Laura Kogler

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Research Interests

Neutrino physics, dark matter, low-energy nuclear/particle physics, nuclear non-proliferation

Education

University of California, Berkeley **September 2005 – November 2011**

Doctor of Philosophy in Physics November 2011

- Dissertation title: "A Measurement of the 2 neutrino double beta decay rate of ^{130}Te in the CUORICINO experiment"
- Advisor: Professor Stuart Freedman

Master of Arts in Physics May 2008

Justus Liebig Universität Gießen **August 2004 – July 2005**

Exchange student, Department of Physics

University of Washington, Seattle **September 2000 – August 2004**

Bachelor of Science, magna cum laude, with college honors in Physics, August 2005

Research Experience

Sandia National Labs, Livermore, CA

Postdoctoral Researcher **November 2011 – present**

Postdoc in the applied antineutrino physics group working on potential uses of neutrino detectors for reactor safeguards and arms-control treaty verification.

Lawrence Berkeley National Lab, Berkeley, CA

Graduate Student Researcher **September 2006 – November 2011**

Graduate student researcher working on the Cuoricino and CUORE neutrinoless double beta decay experiments.

- Helped develop object-oriented analysis framework for Cuoricino/CUORE
- Developed automatic calibration software
- Installed detectors and analyzed data for Cuoricino muon detection system
- Helped prepare and install detectors for CUORE R&D runs
- Worked on simulating backgrounds in Cuoricino with Geant4
- Analyzed Cuoricino data for $2\nu\beta\beta$ decay (thesis work)

University of California, Berkeley, Berkeley, CA

Graduate Student Researcher **February 2006 – August 2006**

Graduate student researcher in biophysics studying the effect of torque on RNAp in the RNA transcription process.

- Investigated novel ways to apply torque in optical tweezer setup
- Developed hardware and software for a system to apply torque using magnetic beads and an external magnetic field

University of Washington, Seattle, WA

Undergraduate research assistant **June 2001 – August 2004**

Research assistant in atomic physics working on experiment to measure the electric dipole moment of ^{199}Hg.

· Worked on improvements in DAQ software
· Investigated possible sources of systematic error
· Studied spin polarization decay in vapor cells
· Worked on various electronics and mechanical design projects

Teaching Experience

University of California, Berkeley, Berkeley, CA

Graduate Student Instructor, Physics 7A **January 2010 – May 2010**

Graduate student instructor for introductory physics course for physics and engineering majors. Covered basic mechanics, wave motion, and fluids. Held twice weekly discussion sections with short lectures. Led lab sections and graded lab reports.

Graduate Student Instructor, Physics 111 BSC **September 2005 – May 2006**

Graduate student instructor for upper-division undergraduate lab course in electronics. Supervised lab sections. Helped students one-on-one with conceptual understanding and practical electronics skills. Graded lab reports.

Publications

E. Andreotti *et al.*, "Double-beta decay of ^{130}Te to the first 0^+ excited state of ^{130}Xe with CUORICINO," *Phys. Rev. C*, **85** 045503 (2012). doi:10.1103/PhysRevC.85.045503

E. Andreotti *et al.*, "^{130}Te Neutrinoless Double Beta Decay with CUORICINO," *Astroparticle Physics*, **34** (2011), pp. 822–831. doi:10.1016/j.astropartphys.2011.02.002

E. Andreotti *et al.*, "Search for $\beta+$/EC double beta decay of ^{120}Te," *Astroparticle Physics*, **34** (2011), pp. 643-648 doi:10.1016/j.astropartphys.2010.12.011

C. Arnaboldi *et al.*, "Production of high purity TeO_2 single crystals for the study of neutrinoless double beta decay," *Journal of Crystal Growth*, **312**:20 (2010), pp. 2999–3008. doi:10.1016/j.jcrysgro.2010.06.034

E. Andreotti *et al.*, "Muon-induced backgrounds in the CUORICINO experiment," *Astroparticle Physics*, **34** (2010), pp. 18–24. doi:10.1016/j.astropartphys.2010.04.004

Presentations

"Antineutrino Detection as a Tool for Nonproliferation" 24th International Summer Symposium on Science and World Affairs, Princeton, NJ, 13 July 2012.

"CUORE and the search for neutrinoless double beta decay," APS "April" meeting, Washington, DC, 13 February 2010.

"Two-neutrino double beta decay in CUORICINO," Japan-US seminar on Double Beta Decay and Neutrinos, Waikoloa, HI, 12 October 2009.

"Cosmic Ray Contribution to the Cuoricino Background," APS Division of Nuclear Physics meeting, Oakland, CA, 25 October 2008.

Awards, Honors, and Professional Societies

Andersen Prize, University of Washington, 2003

Washington Scholar, 2000-2004

NASA Summer Undergraduate Research Program: Research Training Grant, 2001

Robert C. Byrd Honors Scholarship, 2000

National Merit Scholarship, 2000

Spokane Scholar Award, 2000

Member, American Physical Society

Skills

Computer skills C, C++, Python, LaTeX, Linux shell scripting, SQL, ROOT, Geant4, Java, LabView/LabWindows, Mathematica. Operating systems: Linux, OSX, Windows

Languages German (proficient), French (intermediate), Italian (basic)

Other Basic knowledge of electronics, cryogenics, machining/metal fabrication

Other

SWPS Outreach Coordinator **September 2008 – May 2010**
Organized outreach activities for the UC Berkeley Society of Women in the Physical Sciences (SWPS)