfaces and novel 2D materials for molecular electronics applications such as molecular switches, organic photovoltaics; assemble modified DNA bases on substrates to explore the informational polymers.
2. *Catalysis on nanostructured metals*  
Study the CO reactivity on active catalytic sites of nanostructured Au surfaces.
3. *Characterization of novel molecular and 2D layered materials by Scanning Tunneling Microscopy/Spectroscopy (STM/S)*  
Understand the intermolecular and molecule-substrate interactions, molecular orbitals on surfaces; investigate the atomic and electronic structures of novel 2D materials, such as defects and edge states of black phosphorene materials.
4. *Nanoscale manipulation, mechanical and vibrational (phonon) properties of nanomaterials*  
Use STM tip, electron injection, and ion intercalation to manipulate nanomaterials and measure their mechanical properties; use Inelastic Electron Tunneling Spectroscopy (IETS) to measure the vibrational (phonon) properties of nanomaterials.
5. *Cryogenic and Ultrahigh Vacuum (UHV) instrumentation development*

Solid hands-on experience on design, develop and maintain cryogenic UHV-STM related components and electronics.

6. *Atomic Force Microscopy (AFM) characterization of 2D layered materials*  
Employ variable temperature UHV non-contact/contact AFM to characterize transitional metal dichalcogenides, such as  $\text{WeS}_2$  and  $\text{MoS}_2$  layered materials.
7. *Density Functional Theory (DFT) simulation for nanostructures*  
Apply ab-initio techniques to interpret both the structural and electronic properties of self-assembled molecular systems on surfaces.

**Presentations**

Over 27 conference presentations

**Services**

Serve as a referee for journals from the American Chemical Society, the Royal Society of Chemistry, and Wiley: such as the Journal of Physical Chemistry, Physical Chemistry Chemical Physics, RSC Advances, Surface and Interface Analysis, etc.