

Nick Koshnick

110 Waverley Oaks, Palo Alto, CA 94305
Mobile 650-387-9826 koshnick@solumtech.com

EDUCATION

January 2009 Stanford University Ph.D. Applied Physics
March 2003 Stanford University M.S. in Applied Physics
June 2001 Dartmouth College B.A. Cum Laude with Honors in Physics

FELLOWSHIPS & AWARDS

2006-2008 Stanford Nanoscale Science and Engineering Fellow, CPN program
March 2007 First Prize Poster at Stanford's Annual Nanoprobes Workshop

EXPERIENCES

ENTREPRENEURIAL

'09 Co-founded Solum: a soil measurement company.
'09 Consultant at Zenergy Power, a rapidly growing company making smart grid appliances
'08 Co-founded Fizztek: a weekly graduate student run startup club
'07 Stanford Business School, Summer Institute for Entrepreneurship
-Introduced business plan for the class project

RESEARCH

'03-'09 Research assistant in the lab of Kathryn Moler, applied physics / physics
-Designed and fabricated a submicron scanning SQUID susceptometers
-Initiated a joint project with participants at Texas Instruments, N.I.S.T., and UC-Denver
-Modeled inductance with PDE solvers to optimize the design
-Fabricated the fine device features with focused ion beam and electron beam technologies.
-Scanning SQUID based magnetic detection of phase coherence in superconducting rings.
-Engineered ultra-low temperature experimental apparatus, down to 0.012 Kelvin.
-Electron beam lithographic fabrication of a wide variety of sub-micron samples.
-Developed computational framework for acquiring and processing sensor data.
-Developed new theoretical frameworks for describing the ring behavior.
-Selected publications:
Koshnick et al. "Fluctuation Superconductivity in Mesoscopic Aluminum Rings"
Science **318** 5855 (2007)
Koshnick et al. "A Scanning SQUID Susceptometer with Terraced Sub-Micron Pickup Loops"
Applied Physics Letters **93** 243101 (2008) (Cover Article)
'05-'07 Nano-magnetic theme meeting organizer, Stanford Center for Probing the Nanoscale program
'02-'03 Research rotation projects with various Stanford professors, Applied Physics/Physics
Prof. Goldhaber-Gordon – Magnetically doped ZnSe quantum well semiconducting structures
Prof. Yamamoto – Theoretical analysis of High Tc band manipulation with laser illumination
Prof. Kasevich – Optics based experiments towards construction of Bose-Einstein condensates

SKILLS

- C++, Python, Perl, Matlab, Mathematica, Familiarity with Linux/Unix
- Experience with Electronics, PCB design, and Microprocessor Programming
- Machine shop skills include CNC milling, Lathe, and Solidworks CAD.
- Optical and E-beam Lithography

TEACHING/OUTREACH ACTIVITIES

- Two time lecturer in Applied Physics 275 "Probing the Nanoscale"
- Presented 5 invited and 5 contributed talks on SQUID's and superconducting rings.
- Instructor in outreach programs: Stanford Continuing Studies, a workshop for National Hispanic University Students and Teachers, CPN Summer Institute for Middle School Teachers, SLAC's Science Undergraduate Laboratory Internship, Lego Team Nanoscience Theme competition, East Palo Alto Science Bus program
- Introductory Physics Tutor
- T.A. of Physics 108, Low Temperature Physics

EXTRACURRICULAR LEADERSHIP EXPERIENCES

- 3 Year Varsity Athlete, Nordic Skiing (red-shirted one year)
- President of the Ledyard Canoe Club, a \$40K/year canoe rental and whitewater kayaking group
Expanded international travel programs
- Member of Casque and Gauntlet Senior Society for Campus Leaders