

Daniel Edison Marley

GitHub: [demarley](#)

daniel.edison.marley@gmail.com

Phone: +1 (336) 302-0297

Education

- Doctor of Philosophy, Physics May 19, 2017
University of Michigan
- Bachelor of Science, Physics May 12, 2012
North Carolina State University

Professional Experience

- Postdoctoral Research Associate June 2017-Present
Texas A&M University, CMS Collaboration
- Research Assistant August 2012-May 2017
University of Michigan, ATLAS Collaboration
Dissertation: "Searches for Pair Production of Heavy Vector-like Quarks in pp Collisions at $\sqrt{s}=13$ TeV with the ATLAS Detector"
Advisor: Prof. Thomas Schwarz

Relevant Publications

Journal Publications

ATLAS Collaboration, "Search for pair production of heavy vector-like quarks decaying into hadronic final states in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector"
[arXiv:1808.01771 \[hep-ex\]](#) *Submitted to PRD.*

ATLAS Collaboration, "Combination of the searches for pair-produced vector-like partners of the third-generation quarks at $\sqrt{s}=13$ TeV with the ATLAS detector"
[arXiv:1808.02343 \[hep-ex\]](#) *Submitted to PRL.*

ATLAS Collaboration, "Measurement of the charge asymmetry in boosted top quark pair production on 8 TeV pp collision data collected by the ATLAS experiment."
Phys. Lett. B756 (2016) 52-71. [doi:10.1016/j.physletb.2016.02.055.](#) [arXiv:1512.06092 \[hep-ex\]](#)

ATLAS Collaboration, "Measurement of the charge asymmetry in top-quark pair production in the lepton-plus-jets final state in pp collision data at $\sqrt{s}=8$ TeV with the ATLAS detector."
Eur. Phys. J. C76 (2016) 87. [doi:10.1140/epjc/s10052-016-3910-6.](#) [arXiv:1509.02358 \[hep-ex\]](#)

K.J. Coakley, et. al. "Stochastic modeling and survival analysis of marginally trapped neutrons for a magnetic trapping neutron lifetime experiment."
Nucl. Instrum. Meth. A813 (2016) 84-95. [doi:10.1016/j.nima.2015.12.064.](#) [arXiv:1508.02137 \[nucl-ex\]](#)

Conference Notes

ATLAS Collaboration, "Search for pair production of heavy vector-like quarks decaying to high- p_T W bosons and b quarks in the lepton-plus-jets final state in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector"

[ATLAS-CONF-2016-102.](#) Prepared in preparation for the Top2016 Conference, Olomouc, Czech Republic

ATLAS Collaboration, "Measurement of the charge asymmetry in boosted top quark pair production on 8 TeV pp collision data collected by the ATLAS experiment."

[ATLAS-CONF-2015-048.](#) Prepared in preparation for the Top2015 Conference, Ischia, Italy
Results superseded by Phys. Lett. B756 (2016) 52-71.

Selected Research Experience

Measurement of the top quark charge asymmetry in the all-hadronic final state with the CMS detector (November 2017 – Present)

Search for resonant production of two Higgs bosons in the $b\bar{b}l\nu l\nu$ final state with the CMS detector (August 2017 – Present)

Search for a W' boson decaying to a vector-like quark and a top or bottom quark in the single lepton final state with the CMS detector (November 2017 – Present)

Design and commissioning of a machine learning algorithm to identify semi-boosted top quarks with the CMS detector (November 2017 – Present)

Development of a level-1 track-muon linking system for the phase-2 upgrade with the CMS detector (June 2017 – Present)

Track-based alignment of the CMS muon system (June 2017 – Present)

Measurement of the top quark charge asymmetry in pp collision data at $\sqrt{s} = 13$ TeV with the ATLAS detector (November 2016 – May 2017)

Search for heavy vector-like quarks with jets in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector (January 2016 – May 2017)

Search for pair production of a heavy top-like quark decaying to a high- p_T W boson and b quark in the lepton-plus-jets final state in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector (April 2015 – September 2016)

Measurement of the charge asymmetry in top quark pair production at a center of mass energy of 8 TeV with the ATLAS detector (August 2013 – September 2015)

Measurement of the charge asymmetry in boosted top quark pair production at a center of mass energy of 8 TeV with the ATLAS detector (January 2014 – December 2015)

