BRIAN A. CLARK

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RESEARCH PROFILE

National Science Foundation Astronomy and Astrophysics Postdoctoral Fellow working in experimental particle-astrophysics on the Askaryan Radio Array and IceCube experiments. Interested in high energy neutrino astronomy, specifically the construction, simulation, and data analysis of neutrino telescopes.

EDUCATION

Ph.D. in Physics, The Ohio State University, Columbus, Ohio USA — 2014-2019
Advisor: Prof. Amy Connolly

M.S. in Physics, The Ohio State University, Columbus, Ohio USA — 2014-2016

B.A. in Physics, Washington University in St. Louis, St. Louis, Missouri USA — 2010-2014
Cum Laude, Advisor: Prof. Henric Krawczynski

AWARDS

National Science Foundation Astronomy and Astrophysics Postdoctoral Fellowship	2019-2021
National Science Foundation Graduate Research Fellowship	2016-2019
APS Division of Astrophysics Travel Award	2017, 2019
Bunny and Thomas Clark Graduate Scholarship Honorable Mention	2019
OSU Graduate Enrichment Fellowship	2014-2015
WUSTL Undergraduate Physics Research Fellow	Summer 2011

RESEARCH EXPERIENCE

Michigan State University, East Lansing, MI USA — **August 2019 - present**
Postdoctoral Fellow

The Ohio State University, Columbus, OH USA — **August 2014 - July 2019**
Ph.D. Student

Washington University in St. Louis, St. Louis, MO USA — **October 2012 - May 2014**
Undergraduate Research Associate

PUBLICATIONS

7. "Constraints on the Diffuse Flux of Ultra-High Energy Neutrinos from Four Years of Askaryan Radio Array Data in Two Stations"
   P. Allison *et. al.* for the ARA Collaboration (incl. **B. A. Clark** as corresponding author)
   [arXiv:1912.00987]

6. "Long-baseline horizontal radio-frequency transmission through polar ice"
   P. Allison *et. al.* for the ARA Collaboration (incl. **B. A. Clark**)
   Submitted to Journal of Glaciology (2019). [arXiv:1908.10689]

5. "NuRadioMC: Simulating the radio emission of neutrinos from interaction to detector"
   C. Glaser *et. al.* (incl. **B. A. Clark**)
   Submitted to Eur. Phys. J. C (2019). [arXiv:1906.01670]

4. "Design and Performance of an Interferometric Trigger Array for Radio Detection of High-Energy Neutrinos"
   P. Allison *et. al.* for the ARA Collaboration (incl. **B. A. Clark**)
   Nuclear Instruments and Methods A Vol 930 Pg 112-125 (2019). [arXiv:1809.04573]

3. "Observation of Reconstructable Radio Emission Coincident with an X-Class Solar Flare in the Askaryan Radio Array Prototype Station."
   P. Allison *et. al.* for the ARA Collaboration (incl. **B. A. Clark** as corresponding author)
   Submitted to Astroparticle Physics (2018). [arXiv:1807.03335]

2. "Measurement of the real dielectric permittivity ϵ_r of glacial ice."
   P. Allison *et. al.* for the ARA Collaboration (incl. **B. A. Clark**)
   Astroparticle Physics Vol 108 Pg 63-73 (2019). [arXiv:1712.03301]

1. "Analyzing the Data from X-ray Polarimeters with Stokes Parameters."
   F. Kislat, **B. Clark**, M. Bielicke, H. Krawczynski.
   Astroparticle Physics Vol 68 Pg 45-51 (2015). [arXiv:1409.6214]

SCIENTIFIC TALKS

National & International Conferences

4. APS April Meeting, Denver CO. 2019/04/15
3. APS April Meeting, Columbus OH. 2018/04/16
2. TeV Particle Astrophysics, Columbus OH. 2017/08/11
1. APS April Meeting, Washington DC. 2017/01/31

Colloquia, Seminars, and Other Talks

9. MSU Astronomy Seminar, East Lansing MI. 2019/10/23
8. OSU CCAPP Seminar, Columbus OH. 2019/07/16
7. Ohio Section of the APS Fall 2018 Meeting, Toledo OH. 2018/09/29
6. OSU Physics Summer Seminar Series, Columbus OH. 2018/06/26
5. OSU CCAPP Seminar, Columbus OH. 2018/05/22
4. Colloquium, College of Wooster Physics Department, Wooster OH. 2016/10/04
3. Computing in High Energy Astropart. Phys. Research 2016, Columbus OH. 2016/05/26
2. OSU Physics Summer Seminar Series, Columbus OH. 2016/04/23
1. Ohio Section of the APS Spring 2016 Meeting, Dayton OH. 2016/04/09

OUTREACH AND SERVICE

Talk, Astronomy on Tap Lansing	October 2019
Coordinator for ASPIRE Workshop for High School Women, OSU	July 2015-June 2019
Volunteer Judge, Ohio State Science Day	2015-2019
Physics Climate and Diversity Committee, OSU	January 2017-May 2018
Talk, Columbus Science Pub	May 2018
Talk, The Wellington School, Columbus, OH	April 2018
Officer, Physics Graduate Student Council, OSU	October 2014-May 2017

TEACHING

The Ohio State University, Columbus, OH

TA Training Facilitator, University Center for the Advancement Teaching **August 2016**

- Facilitated two-day "introduction to teaching and learning" workshop for 30 first-time Teaching Assistants across the University's 40 STEM science programs.
- Built confidence in new TAs, guided development of teaching identities, addressed diversity in the classroom, and aided participant planning for long-term classroom success.

Teaching Assistant–"Astronomy 1143: Stars, Galaxies, and Cosmology" **Spring 2016**

- Aided student learning by teaching review sessions and lecturing when lead faculty was absent for 80 student introductory survey course, open to students across the university
- Moderated online forum, in collaboration with lead faculty, for students to exchange questions and clarify concepts.

Teaching Assistant–"Physics 1251: E&M, Optics, and Quantum Mechanics" **Fall 2015**

- Guided student learning in the recitation and laboratory context for four contact hours per week.
- Facilitated quantitative laboratory experiments including team-based problem solving exercises.
- Designed rubrics for fair, efficient, and consistent grading of quiz and examination instruments.

MENTORSHIP

Graduate Students:	Lauren Ennesser*, Keith McBride*, Andrés Medina*, Jessie Micalleff†, Julie Rolla*, Jorge Torres-Espinosa*
Undergraduate Students:	Ian Best*, Eliot Ferstl*, Suren Gourapura*, Hannah Hassan*, Scott Janse*, Spoorthi Nagasmudram*, Victoria Niu*, Alex Patton*, Jude Rajasekera*, Cade Sbrocco*, Lucas Smith*, Jason Torok*
High School Students:	Addison Hartman*, Natalie Keyes*

*OSU, †MSU

REFERENCES

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Professor of Physics and Astronomy
The University of Kansas
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