

Xiaobo He (X. B. He)

PERSONAL DETAILS

Address: 401 Nielsen Physics Building
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Place of Birth: Hubei, China
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EDUCATION

Ph. D., Condensed Matter Physics
Institute of Physics, Chinese Academy of Sciences, Beijing, P. R. China, June. 2007
Advisor: Hong-Jun Gao

B. S., Physics
Department of Physics, Nankai University, Tianjin, P. R. China, Jul. 2002.

RESEARCH EXPERIENCES

Oct. 2007 – Present, Department of Physics, University of Tennessee, Knoxville, USA, Post-Doc research associate

Study the surface electron structure of transition metal oxides and Fe-based superconductors with UHV VT STM and HREELS.

Sep. 2002 – Oct. 2007, Institute of Physics, Chinese Academy of Sciences, Beijing, P. R. China, Ph.D candidate

- (1) Study of electrical transport in nanostructure by UHV 4-probe STM system associated with in-situ SEM.
 - ★ Conductance transition of ZnO nanowire was induced by pressure.
 - ★ Anisotropy in conductance of $\text{La}_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ thin film around T_c .
 - ★ Conductance measurements of nanowires, such as CdS, perylene, TCNQ-Cu, et al
- (2) Study of organic molecules on metal substrate, including local adsorption, self-assembly, structure modulation, and electronic structure, by UHV LT-STM(Omicron GmbH, Germany) and in-situ OMBE-LEED.
- (3) Instrument update
 - ★ Design, assemble and test an UHV MBE system, which can connect to 4-probe STM and transport sample into it under UHV.
 - ★ Build up a VT- I/V measurement system. The temperature can vary from 5k-300k. Associated with Keithley SCS 4200, the current resolution can reach to 1 pA.
 - ★ Associate a spectroscope with 4-probe STM system, which enable the collection of CL spectrum induced by SEM beam.
- (4) Surface structure growth through HV deposition and study by atmospheric STM and AFM.

Dec. 2006 – Feb. 2007, Physics Institute, Muenster University, Germany, visit student

- (1) Self-assembly of Molybdenum crown cluster on metal surface.
- (2) Study of electronic structure of Molybdenum crown cluster by Omicron LT-STM.

AWARDS & FELLOWSHIPS

2006 Presidential Prize from Institute of Physics (given to the top 10% students), Chinese Academy of Sciences

2005 Presidential Prize from Institute of Physics (given to the top 30% students), Chinese Academy of Sciences

2003 Scholarship for Excellent M. S. Student in Vacuum Science and Technology, Chinese Vacuum Society

2001 Scholarship for Excellent student, Nankai University

2000 Scholarship for Excellent student, Nankai University

PUBLICATIONS

1. **X. B. He**, J.M. Cai, D.X. Shi, Y. Wang and H.J. Gao. Epitaxial growth of quinacridone derivative on Ag(110) studied by scanning tunneling microscopy. *J. Phys. Chem. C* **112**, 7138 (2008)
2. X. Lin, **X. B. He**, T. Z. Yang, W. Guo, D. X. Shi, H.-J. Gao, D. D. D. Ma, S. T. Lee, F. Liu and X. C. Xie. Intrinsic current-voltage properties of nanowires with four-probe scanning tunneling microscopy: a conductance transition of ZnO nanowire. *Appl. Phys. Lett.* **89**, 043103 (2006)
3. Xiao Lin, **Xiaobo He**, Junling Lu, Li Gao, Qing Huan, Zhitao Deng, Zhihai, Cheng, Dongxia Shi and Hongjun Gao. Manipulation and four-probe analysis of nanowires in UHV by application of four tunneling microscope tips: a new method for the investigation of electrical transport through nanowires. *Surf. Interface Anal.* **38**, 1096 (2006)
4. Lin Xiao, **He Xiao-Bo**, Lu Jun-Ling, Gao Li, Huan Qing, Shi Dong-Xia and Gao Hong-Jun. Four-probe scanning tunneling microscope with atomic resolution for electrical and electro-optical property measurements of nanosystems. *Chinese Phys.* **14**, 1536 (2005)
5. D. X. Shi, W. Ji, X. Lin, **X. B. He**, J. C. Lian, L. Gao, J. M. Cai, H. Lin, S. X. Du, F. Lin, C. Seidel, L. F. Chi, W. A. Hofer, H. Fuchs and H.-J. Gao. Role of lateral alkyl chains in modulation of molecular structures on metal surfaces. *Phys. Rev. Lett.* **96**, 226101 (2006)
6. Ning Li, Yi Huang, Feng Du, **Xiaobo He**, Xiao Lin, Hongjun Gao, Yanfeng Ma, Feifei Li, Yongsheng Chen and Peter C. Eklund. Electromagnetic interference (EMI) shielding of single-walled carbon nanotube epoxy composites. *Nano Lett.* **6**, 1141 (2006)
7. Min Feng, Xuefeng Guo, Xiao Lin, **Xiaobo He**, Wei Ji, Shixuan Du, Deqing Zhang, Daoben Zhu and Hongjun Gao. Stable, reproducible nanorecording on rotaxane thin films. *J. Am. Chem. Soc.* **127**, 15338 (2005)
8. Z. T. Deng, H. Lin, W. Ji, L. Gao, X. Lin, Z. H. Cheng, **X. B. He**, J. L. Lu, D. X. Shi, W. A. Hofer and H.-J. Gao. Selective analysis of molecular states by functionalized scanning tunneling microscopy tips. *Phys. Rev. Lett.* **96**, 156102 (2006)
9. Anlian Pan, Xiao Lin, Ruibin Liu, Chaorong Li, **Xiaobo He**, Hongjun Gao and Bingsuo Zou. Surface crystallization effects on the optical and electric properties of CdS nanorods. *Nanotechnology* **16**, 2402 (2005)
10. L. Gao, Z. T. Deng, W. Ji, X. Lin, Z. H. Cheng, **X. B. He**, D. X. Shi and H.-J. Gao. Understanding and controlling the weakly interacting interface in perylene/Ag(110). *Phys. Rev.*

ORAL PRESENTATIONS

1. APS 2008 March Meeting, Mar. 10-14, 2008, New Orleans, USA
2. CPS 2006 Full Meeting, Sep. 15-17, 2006, Tsinghua University, Beijing, P. R. China
3. CPS 2005 Full Meeting, Sep. 18-20, 2005, Wuhan, P. R. China

POSTER PRESENTATIONS

1. Beijing-TEDA 2004 Scanning Probe microscopy, Sensors and Nanostructures, May 23-27, 2004, Beijing-TEDA, China