

# Jason Barkeloo

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## EDUCATION

### University of Oregon, Eugene, Oregon, USA

- Ph.D. in Physics, Expected June 2020 Sep 2012 – Present
  - Thesis: Search for the Flavor-Changing Neutral Current in Top Pair Events with an Associated Photon Using 13 TeV Proton-Proton Collision Data Collected with the ATLAS Detector
  - Adviser: Prof. Jim Brau
  - Focus: High Energy Particle Physics, Machine Learning, Data Analysis.

### Miami University, Oxford, Ohio, USA

- M.S. in Physics Aug 2010 – May 2012
  - Thesis: Investigation of Electromagnetically Induced Transparency and Absorption in Warm Rb Vapor by Application of a Magnetic Field and Co-propagating Single Linearly Polarized Light Beam
  - Focus: Atomic And Molecular Optics, Laser Systems.

### Wittenberg University, Springfield, Ohio, USA

- B.S. in Physics Aug 2006 – May 2010
  - Thesis: Computational Modeling of Boron-8  $\beta$ -Decay Spectroscopy
  - Focus: Nuclear Physics, Mathematics, Computational Science.

## ADDITIONAL RESEARCH EXPERIENCE

### SiD Detector for the ILC - University of Oregon, Eugene, Oregon, USA

- Brau Research Group Jul 2014 – Present
  - Project: Optimizing and modeling an electromagnetic calorimeter for the future International Linear Collider.
  - Focus: Geant4 Modeling for comparison to test beam studies, cost optimization, and algorithm development for particle separation.

### CERN, Geneva, Switzerland

- Physics Data Scientist, Software Reprocessing Expert Jul 2016 – Jul 2017
  - Project: Using tag-and-probe methods to develop online reconstruction algorithms for monitoring the ATLAS Level-1 Electromagnetic Calorimeter Trigger.
  - Focus: Data analysis, maintaining and developing infrastructure for large scale software validation following the Agile Software Development model.

### Fractal Retinal Implants - University of Oregon, Eugene, Oregon, USA

- Taylor Research Group Nov 2012 – Jun 2014
  - Project: Initial studies of physical characteristics of neurons including their fractal dimension.
  - Focus: Creation of model neurons using computer-aided design, Fractal Dimensional Analysis.

## ADDITIONAL EXPERIENCE

### Fermilab-CERN Hadron Collider Physics Summer School, Batavia, Illinois, USA

- Attended 40 lectures on various theoretical and experimental topics. Aug 2018
- Participated in seven discussion sessions with Fermilab physicists as well as guest lecturers for further theoretical exploration.

### 5th Workshop on Top Physics at the LC 2017, Geneva, Switzerland

- Collaborated on the study for the potential of top quark physics at future lepton colliders. Jun 2017

### University of Oregon, Eugene, Oregon, USA

- Graduate Teaching Fellow Sep 2012 – Jun 2014
  - Taught laboratory classes and lead discussion sections for undergraduate physics courses.

### Miami University, Oxford, Ohio, USA

- Graduate Teaching Assistant Aug 2010 – May 2012
  - Lead laboratory sessions for introductory undergraduate physics courses.

**PUBLICATIONS & PRESENTATIONS**

**JOURNALS**

- L. Braun, D. Austin, **J. Barkeloo**, J. Brau, C.T. Potter. “Correcting for Leakage Energy in the SiD Silicon-Tungsten ECal”, arXiv:2002.04100 [physics.ins-det] (2020).
- J. Kangara, A. Hachtel, M. C. Gillette, **J. Barkeloo**, E. Clements, S. Bali. “Design and construction of cost-effective fail-safe tapered amplifier systems for laser cooling and trapping experiments”, Am. J. Phys. **82**(8), 805 - 817 (2014).
- A. Hachtel, J. Kleykamp, D. Kane, M. Marshall, B. Worth, **J. Barkeloo**, J. Kangara, J. Camenisch, M. Gillette, S. Bali. “An undergraduate lab on measurement of radiative broadening in atomic vapor”, Am. J. Phys. **81**(6), 471 (2013).

Additional ATLAS Collaboration publications can be found on INSPIRE:  
<http://inspirehep.net/search?p=exactauthor%3AJason.Barkeloo>

**CONFERENCES**

- J. Barkeloo**, J. Brau, M. Breidenbach, R. Frey, D. Freytag, C. Gallagher, R. Herbst, M. Oriunno, B. Reese, A. Steinhebel, D. Strom. “A silicon-tungsten electromagnetic calorimeter with integrated electronics for the International Linear Collider” J. Phys.: Conf. Ser. **1162** 012016 (2019).
- J. Barkeloo**, J. Brau, A. Steinhebel, E. Meyer, J. Carlson. “EMCal Resolution Studies and Update,” at *Asian Linear Collider Workshop*, Fukuoka, Japan, May 2018.

**AWARDS & HONORS**

- Weiser Senior Teaching Assistant Award, University of Oregon 2014  
For excellence in undergraduate teaching and mentoring incoming graduate students.
- American Association of Physics Teachers Outstanding Teaching Assistant, Miami University 2012  
For excellence in undergraduate education.

**SKILLS**

T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X, MATLAB, Mathematica, Python, C++, numpy, pandas, scikit-learn, Keras, matplotlib, git, ROOT Data Analysis Framework, Linux, Microsoft Office Suite.

**INTERESTS**

Applied Physics, Machine Learning, Data Visualization, Big Data, Project Management.