

CONNER DAILEY

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EMPLOYMENT

Postdoctoral Researcher

February 2025 - Present

Friedrich Schiller University Jena, Institute for Theoretical Physics

Supervisor: Dr. Bernd Brügmann

EDUCATION

Doctor of Philosophy in Physics - University of Waterloo, Perimeter Institute

August 2020 - December 2024

Advisors: Dr. Niayesh Afshordi and Dr. Erik Schnetter

GPA: 83.3/100.0 (83.3%)

Thesis Title: “On the initial boundary value problem in numerical relativity”

Master of Science in Physics - University of Nevada, Reno

August 2017 - December 2019

Advisor: Dr. Andrei Derevianko

GPA: 3.845/4.000 (96.1%)

Thesis Title: “Probing exotic fields with networks of atomic clocks”

Bachelor of Science in Physics - University of Nevada, Reno

August 2014 - May 2017

Advisor: Dr. Andrei Derevianko

GPA: 3.827/4.000 (95.7%)

Minors: Astronomy and Mathematics

Physics GRE: 860/990

PUBLICATIONS

Citations: 402 — h-index: 5 — i10-index: 5

- **Conner Dailey**, Erik Schnetter, and Niayesh Afshordi.
“Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes” [Link](#).
Classical and Quantum Gravity, 42(2):025002, 2024.
- **Conner Dailey**, Niayesh Afshordi, and Erik Schnetter.
“Reflecting boundary conditions in numerical relativity as a model for black hole echoes” [Link](#).
Classical and Quantum Gravity, 40(19):195007, 2023.
- **Conner Dailey**, Colin Bradley, Derek Kimball, Ibrahim Sulai, Szymon Pustelny, Arne Wickenbrock, and Andrei Derevianko.
“Quantum sensor networks as exotic field telescopes for multimessenger astronomy” [Link](#).
Nature Astronomy, 5(2):150–158, 2020 (cover →).
- Yu Li, Ruolin Liu, **Conner Dailey**, and Niayesh Afshordi.
“Detecting cosmological scalar fields using orbital networks of quantum sensors” [Link](#).
Physical Review D, 110:043028, 2024.
- Samer Afach, Ben Buchler, Dmitry Budker, **Conner Dailey**, Andrei Derevianko, et al. “Search for topological defect dark matter with a global network of optical magnetometers” [Link](#).
Nature Physics, 17(12):13961401, 2021.
- Benjamin Roberts, Geoffrey Blewitt, **Conner Dailey**, and Andrei Derevianko. “Search for transient ultralight dark matter signatures with networks of precision measurement devices using a bayesian statistics method”. *Physical Review D*, 97(8), 2018 [Link](#).
- Benjamin Roberts, Geoffrey Blewitt, **Conner Dailey**, et al. “Search for domain wall dark matter with atomic clocks on board global positioning system satellites”. [Link](#).
Nature Communications, 8(1), 2017



OTHER ACADEMIC PROGRAMS

Symmetries Graduate School 2023 Perimeter Institute for Theoretical Physics, Waterloo, Ontario, Canada	January 2023 - February 2023 Link
PRISMA⁺ Internship Program Johannes Gutenberg University, Mainz, Germany	January 2020 - March 2020 Link
The 37th Advanced School in Theoretical Physics The Israel Institute of Advanced Studies, Jerusalem, Israel	December 2019 - January 2020 Link

FIRST-AUTHOR CONFERENCE PRESENTATIONS

Testing Gravity 2025 - Vancouver, British Columbia, Canada “Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes”	January 2025 Link
Midwest Relativity Meeting - Ann Arbor, Michigan, USA “Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes”	November 2024 Link
50 Years of Horndeski Gravity - Waterloo, Ontario, Canada “Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes”	July 2024 Link
Midwest Relativity Meeting - Chicago, Illinois, USA “Reflecting boundary conditions in numerical relativity as a model for black hole echoes”	November 2023 Link
Puzzles in the Quantum Gravity Landscape - Waterloo, Ontario, Canada “Reflecting boundary conditions in numerical relativity as a model for black hole echoes”	October 2023 Link
Testing Gravity 2023 - Vancouver, British Columbia, Canada “Reflecting boundary conditions in numerical relativity as a model for black hole echoes”	January 2023 Link
APS April Meeting 2019 “Quarks 2 Cosmos” - Denver, Colorado, USA “Progress in dark matter search with the global positioning system”	April 2019 Link
APS DAMOP Meeting 2018 - Fort Lauderdale, Florida, USA “Searching for dark matter and exotic physics with atomic clocks and the GPS constellation”	June 2018 Link
PhysCon 2016 - San Francisco, California, USA “Preliminary steps in detecting dark matter with the GPS satellite constellation”	November 2016 Link

