Katie Chamberlain she/her

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Education

Ph.D., Astronomy and Astrophysics — May 2023 (Expected)
M.S., Astronomy and Astrophysics — May 2021 (Expected)
Steward Observatory, University of Arizona, Tucson, AZ
Advisor: Gurtina Besla

B.S., Physics — May 2018
Secondary Major: Mathematics
Montana State University, Bozeman, MT
Advisor: Nicolas Yunes

Research Interests

Galaxy dynamics

- Frequency of isolated pairs and satellites
- Orbital and internal dynamics of interacting pairs
- Cosmological simulations
- Local Group dynamics

Publications

Frequency-domain waveform approximants capturing Doppler shifts
K. Chamberlain, C. Moore, D. Gerosa, N. Yunes
Phys. Rev. D **99**, 024025 (2019)

Theoretical Physics Implications of Gravitational Wave Observation with Future Detectors
K. Chamberlain, N. Yunes
Phys. Rev. D **96**, 084039 (2017)

Theory-Agnostic Constraints on Black-Hole Dipole Radiation with Multi-Band Gravitational-Wave Astrophysics
E. Barausse, N. Yunes, **K. Chamberlain**
Physical Review Letters **116**, 241104 (2016)

Research Experience

Galaxy Dynamics Summer Workshop — 2021
Center for Computational Astrophysics, Flatiron Institute, NY
Advisor: Adrian Price-Whelan

Graduate Research Assistant — 2018 - Present
Steward Observatory, University of Arizona, AZ
Advisor: Gurtina Besla

LIGO Summer Undergraduate Research Fellowship (REU) — Summer 2017
California Institute of Technology, CA

Undergraduate Research Assistant
eXtreme Gravity Institute - Montana State University, MT — 2015 - 2018
Advisor: Nicolas Yunes

Research Apprentice
Montana Space Grant Consortium, MT — 2016 - 2017

Computational Skills

Proficient: Python, Mathematica, LaTeX, HPC, HTML, git, emacs.
Some experience: Java, MATLAB, bash, vi.

Honors, Awards & Grants

Montana State University
Undergraduate Scholars Program Grant — 2015 - 2018
Research Travel Grants — 2017, 2018
Montana University System Honors Scholarship — 2013 - 2017

Montana State University Physics Department
Outstanding Graduating Senior in Physics — 2018
Outstanding Undergraduate Physics Researcher Award — 2017 - 2018
Georgeanne Caughlan Scholarship for Women in Physics — 2017 - 2018
John and Marilyn (Milburn) Asbridge Family Physics Scholarship — 2015 - 2017

Montana State University Mathematics Department
Outstanding Graduating Senior in Math — 2018
John L Margaret Mathematics and Science Scholarship — 2017 - 2018
Mathematics Department Scholarship for Excellence in Coursework — 2014 - 2015

Other
American Physical Society Division of Gravitation Travel Award — 2018

Talks† & Posters*

†*Frequency of dwarf galaxy pairs throughout cosmic time.*
TiNy Titans Collaboration.
Virtual, Sep 2021

†*LMC's impact on the inferred Local Group mass.*
Galaxy Dynamics Workshop, CCA Flatiron Institute.
New York, NY, July 2021

**Frequency of dwarf galaxy pairs throughout cosmic time.*
Division of Dynamical Astronomy, AAS.
Virtual, May 2021

**Frequency of dwarf galaxy pairs throughout cosmic time.*
Local Group Symposium, Space Telescope Science Institute.
Virtual, September 2020

**Frequency of dwarf galaxy pairs throughout cosmic time.*
Small Galaxies, Cosmic Questions Meeting.
Durham, UK, July 2019

† *Towards a "Kicked" Frequency-Domain Waveform Approximant.*
APS April Meeting.
Columbus, Ohio, April 2018

† *Testing Modified Gravity with Future Gravitational Wave Detectors.*
Pacific Coast Gravity Meeting.
California Institute of Technology, March 2018

† *Measuring Black Hole Kicks with Future Gravitational Wave Detectors.*
LIGO-Caltech Summer Research Celebration.
California Institute of Technology, August 2017

* *Theoretical Physics Implications with Future Gravitational Wave Detectors.*
Poster Presentation at Montana Space Grant Consortium Research Celebration.
Bozeman, MT, May 2017

* *Theoretical Physics Implications with Future Gravitational Wave Detectors.*
Poster Presentation at Undergraduate Research Celebration.
Montana State University, April 2017

† *Gravitational Wave Tests of General Relativity with Future Detectors.*
APS April Meeting.
Washington D.C., January 2017

† *Constraints on Modified Gravity with Future Gravitational Wave Detectors.*
Relativity and Astrophysics Seminar.
Montana State University, October 2016

* *Theoretical Physics with Multi-Band Gravitational Wave Astrophysics.*
Poster Presentation at Undergraduate Research Celebration
Montana State University, April 2016

Press

"Looking for nothing to test gravity" 2018
Interview with Symmetry Magazine

Outreach & Service

Member 2019 - Present
Steward Graduate Student Council
University of Arizona
Acting liaison between faculty and graduate students, responsible for graduate student townhalls to discuss state of the graduate program.

Volunteer 2019, 2020
Warrior-Scholar Project
University of Arizona
Research project leader - Taught students an introduction to programming in Python, led a Jupyter Notebook-based exoplanet research project, and provided tutoring help during students' homework sessions.

Founder 2016 - 2018
Society of Physics Students *Coding Nights*
Montana State University
Teaching basic coding courses in Mathematica and LaTeX to early undergraduate physics students.

Society of Physics Students 2013 - 2018
Montana State University
- President 2016 - 2017
- Vice President 2015 - 2016
- Student Representative 2017 - 2018

Memberships

- TiNy Titans (TNT) Collaboration 2018 - Present
- American Astronomical Society 2018 - Present
- LIGO Scientific Collaboration 2017
- American Physical Society 2016 - 2019
- eXtreme Gravity Institute at Montana State University 2015 - 2018