
Stephanie L. Bailey, Ph.D.

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OBJECTIVE To obtain a position in health outcomes research with a focus on decision analysis, cost/benefit analysis, and cost-effectiveness analysis in the areas of early detection, prevention and treatment.

EDUCATION Stanford University School of Medicine Stanford, California
National Cancer Institute (NCI) Postdoctoral Fellow 02/2007 - present
Department of Radiology
Cancer Intervention and Surveillance Modeling Network (CISNET)
Advisor: S. Plevritis

- Computational modeling of breast cancer outcomes to estimate the impact of screening and treatment on population trends in incidence and mortality.
- Auditing the Master of Science Graduate Program in Health Services Research.

Courses audited to date include HRP 283 Health Research Services Core Seminar, HRP 230 Cancer Epidemiology, MS&E 292 Health Policy Modeling, Med 255 Responsible Conduct of Research, HRP 391 Political Economy of Health Care, HRP 262 Intermediate Biostatistics: Regression, prediction, and survival analysis

The College of William and Mary Williamsburg, Virginia
Ph.D. in Experimental Nuclear Physics 01/2007
Title: *Parity-Violation in Elastic Electron Scattering: A First Measurement of the Parity Violating Asymmetry at $Q^2=0.631$ (GeV/c)² at Backward Angle*
Advisor: D. S. Armstrong

Awards and Achievements:

- 2004-2006 NASA VSGC Aerospace Graduate Research Fellowship
- 2005 NSF Student Sponsorship Program
- 2005 William and Mary Graduate Grant for International Travel

The College of William and Mary Williamsburg, Virginia
M.S. in Physics 05/16/2004
GPA: 3.68/4.00

Awards and Achievements:

- 2003-2004 NASA VSGC Aerospace Graduate Research Fellowship

The European Scientific Institute Archamps, France
Diplôme d'Etudes Approfondies (D.E.A.) 03/2003
(Equivalent to M.S. degree in US)
Joint Universities Accelerator School
Méthodes Physiques Expérimentales

Awards and Achievements:

- Graduated Cum Laude
- National Physical Science Consortium Graduate Fellowship Alternate
- NASA Aerospace Undergraduate Research Scholarship
- Graduated with Honors in Physics
- Golden Key International Honour Society
- National Society of Collegiate Scholars

GRANTS

NIH: F32 1F32CA128298-01: NRSA Postdoctoral Fellowship. A Tool to Assess the Impact of Treatment Parameters on Radiation Therapy Outcome. University of California Davis. (J.A. Purdy and J. Lehmann, Sponsors). Score 171, funded 1st round (declined)

NIH: T32 Postdoctoral Fellowship. Advanced Techniques in Cancer Imaging Fellowship Program. Stanford University School of Medicine, Department of Radiology, Stanford, CA (accepted)

SCHOOLS &
INSTITUTES

Nuclear Physics Summer School

Bar Harbor, ME

Organized by the Brookhaven National Laboratory

Summer 2004

Provided future researchers with a broad perspective on current research in the field. Lecture courses covered the major themes in nuclear physics research.

TEACHING

- Instructor for Introductory Physics for Life Sciences, Summer 2005. Duties: lecturing, grading, writing exams, supervising problem session and lab teaching assistants
- Teaching assistant for Quantum Physics II, Spring 2004. Duties: grading
- Teaching assistant for Mathematical Physics, Spring 2004. Duties: grading, lecturing during absence of professor
- Teaching assistant for Introductory Physics for Life Sciences, Fall 2003. Duties: laboratory sections, grading
- Teaching assistant for Introductory Physics for Physics Majors, Fall 2002. Duties: discussion and problem-solving sections, preparing solution sets, grading

RESEARCH
EXPERIENCES

Stanford University

Stanford, California

NCI Postdoctoral Fellowship

February 2007 - present

Department of Radiology

- Evaluated age-specific trends in breast cancer mortality.
- Evaluated the impact of the tumor growth rate and breast density on the lowered performance of screening mammography in young women compared to older women.
- Assisted the United States Preventive Services Task Force (USPSTF) evidence review group in setting screening guidelines.

