

Curriculum Vitae (short-form)

Personal Details

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Education

Ph.D., Physics Massachusetts Institute of Technology. Awarded 2010-02-17. GPA 4.9/5.0
Thesis: *Recoil Polarization Measurements of the Proton Electromagnetic Form Factor Ratio to High Momentum Transfer*. Accepted 2009-10-13. [Link](#)
Advisor: William Bertozzi, Professor of Physics.
B. S., Physics University of Virginia, 2004, *with Highest Distinction*. GPA 3.86/4.0

Professional Experience

08/2019-Present Associate Professor, Physics Department, University of Connecticut, Storrs, CT.
08/2013-08-2019 Assistant Professor, Physics Department. University of Connecticut, Storrs, CT.
01/2012-08/2013 Staff Scientist, Hall B Group. Thomas Jefferson National Accelerator Facility (Jefferson Lab). Newport News, VA
10/2009-12/2011 Director's Postdoctoral Fellow, P-25 Group. Los Alamos National Laboratory, Los Alamos, NM

Publications, Talks, and Other Scholarly Output

Last updated: 9/2022 [Publication List](#)

Honors/Awards/Funding

2020-2023 New three-year grant for \$795,000 from the Department of Energy, Office of Science, Office of Nuclear Physics. Title: "Three-dimensional Structure of the Nucleon"
2021 Sabbatical Salary support, Jefferson Lab (non-competitive award). 50% academic year salary and fringe benefits from Jefferson Lab to facilitate a full-year sabbatical at JLab during calendar year 2021, during which the first two SBS experiments in Hall A were installed and successfully completed.
2015-2020 US Department of Energy Office of Science Early Career Award:

- Five-year research grant totaling \$750,000.
- One of 50 proposals selected for funding from about 620 applications in the 2015 competition.

2013-2018 Bridge appointment, Thomas Jefferson National Accelerator Facility (Jefferson Lab or JLab). Bridge appointment with JLab supporting half of my academic-year salary and reducing my teaching load for five years.

2009	Southeastern Universities Research Association (SURA)/Jefferson Science Associates (JSA) Thesis Prize (Best Ph.D. thesis completed on research carried out at Jefferson Lab during 2009).
2009-2011	Director's Postdoctoral Fellowship, Los Alamos National Laboratory (accepted).
2009	Director's Postdoctoral Fellowship, Argonne National Laboratory (offered).
2006-2008	SURA/JSA Graduate Fellowship. Fellowship support for half the stipend of my graduate research assistantship.
2006	First prize, SURA annual graduate student poster competition.
2004-2005	Presidential Graduate Fellowship, MIT. Full stipend support with no teaching requirement and no required commitment to a specific research group for selected first-year graduate students in physics.
2004	James W. Elkins Award, University of Virginia (most outstanding graduating physics major).
2004	Phi Beta Kappa, University of Virginia.
2000-2004	Echols Scholar, University of Virginia

Professional Organizations/Service Work

2013-Present	American Association of University Professors (AAUP), National and UConn chapter member.
2005-Present	American Physical Society (APS) <ul style="list-style-type: none"> • Division of Nuclear Physics (DNP) • Topical Group on Hadronic Physics (GHP)
2017-2019	Hall A Collaboration Coordinating Committee, Secretary
2019-2021	Chair, SBS Collaboration Coordinating Committee
2014-2020	E12-09-018 experiment representative in SBS Coordinating Committee
2020-present	E12-07-109 experiment representative in SBS Coordinating Committee
2021-2023	Jefferson Lab Users' Organization Board of Directors, at-large member
2016-present	UConn physics department colloquium chair
2020-present	UConn physics department graduate admissions committee
2020-present	UConn physics department annual alumni newsletter organization (with support of physics admin staff).
2019	NSF panel reviewer
2015-present	Peer reviewer for several NSF and DOE grant proposals per year
2015-present	Frequent referee for peer reviewed journal publications in nuclear/particle physics, including Physical Review, Physics Letters, European Physical Journal and others.

Research Experience/Achievements (since Ph.D.)

