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Northwestern University
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Curriculum Vitae, July 31, 2015

Education and Training

Carnegie Mellon University	Physics	B.S., 2002
Princeton University	Physics	Ph.D., 2009
University of Chicago	Kavli Institute for Cosmological Physics	2009-2012

Research and Professional Experience

- Sept. 2012 – **Northwestern University**, Assistant Professor, Dept of Physics and Astronomy
Fermi National Accelerator Laboratory, Associate Scientist Joint Appointee,
Fermilab Center for Particle Astrophysics
Member of the PICO Collaboration: Level-2 manager for Calibrations and Test Chambers, member of the PICO science board.
Member of the LZ Collaboration: Responsible for process controls for xenon purification and recovery systems. Member of the LZ Institutional board.
- 2009 – 2012 **University of Chicago**, Kavli Fellow, Kavli Institute for Cosmological Physics
Member of the COUPP Collaboration: Operations manager for the COUPP-4 dark matter detector at Fermilab and SNOLAB and upgrade-manager for COUPP-60 detector. Major contributor to all COUPP analysis, operations, construction, and detector design.
- 2004 – 2008 **Princeton University and Case Western**, Assistantship in Research
Member of the XENON and LUX collaborations: Performed R&D on xenon TPCs at Princeton and Case, analysis for the XENON10 dark matter detector, and contributed to proposal and early construction of LUX.

Honors and Awards

2014	Department of Energy Early Career Awardee
2008	Kavli Fellowship (Kavli Institute for Cosmological Physics, University of Chicago)
2002	National Defense Science and Engineering Graduate Fellowship
2002	Centennial Fellowship (Princeton University)
2002	Phi Kappa Phi Award of Excellence
2001	Barry M. Goldwater Scholarship
2001	Phi Beta Kappa Honor Society
2001	Phi Kappa Phi Honor Society

Seminars, Colloquia, and Invited Conference Presentations

2015	Physics Division Colloquium, Argonne National Lab, Argonne, IL HEP Division Seminar, Argonne National Lab, Argonne, IL
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- 2014 Nuclear Aspects of Dark Matter, University of Washington Institute for Nuclear Theory, Seattle, WA
Physics Department Colloquium, The Ohio State University, Columbus, OH
- 2013 Science Café (public lecture), Northwestern University, IL
- 2012 Research Progress Meeting, Lawrence Berkeley National Lab, CA
Physics Seminar, University of California, Berkeley, CA
Physics Colloquium, University of Cincinnati, OH
Astrophysics Seminar, Stanford University, Palo Alto, CA
Enrico Fermi Institute Colloquium, University of Chicago, IL
- 2011 Joint Experimental-Theoretical Seminar, Fermilab, IL
Particle Astrophysics Seminar, Fermilab, IL
High Energy Physics Special Colloquium, Northwestern University, IL
Physics Division Seminar, Argonne National Lab, IL
Medium and High Energy Seminar, University of Illinois, Urbana-Champaign, IL
High Energy / Nuclear Seminar, UMass, Amherst, MA
Nuclear and Particle Seminar, MIT, Cambridge, MA
LPPC Seminar, Harvard University, Cambridge, MA
Particle and Astrophysics Seminar, Universität Zürich, Switzerland
EW Interactions and Unified Theories, Rencontres de Moriond, La Thuile, Italy
HEP Seminar, University of Chicago, IL
Indirect and Direct Detection of Dark Matter, Aspen, CO
- 2010 SNOLAB Workshop / EAC Meeting, SNOLAB, Ontario
UCLA Dark Matter 2010, Marina del Rey, CA
Particle Astrophysics Seminar, Fermilab, IL
- 2008 Particle Astrophysics Seminar, Fermilab, IL

Teaching Experience

Northwestern University, Department of Physics and Astronomy

PHY 360-0, Modern Physics Laboratory 2013-present

Service Work

Northwestern University, Department of Physics and Astronomy

Graduate Admissions Committee 2012-2014

Graduate Qualifier Exam Committee 2013-present

Fermilab Center for Particle Astrophysics

FCPA Postdoctoral Search Committee 2012-2013

Schramm Experimental Fellow Search Committee 2012-2013

Outreach and Mentoring

Northwestern University, CIERA REU: Astrophysics in its Modern Interdisciplinary Context