College of William and Mary

Williamsburg, Virginia

Hadronic Group

May 2003 – January 2007

G⁰ Experiment at the Thomas Jefferson National Accelerator Facility

- Developed an automated technique to determine the efficiency of scintillation detectors and implemented it as a software/analysis tool.
- Assisted in the construction and assembly of the Cryostat Exit Detectors.
- Characterized Pockels cells for the production of a polarized beam, devised and tested procedures for optimizing the laser table configuration and electron source to minimize helicity-correlated beam properties.
- Implemented a multiple linear regression routine to eliminate residual helicity-correlated beam properties.

European Synchrotron Radiation Facility Grenoble, France
Graduate Student Traineeship Spring 2003
Accelerator Theory Group / Machine Division

- Developed computational technique to determine betatron function that does not involve models or require quadrupole handling.

University of Virginia Charlottesville, Virginia
Summer Research Summer 2002
Pion polarizability experiment at Thomas Jefferson National Accelerator Facility

- Developed analysis/software tools to determine resolutions and neutron detection efficiencies of the CEBAF Laser Accelerator Spectrometer (CLAS) detector.

College of William and Mary Williamsburg, Virginia
Physics Honors Thesis August 2001 – May 2002
 G^0 Experiment at Thomas Jefferson National Accelerator Facility

- Demonstrated that the detectors' performance was well understood, stable with time, and adequate for the needs of a precision parity-violation experiment.
- Developed analysis/software tools to monitor the performance of the detectors.

NASA Goddard Space Flight Center Greenbelt, Maryland
NASA Academy Summer 2001
X-Ray Astrophysics Branch

- Designed and implemented a SQUID-based apparatus for measuring $\mu\Omega$ resistances.
- Tested performance and operation of low-noise two stage dc SQUID amplifiers from Conductus by means of a dip test.

The University of Chicago Chicago, Illinois
NSF Research Experiences for Undergraduates Program Summer 2000
Condensed Matter Theory Group

- Analyzed images of bone tissue obtained by doctors at the Hospital for Special Surgery in New York using Fourier Transform Infrared Microspectroscopy.
- Quantified spatial correlations of crystallinity and crosslink maturity of bone images using statistical mechanics and determined whether this type of analysis yielded insight into differences in bone strength.

Los Alamos National Laboratory Los Alamos, New Mexico
Undergraduate Student Program January – May 2000
Biophysics Group

- Worked on a magnetic field detection system to sample magnetic noise along each spatial direction to help locate ultra-sensitive systems that measure magnetic signals from the human brain.
- Developed software to acquire the data from the magnetic sensors via an analogue-to-digital (A/D) card inside a laptop.

NASA Langley Research Center Hampton, Virginia
Langley Aerospace Research Summer Scholars Program Summer 1999
Structural Dynamics Branch

- Modeled space solar power system using MSC/NASTRAN to understand, characterize, and control its rigid and flexible body dynamics.

Nondestructive Evaluation Science Branch

- Employed an atomic emission spectroscopy technique to determine the type and quantity of metal in twelve certified oils to determine the health of an engine.

- Assisted in the design, drafting, fabrication and assembly of components for a detector test cryostat.
- Determined the optimal operating points of low-noise two stage dc SQUID amplifiers from Conductus by means of a dip test.
- Gained experience with cryogenic facilities and learned techniques for handling liquid cryogenes.

PUBLICATIONS

S. Bailey, B. Sigal, S. Plevritis. "Impact of Tumor Growth Rate and Breast Density on Mammographic Screening Outcomes in Women Ages 40 to 49 Years." (in preparation)

S. Plevritis, B. Sigal, S. Bailey. "Age-specific Trends in United States Breast Cancer Mortality." (in preparation)

[CISNET Collaboration]. "Effects of Mammography Screening at the Youngest and Oldest Ages: Estimates of Effectiveness from CISNET Models." (in preparation)

D. S. Armstrong, *et al.* [G0 Collaboration]. "Transverse Beam Spin Asymmetries in Forward-Angle Elastic Electron-Proton Scattering." *Phys. Rev. Lett.* 99 092301 (2007).

