

Robert J. McQueeney

WORK

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EDUCATION

University of Pennsylvania

Ph. D. in Physics

Thesis: "*Lattice Effects in High Temperature Superconductors*"

Advisor: Takeshi Egami

Philadelphia, PA

December 1996

University of Connecticut

B. S. in Physics and Chemistry, double major, summa cum laude

Storrs, CT

June 1991

RESEARCH AND WORK EXPERIENCE

Iowa State University and Ames Laboratory

Department of Physics and Astronomy

Assistant Professor

Ames, IA

August 2003 - present

- Associate scientist at Ames Laboratory, Department of Energy.
- Principal investigator for project to study lattice and magnetic excitations in correlated electronic systems, complex magnetic materials, and martensitic phase transitions using neutron and x-ray scattering. Research funded through Ames Laboratory, Department of Energy, Basic Energy Sciences.
- Part of collaboration to study fundamental properties of magnetostrictive Galfenol alloys. Research funded through Office of Naval Research, MURI (2006-2011).

Los Alamos National Laboratory

Los Alamos Neutron Science Center (LANSCE) - Lujan Center

Technical Staff Member

Los Alamos, NM

November 1998 – July 2003

- Instrument scientist for the PHAROS inelastic spectrometer at LANSCE. Supported the user program through spectrometer operation, data acquisition, and data analysis.
- Principal investigator for project to study the electron-lattice coupling in high- T_c superconductors and other transition metal oxides using inelastic neutron and inelastic x-ray scattering. Awarded \$240K in LANL LDRD money for this project.
- Principal investigator for Stockpile Stewardship Program project to measure the phonon dispersion curves and phonon density-of-states of plutonium.
- Principal Investigator of the \$3.7M VERTEX spectrometer development project.
- Involved in a project to study the lattice dynamics, magnetism and thermodynamics of cerium, uranium, and their alloys using inelastic neutron scattering.

California Institute of Technology
Division of Engineering and Applied Science
Visitor in Materials Science

Pasadena, CA
June – July 1998

- Invited to work in the research group of Professor Brent Fultz to discuss analysis issues and the interpretation of inelastic neutron scattering data on cerium and plutonium. Many other topics were discussed, including the magnetism, lattice anharmonicity, and vibrational entropy of the rare-earths and actinides.

Los Alamos National Laboratory
Los Alamos Neutron Science Center - Lujan Center
Postdoctoral Fellow

Los Alamos, NM
December 1996 – November 1998

- Developed a method for measuring local vibrational atomic correlations in solids using pulsed neutron scattering at a spallation source.
- Studied electron-lattice coupling in high- T_c superconductors and other oxides.
- Studied the magnetism in cerium metal using inelastic neutron scattering.
- Involved with the operation of the PHAROS spectrometer at LANSCE.
- Mentored a summer student and worked collaboratively on a project to analytically calculate the resolution function of the PHAROS spectrometer.

MEMBERSHIPS AND HONORS

- 2003 Department of Energy Defense Programs Award of Excellence
- LANL LDRD proposal review panel.
- LANL nominee for Presidential Young Investigator Award
- American Association for the Advancement of Science
- American Physical Society
- Neutron Scattering Society of America
- Phi Beta Kappa, 1991

PROFESSIONAL SERVICE

- NDF IMR/MRI Review panel (2005)
- HYSPEC Executive Committee, Spallation Neutron Source (2004 - present)
- SEQUOIA Instrument Dev. Team, Spallation Neutron Source (2002 - present)
- American Conference on Neutron Scattering organizing committee (2002)
- Reviewer, NIST NCNR User proposals (2001 - present)
- ARCS Executive Committee, Spallation Neutron Source (2001 - present)
- LANL LDRD Exploratory Research Review Committee (2001-2002)
- SNS/HFIR Users Group Executive Committee (1999-2002)
- User's panel member, BESAC HFIR Review, Oak Ridge National Laboratory (1998)

TEACHING EXPERIENCE

Iowa State University

- S03 – F04: Teaching Assistant, Physics 221, Introduction of Classical Physics I
- Spring 2005-2007: Lecturer, Physics 306, Physics of Wave Motion
- Fall 2005-2007: Lecturer, Physics 304, Thermal Physics

TECHNICAL KNOWLEDGE

- Experienced in the techniques of time-of-flight inelastic neutron scattering, time-of-flight neutron powder diffraction, triple-axis neutron scattering, single-crystal neutron scattering, single-crystal x-ray diffuse scattering, single-crystal resonant diffuse x-ray scattering, and x-ray powder diffraction, and high-resolution inelastic x-ray scattering.
- Knowledgeable about the design and operation of time-of-flight spectrometers and pulsed spallation neutron sources.
- Have developed extensive FORTRAN codes to calculate phonon and spin wave dispersions and densities-of-states. These programs can also calculate most relevant neutron and x-ray scattering cross-sections (coherent single-phonon, incoherent single- and multiphonon, polycrystalline-averaged coherent, time-of-flight coherent and incoherent, thermal diffuse scattering, etc.).
- Knowledge of group theory as applied to crystal structures and phonon dispersions.
- Familiar with staff and neutron scattering facilities at LANSCE, HFIR, IPNS, ISIS.
- Proficient in FORTRAN and IDL programming languages. Also familiar with C, BASIC, Matlab, and HTML programming languages. Experience using Unix/Linux, VAX/VMS, DOS/Windows and MacOS operating systems. Knowledge of parallel computing.