08/2013-Present	University of Connecticut
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- Spokesperson of approved experiment [E12-09-018](#) studying neutron transverse spin structure in Hall A
- Spokesperson of approved experiment [E12-07-109](#) measuring polarization transfer in high- Q^2 elastic electron-proton scattering.
- Spokesperson and contact person of approved experiment [E12-20-008](#) that will measure polarization transfer in wide-angle charged pion photoproduction $\vec{\gamma}n \rightarrow \pi^- \vec{p}$.
- Ring Imaging Cherenkov (RICH) detector preparation for Hall A experiments.
- Leader of simulation and software working group within the SBS collaboration. Major software projects developed/led include:

SBS-offline Library for the specialized event reconstruction and online and offline data analysis software needed by the SBS experiments in Hall A, based on the [Podd](#) framework (standard analysis software for Hall A).

g4sbs GEANT4-based Monte Carlo simulation package for the SBS family of experiments in Hall A.

SBSGEM_standalone Standalone ROOT-based code for the analysis of GEM data: cluster-finding, hit reconstruction, track-finding, software alignment, analysis of spatial resolution, detection and track-finding efficiency, gain, etc.

- Data analysis and publication of physics results from Jefferson Lab experiments.
- Advising of Ph.D. and Masters' thesis students in UConn physics department. One Ph.D. student graduated, three current advisees.
- Supervision of undergraduate research thesis and independent study projects.
- Development of new experiment proposals.
- Development of external research funding. See above.
- Postdoctoral mentoring, 2016-present.
 - Dr. Eric Fuchey, 2016-2022. Now at Mississippi State University.
 - Dr. Rupesh Dotel, 2022-present.

01/2012-08/2013 Jefferson Lab, Hall B Group

- Research, development, [simulation](#), design, construction and testing of the [High Threshold Cherenkov Counter \(HTCC\)](#) for the CLAS12 spectrometer in Hall B. The HTCC detects Cherenkov radiation emitted by charged particles moving faster than the speed of light in the CO₂ gas volume of the detector. This detector is used to identify scattered electrons with momenta up to 5 GeV/c.
- Membership and active participation in the physics program of the CLAS collaboration.
- Data analysis and publication of results from Jefferson Lab experiments.
- Quality control, including ultrasonic void detection and laser profile measurements, of soldering process performed on superconducting Rutherford cable by external contractor for the CLAS12 Torus and solenoid magnets.

10/2009-12/2011 Los Alamos National Laboratory, P-25 Group (Director's Postdoctoral Fellowship).

- Analysis, simulation and preparation of publications from completed Jefferson Lab experiment [E06-010](#): the neutron transversity experiment. This experiment, which collected data in 2008-2009, measured the target single spin asymmetries and the

beam-target double-spin asymmetries in charged pion electro-production in semi-inclusive deep-inelastic electron scattering (SIDIS) on a transversely polarized Helium-3 target, shedding light on the transverse spin and orbital angular momentum distributions of quarks in the neutron.

- Development of experiment proposals for the JLab 12 GeV Upgrade, including [E12-09-018](#), of which I am a spokesperson, which was approved for 64 beam-days with an “A-” scientific rating by the Jefferson Lab Program Advisory Committee (PAC) at its 38th meeting in August 2011.
- Data analysis and final publication of several experiments related to the proton form factors, including [E04-108](#) (the subject of my Ph.D. thesis), [E04-019](#), and [E99-007](#)

Courses Taught

- PHYS 3402 [Quantum Mechanics II](#)
- Spring semester, 2022
- PHYS 3101 [Mechanics I](#)
- Spring semester, 2020
- PHYS 1600Q [Introduction to Modern Physics.](#)
- Fall semester, 2018
 - Fall semester, 2017
- PHYS 2501W [Advanced Undergraduate Laboratory](#)
- Spring semester, 2023
 - Fall semester, 2022
 - Fall semester, 2020
 - Fall semester, 2019
 - Fall semester, 2018
 - Fall semester, 2014
 - Fall semester, 2013
- PHYS 1010Q [Elements of Physics.](#)
- Fall semester, 2016
 - Fall semester, 2015

September 28, 2022