CO-AUTHOR CONFERENCE PRESENTATIONS

APS DAMOP Meeting 2024 - Fort Worth, Texas, USA “GPS.ELF: Update on the search for exotic low-mass field emission from the binary neutron star merger (GW170817) using GPS atomic clocks”	June 2024 Link
APS DAMOP Meeting 2023 - Spokane, Washington, USA “GPS.ELF: Search for exotic low-mass field emission from the binary neutron star merger (GW170817) using GPS atomic clocks”	June 2023 Link
APS DAMOP Meeting 2022 - Chicago, Illinois, USA “GPS.ELF: Search for emission of exotic low-mass fields from the binary neutron star merger (GW170817) using GPS atomic clocks”	May 2022 Link
APS DAMOP Meeting 2020 - Portland, Oregon, USA “Search for Exotic Field Emission from the GW170817 Binary Neutron Star Merger Using GPS Atomic Clocks”	June 2020 Link
APS DAMOP Meeting 2019 - Milwaukee, Wisconsin, USA “Global Network of Clocks and Magnetometers as Exotic Light Field Telescopes”	May 2019 Link

International Frequency Control Symposium - Orlando, Florida, USA “DAMNED-Dark Matter from Non-Equal Delays New test of the fundamental constants variation”	April 2019 Link
Rencontres de Moriond - 2019 Gravitation - La Thuile, Valle d’Aosta, Italy “The damned experiment: dark matter from non equal delays”	March 2019 Link
APS DAMOP Meeting 2018 - Fort Lauderdale, Florida, USA “New Precision Measurements from GPS. DM Observatory for Exotic Physics Searches: Atomic Clock Phases every Second to < 0.1 ns”	June 2018 Link
APS DAMOP Meeting 2017 - Sacramento, California, USA “Searching for Dark Matter and Exotic Physics with Atomic Clocks and the GPS Constellation”	June 2017 Link
APS DAMOP Meeting 2017 - Sacramento, California, USA “Using Global Network Precision Measurements to Search for Exotic Physics”	June 2017 Link
APS April Meeting 2017 “Quarks 2 Cosmos” - Washington D.C., USA “First Results of the GPS.DM Observatory: Search for Dark Matter and Exotic Physics with Atomic Clocks and GPS Constellation”	January 2017 Link
American Geophysical Union, Fall Meeting 2016 - San Francisco, California, USA “First Results in the Search for Dark Matter from the GPS.DM Observatory”	December 2016 Link

TEACHING EXPERIENCE

Graduate Teaching Assistantships:

ECE 105 - Classical Mechanics	August 2024 to December 2024
SCI 238 - Introduction to Astronomy	May 2024 to August 2024
SCI 238 - Introduction to Astronomy	January 2024 to May 2024
ECE 105 - Classical Mechanics	September 2023 to December 2023
PHYS 360/460 - Advanced Laboratory	January 2023 to May 2023
ECE 105 - Classical Mechanics	September 2022 to December 2022
SCI 238 - Introduction to Astronomy	May 2022 to September 2022
SCI 207 - Life, the Universe, and Everything	January 2022 to May 2022
ECE 105 - Classical Mechanics	September 2021 to December 2021
SCI 270 - Astronomical Observations	May 2021 to September 2021
SCI 238 - Introduction to Astronomy	January 2021 to May 2021
PHYS 181L - Physics for Scientists and Engineers II - Lab	September 2019 to December 2019
PHYS 152L - General Physics II - Lab	January 2018 to May 2018
PHYS 151L - General Physics I - Lab	August 2017 to December 2017

PUBLIC OUTREACH

Astronomy on Tap, hour long public talk - Kitchener, Ontario, Canada Title: “Black holes, worm holes, and warp drives.”	December 2024
Kitchener/Waterloo Public Library, hour long public talk - Kitchener, Ontario, Canada Title: “Relativity: The secrets to visiting other galaxies and traveling in time.”	September 2023
Astronomy on Tap, hour long public talk - Kitchener, Ontario, Canada Title: “How black holes drag space and time along with them.”	August 2023

SCHOLARSHIPS

PI Residency Grad Scholarship
2022 - 2024
McDonald HQP Pooled Resources Scholarship
2022 - 2024
International Doctoral Student Award
2020 - 2023
Marie Curie Graduate Award
2020 - 2021
Governor Guinn Millennium Scholarship
2014 - 2017
TMCC/UNR Thompson Scholarship
2014 - 2015
ASUN Academic Scholarship
2015 - 2016

MEMBERSHIPS

Canadian Association of Physicists
American Physical Society
Society of Physics Students
Sigma Pi Sigma
National Society of High School Scholars

ACADEMIC AWARDS

Canadian Association of Physicists Inaugural Problem Competition winner
2020
UNR College of Science Dean's List
2015, 2016, 2017, 2018
Nevada Undergraduate Research Award
2016
2013 UNR Physics Exam Award
2013
Silver Scholar Award
2009

OTHER AWARDS

Eagle Scout April 2014
Boy Scouts of America

Top 20 Participant and Top 10 Computer, 800 Million Credit Contributor 2017 - Present
Einstein@Home, BOINC

Top 50 Participant and Top 40 Computer, 500 Million Credit Contributor 2023
GPUGRID, BOINC