

## Contact Information

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## Research Interests

- Experimental Neutrino Physics and High-Energy Particle Physics
- Analysis of Long-Baseline Oscillation Data to Measure Neutrino Mixing Parameters
- Hardware Development for Photon Detection Systems in Liquid Noble Elements
- Software Development for Event Simulation and Reconstruction
- Software Development for Particle Detector Data Acquisition and Monitoring
- Physics Education and Public Outreach

## Education

- Ph.D.      Physics, Indiana University, July 2012  
*Searches for Lorentz Violation in Top-Quark Production and Decay at Hadron Colliders*  
*Thesis Advisor: Professor Harold G. Evans*
- M.S.      Physics, Indiana University, August 2005
- B.A.      Physics & Mathematics *summa cum laude*, Anderson University, May 2004

## Professional Experience

2017 – present	Assistant Professor of Physics	Syracuse University
2013 – 2017	Postdoctoral Researcher	Indiana University, Bloomington
2012	Lecturer	Indiana University, Bloomington
2004 – 2012	Graduate Student	Indiana University, Bloomington
2000 – 2004	Undergraduate	Anderson University

## Collaboration/Experiment Participation

2013 – present	Member	DUNE Collaboration
2013 – present	Member	NOvA Experiment
2015 – present	Collaborator	SBND Collaboration
2010 – 2012	Collaborator	DØ Experiment
2010 – 2012	Member	Indiana University Center for Spacetime Symmetries
2006 – 2012	Member	ATLAS Experiment

## Professional Service and Public Outreach

2017	Organizing Committee Co-Chair, LIDINE 2017 Conference	SLAC
2017	Analysis Review Committee – $\nu_\mu$ $CC \pi^0$ inclusive differential cross section	NOvA
2016 – 2017	Speakers Committee Member	DUNE
2015 – 2017	Institute Board Representative for Young DUNE	DUNE
2015 – 2017	Convener, Photon Detector Simulation and Reconstruction Working Group	DUNE

2015	Organizing Committee Member and Fellowship Coordinator, LIDINE 2015 Conference	SUNY (Albany)
2014	Photon Detection Co-Chair, 2014 LArTPC R&D Workshop	Fermilab
2011 – 2014	Tutor to undergraduates in physics	Indiana U.
2010 – 2011	Physics & Astronomy Open House Planning Committee	Indiana U.
2010 – 2011	Physics Outreach Committee	Indiana U.
2010 – 2011	Physics Undergraduate Curriculum Committee	Indiana U.
2009 – 2011	Undergraduate Physics Club graduate student mentor	Indiana U.
2009 – 2011	Various elementary school science outreach events	Indiana U.
2008 – 2009	Software Development and Commissioning Co-coordinator, Transition Radiation Tracker	ATLAS
2006 – 2010	TRT Conditions Software expert	ATLAS

### Research Mentorship

2014 – 2017	Graduate Research Mentor, Bruce Howard (Indiana U.)
2014 – 2017	Graduate Research Mentor, Chris Macias (Indiana U.)
2016 – 2017	Graduate Research Mentor, Micah Groh (Indiana U.)
2016	Undergraduate Summer Research Supervisor, Robert Smart (Indiana U.)
2014 – 2016	Undergraduate Research Mentor, Johnathon Lowery (Indiana U.)
2010	Undergraduate Research Mentor, Ben Weinert (Indiana U.)

### Teaching Experience

2012	Lecturer, P150 “How Things Work”	Indiana U.
2012	Guest Lecturer, P301 “Physics III”	Indiana U.
2012	AP Physics Instructor, Foundations in Science and Mathematics Summer Program	Indiana U.
2011 – 2012	Guest Lecturer, P114 “Physics for Poets”	Indiana U.
2004 – 2006	Associate Instructor, Introductory Physics (Lab and Discussion – General Physics P201, P202, P221, P222)	Indiana U.
2000 – 2004	Teaching Assistant, Physics and Astronomy (Lab – General Physics, Astronomy, Musical Acoustics, Weather)	Anderson U.

### Awards

2010	College of Arts and Sciences Dissertation Year Research Fellowship	Indiana U.
2009	“Best Scientific Content” Poster Award, ATLAS Physics Workshop of the Americas	ATLAS Exp.

## Primary Publications

- “Scintillation light from cosmic-ray muons in liquid argon,”  
D. Whittington, S. Mufson, and B. Howard, JINST 11 P05016 (2016)
- “Photon Detector Designs for the Deep Underground Neutrino Experiment,” D. Whittington,  
in *Proceedings of Light Detection in Noble Elements (LIDINE 2015)*, JINST 11 C05019 (2016)
- ”Summary of the second workshop on liquid argon time projection chamber research and develop-  
ment in the United States,” R. Acciarri *et al.*, 2015 JINST 10 T07006 (contributor, editor)
- “Search for Lorentz Violation in Top-Quark Pair Production and Decay,”  
D. Whittington, in *Proceedings of the Sixth Meeting on CPT and Lorentz Symmetry*,  
edited by V.A. Kostelecký (World Scientific, Hackensack, NJ, 2014)
- “Search for violation of Lorentz invariance in top quark pair production and decay,”  
V.M. Abazov *et al.* (DØ Collaboration), Phys. Rev. Lett. 108, 261603 (2012)
- “Sensitivity to Lorentz Violation in the Top-Quark Sector at the LHC,” D. Whittington,  
in *Proceedings of the Fifth Meeting on CPT and Lorentz Symmetry*, edited by V.A. Kostelecký  
(World Scientific, Hackensack, NJ, 2010)

