CONNER DAILEY

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EMPLOYMENT

Postdoctoral Researcher and High Performance Computing Specialist Mar. 2025 - Present
Friedrich Schiller University, Jena, Institute for Theoretical Physics
Supervisor: Bernd Brügmann

EDUCATION

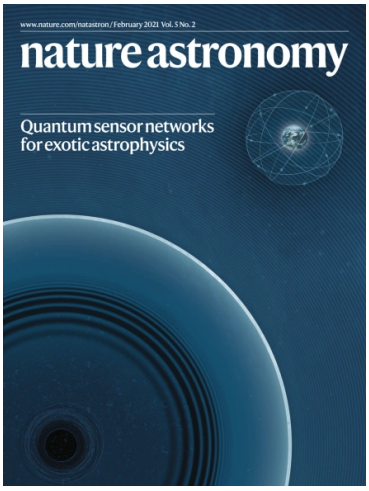
Doctor of Philosophy in Physics - University of Waterloo, Perimeter Institute Aug. 2020 - Dec. 2024
Advisors: Niayesh Afshordi and Erik Schnetter GPA: 83.3/100.0 (83.3%)
Thesis Title: "On the initial boundary value problem in numerical relativity"

Master of Science in Physics - University of Nevada, Reno Aug. 2017 - Dec. 2019
Advisor: 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 Aug. 2014 - May 2017
Advisor: Andrei Derevianko GPA: 3.827/4.000 (95.7%)
Minors: Astronomy and Mathematics Physics GRE: 860/990

PUBLICATIONS

Citations: 536 — h-index: 6 — i10-index: 5



- **Conner Dailey**. "Upwind embedded boundary SBP operators: New high order numerical schemes for arbitrarily shaped domains with cartesian grids", 2026 Link.
- **Conner Dailey**, E. Schnetter, and N. Afshordi. "Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes". *Classical and Quantum Gravity*, 42(2):025002, 2024 Link.
- Y. Li, R. Liu, **Conner Dailey**, and N. Afshordi. "Detecting cosmological scalar fields using orbital networks of quantum sensors". *Physical Review D*, 110:043028, 2024 Link.
- **Conner Dailey**, N. Afshordi, and E. Schnetter. "Reflecting boundary conditions in numerical relativity as a model for black hole echoes". *Classical and Quantum Gravity*, 40(19):195007, 2023 Link.
- **Conner Dailey**, C. Bradley, D. Kimball, et al. "Quantum sensor networks as exotic field telescopes for multi-messenger astronomy". *Nature Astronomy*, 5(2):150–158, 2020 (cover ↑) Link.
- B. Roberts, G. Blewitt, **Conner Dailey**, et al. "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.
- B. Roberts, G. Blewitt, **Conner Dailey**, et al. "Search for domain wall dark matter with atomic clocks on board global positioning system satellites". *Nature Communications*, 8(1), 2017 Link.

OTHER ACADEMIC PROGRAMS

The Horizons, Singularities and Censorship in Gravitational Collapse Workshop - Instituto Superior Técnico, Lisbon, Portugal — July 2026 - Link

Symmetries Graduate School 2023 — January 2023 - February 2023
Perimeter Institute for Theoretical Physics, Waterloo, Ontario, Canada — Link

PRISMA$^+$ Internship Program — January 2020 - March 2020
Johannes Gutenberg University, Mainz, Germany — Link

The 37th Advanced School in Theoretical Physics — December 2019 - January 2020
The Israel Institute of Advanced Studies, Jerusalem, Israel — Link

CONFERENCE AND SEMINAR PRESENTATIONS

89 Annual Conference of the DPG - Erlangen, Germany — March 2026 - Link
"Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes"

Midwest Relativity Meeting 2025 - Guelph, Ontario, Canada — October 2025 - Link
"Quasi-local conservation laws as a framework for boundary conditions in numerical relativity"

Frontiers in Numerical Relativity 2025 - Palma de Mallorca, Spain — July 2025 - Link
"Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes"

Invited Seminar - Victoria, British Columbia, Canada — February 2025 - Link
"Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes"

Testing Gravity 2025 - Vancouver, British Columbia, Canada — January 2025 - Link
"Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes"

Midwest Relativity Meeting 2024 - Ann Arbor, Michigan, USA — November 2024 - Link
"Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes"

50 Years of Horndeski Gravity - Waterloo, Ontario, Canada — July 2024 - Link
"Formulating the complete initial boundary value problem in numerical relativity to model black hole echoes"

Midwest Relativity Meeting 2023 - Chicago, Illinois, USA — November 2023
"Reflecting boundary conditions in numerical relativity as a model for black hole echoes" — Link

Puzzles in the Quantum Gravity Landscape - Waterloo, Ontario, Canada — October 2023
"Reflecting boundary conditions in numerical relativity as a model for black hole echoes" — Link

Testing Gravity 2023 - Vancouver, British Columbia, Canada — January 2023
"Reflecting boundary conditions in numerical relativity as a model for black hole echoes" — Link

APS April Meeting 2019 "Quarks 2 Cosmos" - Denver, Colorado, USA — April 2019
"Progress in dark matter search with the global positioning system" — Link

APS DAMOP Meeting 2018 - Fort Lauderdale, Florida, USA — June 2018
"Searching for dark matter and exotic physics with atomic clocks and the GPS constellation" — Link

PhysCon 2016 - San Francisco, California, USA — November 2016
"Preliminary steps in detecting dark matter with the GPS satellite constellation" — Link

TEACHING EXPERIENCE

Postdoctoral Teaching:

PAFBT211 - Theoretical Mechanics	April 2026 to July 2026
PAFMT206 - Computational Physics IV, Machine Learning	October 2025 to February 2026
PAFMT200 - Numerical Relativity	April 2025 to July 2025

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 December 2024
Title: "Black holes, worm holes, and warp drives."

WCA Public Seminar Series, hour long public talk - Kitchener, Ontario, Canada September 2023
Title: "Relativity: The secrets to visiting other galaxies and traveling in time."

Astronomy on Tap, hour long public talk - Kitchener, Ontario, Canada August 2023
Title: "How black holes drag space and time along with them."