

**Mr. KUN YAO**

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**EDUCATION**

Princeton University, Princeton NJ  
Ph.D. Candidate (Ph.D. expected 2007), Electrical Engineering  
Thesis Advisor: Prof. James C. Sturm

Princeton University, Princeton NJ  
M.A., Electrical Engineering, Dec. 2003

Peking University, Beijing, China  
B.Sc., Physics, June 2001  
Thesis: Local Analysis of the Complex Structures and the Ge Chemisorption Process on Si(111)-7×7 Surface Thesis Advisor: Prof. Hongjun Gao

**RESEARCH INTEREST**

CVD Growth of SiGe/SiGeC/Si Heterostructures and Quantum Device Applications

**EXPERIENCES****Research Experience**

Princeton Institute for the Science and Technology of Materials (PRISM), Department of Electrical Engineering, Princeton University  
Assistant in Research, Feb. 2002 – Present

Beijing Laboratory of Vacuum Physics, Institute of Physics, Chinese Academy of Sciences  
Research Assistant, June 2000 – July 2001

- Computational simulation of the Ge chemisorption on Si(111)-7×7 surface using an environment-dependent tight-binding potential model
- Developed and maintained the website for the laboratory
- Participated the 5<sup>th</sup> National Conference on Nanoscience and Surface Sciences, May 2001

Teaching Center for Basic Physics Experimentation, Peking University  
Lab Assistant and Software Engineer, Sept. 1998 – Aug. 2000

- Assisted in two research projects, “Measurement for the Thermal Conductivity with Flash Method” and “Measurement for the Modulus of Elasticity with a CCD camera”, both funded by a loan grant from The World Bank
- Developed and packaged the control software for commercialization

State Laboratory for Artificial Microstructure & Mesoscopic Physics, Peking University  
Research Assistant, June 1999 – Aug. 2000

- Analyzed data acquired by magneto-cardiography measurement using Matlab, created visualized animation using Adobe Premiere

**Teaching Experience**

Princeton University, Department of Electrical Engineering  
Assistant in Instruction for Integrated Circuits: Practice and Principles, Spring 2003  
Assistant in Instruction for Integrated Circuits Laboratory, Summer 2003

**Work Experience**

Office of Information Technology (OIT), Princeton University  
Residential Computing Consultant, Graduate College, Sept. 2001 – May 2004  
Residential Computing Consultant, Lawrence Apartments, Sept. 2004 – Present

**AWARDS AND HONORS**

2<sup>nd</sup> Prize in National Best Paper Awards for Teaching in College Physics, China, Apr. 2002

Academic Innovation Award, Peking University, Sept. 1999  
Highest awarded campus-wide for undergrad research achievement

Guang Cai Scholarship, Peking University, Dec. 1998

6<sup>th</sup> place in China Physics Olympiad, Oct. 1996

Also attended a training program for International Physics Olympiad at University of Science and Technology of China

**PUBLICATIONS**

Y. Wang, K. Yao and G. Zhang, The Measurement for Optical Parameters of GaN Thin Film with a Multi-functional Grating Spectrum Analyzer, College Physics (in Chinese) 20, issue 5, 36 (2001)

G. Yang, K. Yao, C. Sun and J. Duan, The Measurement for the Thermal Conductivity with Flash Method, Physics Experimentation (in Chinese), issue 4, (2001)

**SKILLS****Laboratory skills**

- Rapid-Thermal Chemical Vapor Deposition (RTCVD) and epitaxial growth of Si/SiGe/SiGeC heterostructures
- AFM Lithography, nanopattern formation and pattern transfer
- Semiconductor Device Fabrication: Wafer cleaning and patterning, lithography, wet/dry etching, metallization by thermal evaporation and sputtering, insulator thin film deposition, etc
- Electrical Measurement: I-V and C-V electrical characterization, Van Der Pauw and Hall measurements, low-temperature techniques, esp. He3 systems and dilution refrigerators
- Material characterization: Photoluminescence, Scanning Electron Microscopy (SEM)

**Computer Skills**

- IC EDA Tools: T-Suprem, Medici, L-Edit
- Programming: C++, Matlab, verilog VHDL, perl, HTML, S-Plus
- Miscellaneous: AutoCAD, Latex, Microsoft Access, Adobe Photoshop

**Language Skills**

- Mandarin Chinese (native speaker)