James Bourbeau

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Education

Physics Graduate Student — 2013-Present
University of Wisconsin–Madison
- Advisor: Stefan Westerhoff

Honors Bachelor of Science, Physics — 2009-2013
University of Texas at Arlington
- Summa Cum Laude
- Thesis: *Detector Development for a High Precision Time of Flight Detector*
- Advisor: Andrew Brandt
- Minor: Mathematics

Publications

Y. Bai, J. Bourbeau, and T. Lin. *Dark Matter Searches with a Mono-Z' Jet*. JHEP **1506**, 205 (2015). [arXiv:1504.01395].

Research Experience

IceCube Collaboration — 2015-Present
Graduate Researcher, UW
- Studying cosmic-ray anisotropy using the IceCube and IceTop detectors.

High Energy Phenomenology Group — 2014-2015
Graduate Researcher, UW
- Used effective field theory and simplified model methods to study dark matter signatures at collider experiments. In particular, searching for Z' jets at the LHC.

ATLAS Forward Proton (AFP) Detector — 2010-2013
Undergraduate Researcher, UTA
- Contributed to the development of the AFP detector system, a high-precision time-of-flight detector that was proposed as part of an upgrade to the ATLAS experiment at the LHC.
  - Evaluated the performance of microchannel plate (MCP) photomultiplier tubes (PMTs).
  - Wrote and maintained code base used to analyzed data collected in the lab (C++ and ROOT).

Nanoparticle Scintillator Radiation Detection — 2010-2011
Undergraduate Researcher, UTA
- Developed a radiation detection setup using PMTs and photodiodes to assess the performance of new nanoparticle scintillators.

Selected Talks

Dark Matter Searches with a Mono-Z' Jet — May 2015
Phenomenology 2015 Symposium–Pittsburgh, PA

Development of a Fast Timing System for the ATLAS Forward Proton Detector — March 2012
Contributed Talk. UTA Annual Celebration of Excellence by Students.
- Received the Provost's Award for an Undergraduate Oral Presentation.

Teaching Experience

GRADUATE TEACHING ASSISTANT — 2013-2015
University of Wisconsin–Madison

- Physics 201 (Calculus-based mechanics). — Fall 2015
- Physics 104 (Algebra-based introductory E&M). — Spring 2015
- Physics 103 (Algebra-based introductory mechanics). — Fall 2014
- Physics 104 (Algebra-based introductory E&M). — Spring 2014
- Physics 103 (Algebra-based introductory mechanics). — Fall 2013