

Samuel D. Homiller

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Education	Stony Brook University	Stony Brook, NY
	<i>Ph.D. Candidate, Yang Institute for Theoretical Physics</i>	Expected May, 2020
	Advisor: Patrick Meade	
	University of Illinois at Urbana-Champaign	Urbana, IL
	<i>B.S., Physics - Magna cum Laude, Highest Distinction</i>	May, 2015
	<i>B.S., Mathematics - Magna cum Laude, Highest Distinction</i>	
	Thesis: Search for Nucleon Decays into Invisible Channels in Xe-136	
	North Carolina School of Science and Math	Durham, NC
	<i>High School Diploma</i>	June 2011
Interests	I'm interested in quantum field theory and it's applications to particle physics and physics beyond the standard model of particle physics (BSM). In particular, I'm interested in the theoretical and phenomenological aspects of BSM physics, including electroweak baryogenesis, dark matter, extended Higgs sectors, and their signatures at the LHC and other colliders.	
Experience	Research Assistant	Yang Institute for Theoretical Physics
	May 2017 - Present	Advisor: Patrick Meade Stony Brook, NY
	Studying prospects for measuring the Higgs trilinear coupling via di-Higgs production at future colliders.	
	Research Assistant	Nuclear Experimental Group, UIUC
	August 2012 - August 2015	Mentor: Liang Yang, EXO Collaboration Urbana, IL
	Led an analysis on multiple nucleons decaying into invisible channels using the EXO-200 data and contributed to the search for Lorentz and CP violation in beta decays. Developed noise correlation studies that were used in the noise removing algorithm for the EXO-200 analysis. Worked on design and construction of a liquid xenon circulation system for use in testing components of the next-generation detector, nEXO.	
	Research Assistant	Inst. for Condensed Matter Theory, UIUC
	May 2015 - August 2015	Mentor: Karin Dahmen Urbana, IL
	I worked in Professor Karin Dahmen's group, investigating the temperature dependence of avalanche statistics in simulations of certain bulk metallic glasses.	
	Research Assistant	Louisiana State University
	June 2012 - August 2012	Mentor: Thomas Kutter Baton Rouge, LA
	Worked with Prof. Thomas Kutter in the T2K Collaboration as part of the Research Experience for Undergraduates (REU) program, sponsored by the NSF.	

Publications	<p><i>Search for nucleon decays with EXO-200</i>, J. B. Albert et al. (EXO-200 Collaboration), arXiv:1710.07670.</p> <p><i>First search for Lorentz and CPT violation in double beta decay with EXO-200</i>, J. B. Albert et al. (EXO-200 Collaboration), Phys. Rev. D 93 072001 (2016).</p>	
Talks	<p><i>Measuring the Higgs Trilinear Coupling at HE-LHC</i>, October 12, 2017. Brookhaven Forum 2017, Brookhaven National Laboratory, Upton NY 11973.</p> <p><i>Search for Nucleon Decays in 136-Xe with EXO-200</i>, January 30, 2015. Physics Undergraduate Research Symposium, University of Illinois at Urbana-Champaign.</p> <p><i>Polynomials Constant on a Line</i>, December 12, 2013. Illinois Geometry Lab Open House, University of Illinois at Urbana-Champaign.</p> <p><i>Charged Current Analysis in T2K Reconstruction</i>, July 27, 2012. Summer Undergraduate Research Forum (SURF), Louisiana State University.</p>	
Awards and Fellowships	<p>Silsbee Prize (Travel Award), 2017. Ernest M. Lyman Prize (Outstanding Graduating Senior in Physics), 2015. Robert E. Hetrick Outstanding Senior Thesis Award, 2015. Lorella M. Jones Summer Research Award, 2014. James Scholar, University of Illinois at Urbana-Champaign, 2011 - 2015. Dean's List, University of Illinois at Urbana-Champaign, Fall 2011 - Spring 2015. University Achievement Scholar, University of Illinois at Urbana-Champaign, 2011 - 2015.</p>	
Teaching	<p>Teaching Assistant August, 2015 - Present</p> <p>Courses Taught: PHY 252 - Modern Physics Laboratory PHY 123 - Classical Physics A (Lab) PHY 134 - Classical Physics Laboratory II PHY 133 - Classical Physics Laboratory I</p>	<p>Stony Brook University, Dept. of Physics Stony Brook, NY</p> <p>Fall 2016, Spring 2017 Summer 2016 Spring 2016 Fall 2015</p>
Skills	<p>L^AT_EX, Python, C++, MATLAB, Mathematica.</p>	