A. Acha *et al.* [HAPPEX collaboration]. "Precision Measurements of Nucleon Strange Form Factors at $Q^2 \sim 0.1 \text{ GeV}^2$." *Phys. Rev. Lett.* 98 032301 (2007).

D. S. Armstrong, *et al.* [G0 Collaboration]. "Strange Quark Contributions to Parity-Violating Asymmetries in the Forward G0 Electron Proton Scattering Experiment." *Phys. Rev. Lett.* 95, 092001 (2005).

Blank, R.D., T.H. Baldini, M. Kaufman, S. Bailey, R. Gupta, Y. Yershov, A.L. Boskey, S.N. Coppersmith, R.S. Bockman, P. Demant, and E.P. Paschalis "Spectroscopically Determined Collagen Pyr/deH-DHLNL Cross-Link Ratio and Crystallinity Indices Differ Markedly in Recombinant Congenic Mice with Divergent Calculated Bone Tissue Strength." *Connective Tissue Research* 44, 134-142 (2003).

PEER REVIEWED
ABSTRACTS AND
PROCEEDINGS

S. Bailey, B. Sigal, S. Plevritis. "Impact of Tumor Growth Rate and Breast Density on Mammographic Screening Outcomes in Women Ages 40 to 49 Years." *Radiological Society of North America (RSNA) Annual Meeting*. Chicago, IL (December 2008) (submitted)

S. Bailey, B. Sigal, S. Plevritis. "Impact of Tumor Growth Rate and Breast Density on Mammographic Screening Outcomes in Women Ages 40 to 49 Years." *Society for Medical Decision Making (SMDM) Annual Meeting*. Philadelphia, PA (October 2008) (submitted)

S. Bailey, B. Sigal, S. Plevritis. "Age-specific Trends in United States Breast Cancer Mortality." *Society for Medical Decision Making (SMDM) Annual Meeting*. Pittsburgh, PA (October 2007)

Y. Papaphilippou, L. Farvacque, J.-L. Revol, V. Serriere, S. Bailey. "Measurement of Linear Lattice Functions in the ESRF Storage Ring Using Turn-by-turn Data." *European Particle Accelerator Conference*. Knoxville, Tennessee (2005)

S. Bailey "A Penetration Depth Microcalorimeter." *American Physical Society Centennial Meeting*. Atlanta, Georgia (March 1999)

INVITED
PRESENTATIONS

“Impact of Tumor Volume Doubling Time and Breast Density on Mammography Sensitivity in Women Ages 40 to 49 Years.” The Center on Health Policy/Center on Primary Care and Outcomes Research in Progress Seminar, Stanford University, Stanford, California (May 2008)

“Strangeness in the Proton.” Department of Radiology, Stanford University School of Medicine, Stanford, California (August 2006)

“Strangeness in the Proton.” Department of Radiology, NYU School of Medicine, New York City, New York (August 2006)

“The G^0 Experiment : Forward and Backward Angles.” Hall C Users Meeting. Jefferson Lab, Newport News, Virginia (January 2006)

“The G^0 Experiment : Parity Violation in e-N Scattering.” VI Latin American Symposium on Nuclear Physics and Applications. Iguazu, Argentina (October 2005)

PROFESSIONAL
AFFILIATIONS

- Society for Medical Decision Making (SMDM)
- Radiological Society of North America (RSNA)
- International Society for Magnetic Resonance in Imaging (ISMRM)
- American Association of Physicist in Medicine (AAPM)

SKILLS

Linux/Unix, LaTeX, C++, Fortran, PC and Macintosh computers, Microsoft Office, Maple, Mathematica, Matlab, Labview, CERN based Root package (ROOT), Physics Analysis Workstation (PAW), NASA's MSC/NASTRAN