

Gregory S. Jenkins

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ADDRESS

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5903 Taylor Road	1213 Circle Lane
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EDUCATION

University of Maryland, College Park Ph.D. in Physics December, 2003	University of Maryland, College Park M.S. in Physics December, 1998
University of Texas, Austin B.S. in Physics December, 1993	

PUBLICATIONS

1. *FIR Hall Effect in Single Crystal $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$* , Ph.D. thesis, University of Maryland at College Park, Dec. 2003
2. *FIR Hall Effect instrumentation*, to be published, 2004
3. *FIR Hall Effect in Single Crystal $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$* , to be published, 2004
4. *FIR Hall Effect in Single Crystal $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$* , APS March meeting, to be presented, 2004
5. *Far-infrared study of $\text{YBa}_2\text{Cu}_3\text{O}_{6.4}$ films near the metal-insulator transition*, G. S. Jenkins, H. D. Drew, APS March meeting 2001
6. *Dependance of the IR Hall effect on the Oxygen doping in YBCO films*, L.B. Rigal, D.C. Schmadel, J.C. Cerne, M. Grayson, G.S. Jenkins, J.R. Simpson, H.D. Drew, APS March meeting 2001
7. *Infrared Hall Effect in High- T_c Superconductors: Evidence for Non-Fermi-Liquid Hall Scattering*, J. Cerne, M. Grayson, D. C. Schmadel, G. S. Jenkins, H. D. Drew, R. Hughes, A. Dabkowski, J. S. Preston, and P.-J. Kung, Phys. Rev. Lett. **84**, 3418-3421 (2000)
8. *Optical studies of the metal-insulator transition in photodoped $\text{YBa}_2\text{Cu}_3\text{O}_{6+x}$ films*, G. S. Jenkins, H. D. Drew, APS March meeting 2000
9. *Midinfrared Hall effect in thin-film metals: Probing the Fermi surface anisotropy in Au and Cu*, J. Cerne, D. C. Schmadel, M. Grayson, G. S. Jenkins, J. R. Simpson, and H. D. Drew, Phys. Rev. B **61**, 8133-8140 (2000)
10. *Mid-infrared Hall measurements in YBCO films: Strong temperature dependence of the Hall conductivity*, J. Cerne, M. Grayson, D.C. Schmadel, G.S. Jenkins, J.R. Simpson, H.D. Drew, APS March meeting 2000
11. *Single Electron Transistor measurements: sputtered AuPd dirty conductors and Anderson localization*, G. S. Jenkins, Center for Superconductivity Center, University of Maryland seminar, 1996

RESEARCH

Graduate Research Assistant sponsored by NSF Sept. 1998 – Dec. 2003, University of Maryland, Prof. H. D. Drew

experiments: FIR ac- Hall effect in high-Tc superconductor; Metal-insulator transition of photodoped YBCO: ac- conductivity using broadband FT spectroscopy with Bomem DA3, step-scan FT-FIR SpecAc spectrometer with He3 bolometer system, 100GHz waveguide transmission, and dc- resistivity measurements

skills: design and construction of heterodyne FIR optical system; design and construction of magnetic susceptibility probe; design and construction of He3 closed system for use with bolometer detector; design and construction of photodoping optical system utilizing a 9W diode laser array; construction and characterization of CO2 laser pumped FIR laser; modification of 100GHz Gunn diode waveguide system; extensive experience with high-Tc magnets and operation; fabrication of broadband FIR AR-coatings using deposition system; extensive modeling and analysis using Mathematica; various low temperature techniques; extensive Labview control/data acquisition software programming; extensive drafting, machining (lathes, saws, milling machines, drill presses, etc.), hard soldering, and welding experience; experience with step motors, servo motors, low vacuum systems, lock-in amplifiers, temperature controllers, HP spectrum analyzer, HP 6035E a/d-d/a programming, diode and bolometer detectors, vapor degreaser, He leak detectors, diffusion and turbo pump systems, mass flow controller; analog circuit design (filters, high frequency break-out box, ground loop isolation) and repair (Bomem DA3 control boards, pre-amplifiers); computer networking; installation of closed circulation cooling system; optical quality polishing of crystals (Si, GaAs, LAO, LSGO, quartz, etc.)

Graduate Research Assistant June 1996 – June 1997, University of Maryland, College Park, Prof. R. A. Webb

experiment: single electron transistor fabrication and characterization

skills: JOEL scanning electron microscope (<50nm structures) multi-layer lithography; wire bonding; sputter deposition; ion/plasma etching; circuit repair (full EG&G lock-in calibration, rate monitor controller repair, Alcatel He leak detector mass spectrometer repair and calibration); mixed LAN of DOS, Windows 3.1, windows 95, and unix computers; IDL software;

Infinitem Technology June 1997-1998, Hyattsville, MD, acquired funding for independent programming project of MIDI graphical controller software for Windows 95 operating system

Teaching Assistant Sept 1994 – June 1996, June 1997 – June 1998; various introductory physics courses

Research Assistant Jan. 1992 – Sept 1992, University of Texas, Austin, Department of Physics, Prof. Mark Raizen

experiment: design and construction of >5GHz electro-optical modulator

skills: design and construction of ultra-high vacuum pump station

Research Assistant May 1991 – Jan. 1992, University of Texas, Applied Research Laboratories, Gette Beauvais,

experiment: locating submarines using active sonar data and digital signal analysis techniques

skills: digital Fourier analysis techniques; programming in C and Fortran on VMS and UNIX platforms

REFERENCES

Dr. H. D. Drew

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Dr. R. A. Webb

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ACADEMIC HONORS

- **TA excellence honorable mention**, 1998, Physics Department of the University of Maryland
- **Summer Undergraduate Research Grant** sponsored by the American Physical Society's Laser Science Topical Group
- **Harlod P. Hanson Scholarship** sponsored by the University of Texas Physics Department
- **Music Departmental Scholarship** sponsored by the University of North Texas
- **Dean's List** at the University of Texas, Austin
- **Phi Beta Kappa** honors society