Performance of top quark and W boson tagging in Run 2 with ATLAS (March 2016 – May 2017)

The modeling of the jet response for mass and p_T in the presence of additional close-by jets with the ATLAS detector (February 2015 – August 2015)

Jet re-clustering algorithm performance with the ATLAS detector (July 2014 – September 2014)

New Small Wheel Shielding Optimization with the ATLAS detector (March 2014 – March 2015)

Development, construction, and operation of a prototype liquid Xenon time projection chamber (June 2012 – December 2013)

Presentations

<i>Boosted measurements in ATLAS+CMS</i>	2017
Presented on behalf of the ATLAS and CMS collaborations at TOP2017: 10th International Workshop on Top Quark Physics, Braga, Portugal	
<i>Search for heavy vector-like quarks in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector</i>	2016
University of Michigan HEP/Astro Seminar, Ann Arbor, Michigan	
<i>Search for heavy vector-like quarks in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector</i>	2016
Indiana University HEP/Astro Seminar, Bloomington, Indiana	
<i>Search for Vector-Like Quarks with ATLAS and CMS</i>	2016
Presented on behalf of the ATLAS and CMS collaborations at the Fourth Annual Large Hadron Collider Physics Conference in Lund, Sweden	

Measurement of the charge asymmetry in top quark pair production in 8 TeV pp collision data collected by the ATLAS experiment 2015

Poster presentation at the 8th International Workshop on Top Quark Physics in Ischia, Italy

Measurement of the charge asymmetry in top quark pair production in 8 TeV pp collision data collected by the ATLAS experiment 2015

American Physical Society Division of Particles and Fields conference at the University of Michigan, Ann Arbor, MI USA

The Top Quark Charge Asymmetry using 4.7 fb^{-1} at $\sqrt{s} = 7 \text{ TeV}$ with the ATLAS Detector 2014

Poster presentation at the Large Hadron Collider Physics (LHCP) Conference at Columbia University, New York, NY, USA

PandaX: A Direct Detection Dark Matter Experiment 2013

Poster presentation at the International Poster Presentation of Young Researchers at KEK, Tsukuba, Japan

Professional Service

Journal Reviewer for the Physics Letters, B Summer 2015-Present

Journal Reviewer for JINST May 2018-Present

Co-leader for the 'b/t/H/W/Z tagging' discussion group, Fermilab LPC August 2018-Present

ATLAS Top Reconstruction Boosted Liaison Winter 2015-Fall 2016

Honors & Awards

Regents' Fellowship, Michigan Department of Physics Fall 2012

Official Author & Collaborator of the CMS Collaboration Summer 2018-Present

Official Author & Collaborator of the ATLAS Collaboration Winter 2015-Summer 2018

Sigma Pi Sigma ($\Sigma\Pi\Sigma$) Physics Honor Society Spring 2011

Honors Program, NC State Department of Physics Spring 2011

Phi Beta Kappa, Zeta of North Carolina (NC State) Chapter Fall 2010

Student Supervision

Garrett Merz Summer 2016-May 2017

Graduate Student (Physics) University of Michigan

Analysis of small-radius jet calorimeter mass for the all-hadronic vector-like quark search

Development of tagging algorithm to identify W, Z, and Higgs bosons and top-quarks formed from variable-R re-clustered jets

Bennett Magy Fall 2014-Fall 2016

Software Engineer, Facebook

Development of Python-based analysis framework to produce publication-quality figures (Figure 1 of Phys. Lett. B756 (2016) 52-71) and analyze data collected by the ATLAS detector.

Optimization and performance studies of the novel variable-R re-clustering technique for reconstruction of boosted objects in all-hadronic final states. Preliminary results presented at the 2015 US ATLAS Hadronic Final State Forum.

Adrian Sanchez

Winter 2015-Winter 2016

Graduate student (Department of Mechanical Engineering) University of Michigan

Derivation of QCD-background estimation using the Matrix Method technique for Phys. Lett. B756 (2016) 52-71.

Development of new boosted object tagger based on a log-likelihood ratio to discriminate between boosted W bosons and boosted top-quarks in the run-2 search for vector-like quarks in the lepton-plus-jets final state.

September 27, 2018