## Selected Collaboration Publications

- “Constraints on Oscillation Parameters from  $\nu_e$  Appearance and  $\nu_\mu$  Disappearance in NOvA,”  
P. Adamson *et al.* (NOvA Collaboration), Phys. Rev. Lett. 118, 231801 (2017)
- “Measurement of the Neutrino Mixing Angle  $\theta_{23}$  in NOvA,” P. Adamson *et al.* (NOvA Collabora-  
tion), Phys. Rev. Lett. 118, 151802 (2017)
- “First measurement of electron neutrino appearance in NOvA,” P. Adamson *et al.* (NOvA Collab-  
oration), Phys. Rev. Lett. 116, 151806 (2016), arXiv:1601.05022
- “First measurement of muon-neutrino disappearance in NOvA,” P. Adamson *et al.* (NOvA Col-  
laboration), Phys. Rev. D 93 051104 2016, arXiv:1601.05037
- “LBNF/DUNE Conceptual Design Report Vol. 1: The LBNF and DUNE Projects,”  
R. Acciarri *et al.* (DUNE), arXiv:1601.05471
- “LBNF/DUNE Conceptual Design Report Vol. 4: The DUNE Detectors at LBNF,”  
R. Acciarri *et al.* (DUNE), arXiv:1601.02984
- “The Intermediate Neutrino Program,” C. Adams *et al.*, arXiv:1503.06637
- “A Proposal for a Three Detector Short-Baseline Neutrino Oscillation Program in the Fermilab  
Booster Neutrino Beam,” M. Antonello *et al.*, arXiv:1503.01520
- “LAr1-ND: Testing Neutrino Anomalies with Multiple LAr TPC Detectors at Fermilab,”  
C. Adams *et al.*, FERMILAB-PROPOSAL-1053
- “The Long-Baseline Neutrino Experiment: Exploring Fundamental Symmetries of the Universe”  
The LBNE Collaboration, C. Adams *et al.*, arXiv:1307.7335
- “Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS  
detector at the LHC,” ATLAS Collaboration, G. Aad *et al.*, Phys. Lett. B 716 (2012) 1-29
- “The ATLAS Experiment at the CERN Large Hadron Collider”  
The ATLAS Collaboration, G. Aad *et al.*, 2008 JINST 3 S08003
- “The ATLAS Transition Radiation Tracker (TRT) proportional drift tube: design and performance”  
ATLAS TRT collaboration, E. Abat *et al.*, 2008 JINST 3 P02013

## Full Publication List

<http://inspirehep.net/search?p=find+a+D.Whittington.1>

## Invited Talks

- “Collecting Light from Neutrino Interactions,”  
May 25, 2017, Neutrino Seminar Series, Fermilab
- “The Scintillating Science of Long-Baseline Neutrino Experiments,”  
Feb. 23, 2017, Physics Department Colloquium, Syracuse University
- “Scintillating Science with Long-Baseline Neutrino Detectors,”  
Mar. 30, 2016, Neutrino Seminar, Boston University
- “Scintillation Detection for a Large Liquid Argon Time Projection Chamber,”  
Feb. 23, 2016, HEP Seminar, Northwestern University
- “Photon Detector Designs for the Deep Underground Neutrino Experiment,”  
Aug. 28-30, 2015, Light Detection in Noble Elements (LIDINE), SUNY U. at Albany
- “Alternative PD Design: WLS Radiator + WLS Light Guide,”  
May 19-20, 2015, DUNE Far Detector Design Review
- “Design Testing for a Large-Area Photon Detection System: Light-Collecting Paddles and SiPMs”  
July 8, 2014, LArTPC R&D 2014, Fermi National Accelerator Laboratory
- “Photon Detector Paddle, Sensor, and Readout Design”  
June 16, 2014, 35t Prototype Phase 2 Testing and Assembly Readiness Review,  
Physical Sciences Laboratory, U. Wisconsin-Madison
- “Development of a Photon Detection System in Liquid Argon for the Long-Baseline Neutrino Expt.”  
Dec. 11, 2013, Laboratory for Particle Physics and Cosmology, Harvard University  
Dec. 10, 2013, Department of Physics, Massachusetts Institute of Technology
- “LBNE Photon Detector Testing at TallBo”  
Oct. 28, 2013, All Experiments Meeting, Fermi National Accelerator Laboratory
- “Searching for Lorentz Violation in the Top-Quark Sector”  
June 20, 2013, Sixth Meeting on CPT and Lorentz Symmetry, Indiana University
- “Particle Physics at ATLAS: Exploring the Energy Frontier”  
2012, Advanced College Project Review Seminar (Physics), Indiana University

## Conference Presentations

- “Development of a Photon Detection System in Liquid Argon for DUNE,” APS DPF August 2015
- “How can you detect a reactor-driven submarine based on a neutrino detector?”  
International Neutrino Summer School 2014 / 70<sup>th</sup> Scottish Univ. Summer School in Physics
- “Development of a Photon Detection System in Liquid Argon for the Long-Baseline Neutrino Expt.”  
Physics in Collision XXXIV (Poster)  
Neutrino 2014 (Poster)  
APS April Conference 2014
- “Search for Violation of Lorentz Invariance in”  $t\bar{t}$  “Production and Decay at the DØ Experiment”  
APS April Conference 2012
- “Search for Lorentz Invariance Violation in Top-Quark Production and Decay at DØ”  
All DØ Meeting 2012, DØ Winter Physics Workshop 2012
- “Sensitivity to Lorentz violation in the top quark sector at the ATLAS detector” (Poster)  
Fifth Meeting on CPT and Lorentz Symmetry 2010
- “Reconstructing boosted top decays – a window on new physics at ATLAS” (Poster)  
ATLAS Physics Workshop of the Americas 2009
- “Search for Exotics with Top Quark Final States,” North/South Am. ATLAS Top Meeting 2008