Mentees: Jason Parks (2015)

Hinsdale Central High School, SIR (Student Inquiry and Research)

Mentees: Maddie Boleyn (2015)

Niles North High School student research program

Mentees: Sharmain Siddiqui (2015)

Adlai E Stephenson High School, SPARK (Science Professionals as Resource Knowledge)

Mentees: Brian Zhou (2014), Pranjali Ratha (2014), Duk Kyu Lim (2013).

Illinois Math and Science Academy, SIR (Student Inquiry and Research)

Mentees: Bhairvi Shah (2013-2014)

Coordinated and starred in a segment on dark matter featuring the COUPP 4 experiment at SNOLAB on “Daily Planet”, Discovery Channel, Canada. Air-date Sept 19, 2012.

Undergraduate, Graduate, and Postdoctoral Advisees

Graduate Advisees (2):

Miaotianzi Jin (Ph.D, in progress at **Northwestern University**)

Daniel Baxter (Ph.D, in progress at **Northwestern University**)

Postdoctoral Advisees (1):

Jianjie Zhang (postdoc in progress at **Northwestern University**)

Undergraduate Advisees (4): Kevin Krout (2017, Northwestern University), Eugene Wu (2017, Northwestern University), Jon Chen (2018, Northwestern University), Ankur Gupta (2018, Northwestern University)

Selected Publications (“*first author, et al*” used for author lists with 11 or more authors)

C. Amole *et al.* “Dark Matter Search Results from the PICO-2L C₃F₈ Bubble Chamber.” Phys. Rev. Lett. **114**, 231302 (2015). <http://dx.doi.org/10.1103/PhysRevLett.114.231302>

E. Behnke *et al.* “Direct Measurement of the Bubble Nucleation Energy Threshold in a CF₃I Bubble Chamber.” Phys. Rev. **D 88**, 021101(R) (2013). <http://link.aps.org/doi/10.1103/PhysRevD.88.021101>

E. Behnke *et al.* “First dark matter search results from a 4-kg CF₃I bubble chamber operated in a deep underground site.” Phys. Rev. **D 86**, 052001 (2012). <http://link.aps.org/doi/10.1103/PhysRevD.86.052001>

E. Behnke *et al.* “Improved Limits on Spin-Dependent WIMP-Proton Interactions from a Two Liter CF₃I Bubble Chamber.” Phys. Rev. Lett. **106**, 021303 (2011). <http://link.aps.org/doi/10.1103/PhysRevLett.106.021303>

P. Sorensen and C.E. Dahl. “Nuclear recoil energy scale in liquid xenon with application to the direct detection of dark matter.” Phys. Rev. **D 83**, 063501 (2011). <http://link.aps.org/doi/10.1103/PhysRevD.83.063501>

J. Angle *et al.* “First Results from the XENON10 Dark Matter Experiment at the Gran Sasso National Laboratory.” Phys. Rev. Lett. **100**, 021303 (2008). <http://link.aps.org/doi/10.1103/PhysRevLett.100.021303>

T. Shutt, C.E. Dahl, J. Kwong, A. Bolozdynya and P. Brusov. “Performance and fundamental processes at low energy in a two-phase liquid xenon dark matter detector.” Nucl. Inst. Meth. **A 579**, 451–453 (2007). <http://dx.doi.org/10.1016/j.nima.2007.04.104>

E. Aprile, C.E. Dahl, L. deViveiros, R.J. Gaitskell, K.L. Giboni, J. Kwong, P. Majewski, K. Ni, T. Shutt and M. Yamashita. “Simultaneous Measurement of Ionization and Scintillation from Nuclear Recoils in Liquid Xenon for a Dark Matter Experiment.” Phys. Rev. Lett. **97**, 081302 (2006). <http://link.aps.org/doi/10.1103/PhysRevLett.97.081302>