

Connor O'Brien

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Github
Professional Website

Center for Space Physics
Boston University Department of Astronomy
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EDUCATION

Boston University <i>PhD in Astronomy</i>	Boston, MA <i>In Progress</i>
University of Minnesota <i>BS in Physics, Professional Emphasis</i>	Minneapolis, MN <i>September 2015 - May 2019</i>
University of Minnesota <i>BS in Astrophysics, Computational Emphasis</i>	Minneapolis, MN <i>September 2015 - May 2019</i>
University of Minnesota <i>BS in Mathematics, Professional Emphasis</i>	Minneapolis, MN <i>September 2015 - May 2019</i>

RESEARCH INTERESTS

- Space-based x-ray imaging and detection systems
- Earth's magnetosphere, esp. cusp and tail
- Uncertainty quantification for space weather applications
- Deep learning in space sciences

RESEARCH/EMPLOYMENT EXPERIENCE

Space Physics and Technology Lab <i>Research Assistant, supervised by Brian Walsh</i>	Boston University <i>May 2020 - Present</i>
<ul style="list-style-type: none">Designed and validated an analytic, easy-to-implement functional form for the shape of the magnetopause using a Bayesian approachDesigned and built laboratory and spacecraft equipment using CAD software, 3D printing, and traditional machining	
Department of Astronomy <i>Teaching Fellow, various supervisors (see Teaching)</i>	Boston University <i>September 2019 - May 2020</i>
<ul style="list-style-type: none">Designed and taught python-based data analysis and image processing labs for astronomy majorsEdited labs for use with online instruction with quick turnaround due to COVID-19 pandemicGraded all homeworks and exams for a class of 150 non-astronomy major students	
Glesener Solar Physics Lab <i>Research Assistant, supervised by Lindsay Glesener</i>	University of Minnesota <i>January 2018 - May 2019</i>
<ul style="list-style-type: none">Collected and analysed x-ray spectra to perform quality control and calibration of complex x-ray imaging devicesOperated soft x-ray generators including Beamline 3.3.2 at the Advanced Light Source at Lawrence Berkeley National LabsIndependently designed and constructed faraday cage enclosure for the x-ray imager	
Mu2e Project <i>Student Manager, supervised by Ken Heller</i>	University of Minnesota/Fermilab <i>June 2018 - February 2019</i>
<ul style="list-style-type: none">Managed and trained a team of undergraduates to meet production goals on high-precision, technically demanding tasksIndependently designed and built laboratory equipment using Arduino devices, CAD software, 3D printing, and traditional machiningWrote and edited documentation and operating procedures to be in compliance with DOE regulations	

Journal Articles

- E. Atz, B.M. Walsh, C.J. O'Brien, M.R. Collier, A. Berman, L. Billingsley, J.B. Blake, J. Broll, D. Chornay, W. Crain, T. Cragwell, N. Dobson, J. Kujawski, K. Kuntz, V. Naldoza, R. Nutter, F.S. Porter, D. Sibeck, K. Simms, N. Thomas, D. Turner, A. Weatherwax, A. Yousuff, A. Zosuls, The cusp plasma imaging detector (CuPID) cubesat observatory: Instrumentation. *Review of Scientific Instruments*, 93(6), June 2022.
- B. M. Walsh, M. R. Collier, E. Atz, L. Billingsley, J. M. Broll, H. K. Connor, D. Chornay, T. Cragwell, N. Dobson, S. Eckert, D. Einhorn, G. Gallant, K. Jackson, S. Karki, J. Kujawski, K. D. Kuntz, V. Naldoza, R. A. Nutter, J. Moore, C. O'Brien, A. Perez-Rosado, F. S. Porter, D. G. Sibeck, K. Simms, W. Skelton, N. Thomas, D. L. Turner, A. Yousuff, A. Weatherwax, A. Zosuls, and E. Thomas. The Cusp Plasma Imaging Detector (CuPID) CubeSat Observatory: Mission Overview. *Journal of Geophysical Research: Space Physics*, 126(4), April 2021.

Invited Talks

- O'Brien, C.J., Walsh, B.M., Zou, Y., Tasnim, S., Zhang, H.M., Solar Wind Propagation and Uncertainty Estimation from L1 to MMS, AGU Fall Meeting 2022

Presentations

- O'Brien, C.J., Collier, M.R., Walsh, B.M., Sibeck, D.G., Taylor, E., The Tractrix Magnetopause: A Physics-Based Functional Form of the Magnetopause Shape, GEM Workshop 2021

Poster Abstracts

- O'Brien, C.J., Walsh, B.M., Neural Network Models of the Near-Earth Solar Wind and Magnetosheath, GEM Workshop 2022
- O'Brien, C.J., Collier, M.R., Walsh, B.M., Sibeck, D.G., Taylor, E., The Tractrix Magnetopause: A Physics-Based Functional Form of the Magnetopause Shape, AGU Fall 2020
- O'Brien, C., Davis, L., Spectral Resolution and Energy Efficiency of FOXSI 3 Silicon Detectors, University of Minnesota Methods of Experimental Physics Poster Session, 2019

Undergraduate Thesis

- O'Brien, C.J., Energy Efficiency of FOXSI 3 Silicon Detectors via ALS Beamline 3.3.2 Characterization, University of Minnesota, 2019

TEACHING

Teaching Fellow for AS 203, "Principles of Astronomy II" Directly responsible for writing and teaching astronomy labs for 30 students (Instructor: Catherine Espaillat, Spring 2020)

Teaching Fellow for AS 107, "Life Beyond Earth" Directly responsible for 48 students (Instructor: Thomas Bania, Fall 2019)

Teaching Fellow for AS 105, "Alien Worlds" Directly responsible for grading for a class of 150 students (Instructor: JJ Hermes, Fall 2019)

Student Manager on the Mu2e Project Collaboration Responsible for training and managing a factory team of 10 students (Supervisor: Ken Heller, 2018-2019)