

Kang Yu

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EDUCATION

- **PhD in Physics** (Expected May 2010), Syracuse University, Syracuse, NY
Thesis Subject: *Vortex Dynamics in Superconducting channels* with Prof. Britton Plourde
- **Certificate of Advanced Study in Information Systems and Telecommunications Management** (Dec. 2009), Syracuse University, Syracuse, NY
- **B.S. in Applied Physics** (July 1998), Central University for Nationalities, Beijing, China

WORK EXPERIENCE

Research Assistant, Syracuse University, Syracuse, NY, USA (May 2004 to present)

- Fabricated low temperature superconducting devices with photolithography and electron-beam lithography and transferred with reactive ion etching at Cornell NanoScale Science and Technology Facility(CNF)
- Characterized fabricated structures by scanning electron microscope(SEM), atomic force microscope (AFM), profilometer and optical techniques
- Designed and built a double angle electron-beam evaporation system to deposit thin films and making Josephson tunnel junctions
- Developed various experiment automation software in LabVIEW
- Studied vortex dynamics and demonstrated vortex ratchet effect in nanoscale low temperature superconducting devices
- Developed a pico-voltmeter using a dc SQUID(Superconducting Quantum Interference Devices) for measuring flux-flow voltages from a small number of vortices moving through a nanoscale low temperature superconducting weak-pinning channel
- Studied techniques of taking Free Induction Decay(FID) signal by pulsed NMR with Prof. Arnold Honig
- Investigated local susceptibility of domain walls in ferromagnet with Scanning Hall Microscopy with Dr. Maxim Marchevsky

Sales Engineer, Beijing JONES Co., Ltd, Beijing, China (July 2002 to June 2003)

- Responsible for Electromagnetic Interference(EMI) sales and service for telecommunication, electronics and power industry, such as Nokia, Motorola, Samsung and Schneider_etc.
- Provided technical consulting services for current and prospective customers through phone calls and custom site visits, built and maintained long term business relationship with customers
- Coordinated work between engineering, production, accounting, service team and customer in order to win more orders and execute orders smoothly
- Collected market information, including customers, competitors and formed action plan after completed analysis, react promptly to market trends and conditions and customer activities

Research Assistant, Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China (Aug. 1998 to July 2002)

- Designed a fluid dynamic model to demonstrate and compute two-phase resistances of inner cooling circulating systems in power generators
- Provided services and optimized evaporative cooling systems at Dazhai hydropower plant, Yunnan Province, China
- Set up and tested a 400MW evaporative cooling hydro-generator, which was the largest generated energy in all evaporative cooling generators, at Lijixia hydropower plant, Qinghai Province, China

PUBLICATIONS AND PATENT

- **Kang Yu**, M. B. S. Hesselberth, P. H. Kes and B. L. T. Plourde, *Vortex dynamics in superconducting channels with periodic constrictions*, in submitting (2010)
- C. Song, M.P. DeFeo, **Kang Yu**, and B.L.T. Plourde, *Reducing microwave loss in superconducting resonators due to trapped vortices*, Appl. Phys. Lett. 95, 232501 (2009)
- C. Song, T.W. Heitmann, M.P. DeFeo, **Kang Yu**, R. McDermott, M. Neeley, John M. Martinis, B.L.T. Plourde, *Microwave response of vortices in superconducting thin films of Re and Al*, Phys. Rev. B 79, 174512 (2009)
- T. W. Heitmann, **Kang Yu**, C, Song, M. P. DeFeo, B. L. T. Plourde, M. B. S. Hesselberth, and P. H. Kes, *Picovoltmeter for probing vortex dynamics in a single weak-pinning Corbino channel*, Rev. of Scientific Instruments 79, 103906 (2008)
- **Kang Yu**, T. W. Heitmann, C, Song, M. P. DeFeo, B. L. T. Plourde, M. B. S. Hesselberth, and P. H. Kes, *Asymmetric weak-pinning superconducting channels: Vortex ratchets*, Phys. Rev. B 76, 220507(R) (2007)
- Deping Fu and **Kang Yu**, *The Evaporative Cooling and Circulating System in Turbo-generator's Stator Winding*, ELECTRICAL EQUIPMENT [J]. Electrical Equipment, 2001, 2(1): 32-34(in Chinese)
- **Patent**: Guobiao Gu (Director and Academician), Deping Fu, **Kang Yu**, and Nan Xiong, *Interior evaporative cooling of the stator winding for turbine generator* (2003), 00123867.1

CONFERENCE TALKS AND POSTERS

- American Physical Society(APS) March Meetings: 2009 at Pittsburgh Pennsylvania, 2008 at New Orleans Louisiana and 2007 at Denver Colorado
- 2006 3rd New York Complex Matter Workshop at Syracuse, New York
- Poster**: *Vortex dynamics in asymmetric weak-pinning superconducting channels*
Had been shown at the following conferences/meeting:
 - Cornell NanoScale Science and Technology Facility Annual Meeting, Ithaca, NY USA (Sept. 11, 2008)
 - 2008 Applied Superconductivity Conference, Chicago, IL USA (Aug. 17 - 22, 2008)
 - 25th International Conference on Low Temp. Physics, Amsterdam, Netherlands (Aug. 6 - 13 2008)

NANO-FABRICATION SKILLS

- **Photolithography and E-beam Lithography**
 - GCA Autostep 200 DSW i-line Wafer Stepper
 - PG3600 Optical Mask-making Writer
 - Heidelberg DWL66 Laser Pattern Generator and Direct Writer
 - JEOL Ebeam Lithography: JBX-9300FS Electron Beam Lithography System
- **Thin Film Deposition and Etching**
 - IPE 1000 Plasma Enhanced Chemical Vapor Deposition System
 - CVC SC4500 Combination Thermal / E-gun Evaporation System
 - Oxford PlasmaLab 80+ Reactive Ion Etching System
- **Metrology and Other**
 - FilMetrics film measurement systems: F20 / F40 / F50
 - Tencor P10 / P16 Profilometer
 - Various SEMs, AFMs and Optical Microscopes

LANGUAGE SKILL AND TEACHING

- Fluent in Chinese and English
- Taught physics undergraduate level courses from fall 2003 to spring 2006 at Syracuse University

COMPUTER PROFICIENCY

- Proficient in LabView, Mathematica, AutoCAD, Microsoft Office, LINUX and all Windows OS
- Familiar with Cadence, LaTeX, MATLAB, C/C++

HOBBIES

- Soccer, Camping, Music, Fishing