Scott Perkins

Ph.D. Student

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EDUCATION

2019–2022 **Ph.D.**, *University of Illinois at Urbana-Champaign*, Urbana IL, *4.0/4.0*.
Thesis Advisor: Dr. Nicolás Yunes

2017–2019 **M.Sc.**, *Montana State University*, Bozeman MT, *3.84/4.0*.

2013–2017 **B.S.**, *Texas A&M University*, College Station TX, *3.97/4.0*.

RESEARCH INTERESTS

Fundamental Physics
- Estimations of future constraints on extensions to GR through synthetic simulations of catalogs
- Current constraints on modified theories of gravity through LIGO/Virgo data
- Development of new waveforms in theories of gravity beyond GR

Signals Analysis and Bayesian Inference
- Parametric and non-parametric modeling and extraction of signals, usually in the context of gravitational wave data
- Robust Bayesian inference from time-series data involving Bayesian parameter estimation and model selection

EXPERIENCE

Adademic Research

2019– **Graduate Research Assistant**, *University of Illinois at Urbana-Champaign*.
Alternating semesters
Advisor: Dr. Nicolás Yunes

2017–2019 **Graduate Research Assistant**, *Montana State University*.
Alternating semesters
Advisor: Dr. Nicolás Yunes

2015–2017 **Undergraduate Research Assistant**, *Texas A&M University*.
Advisor: Dr. Casey Papovich

Teaching

2020– **Graduate Teaching Assistant**, *University of Illinois at Urbana-Champaign*.
Alternating semesters
- Senior Physics Laboratory (Undergraduate)
- General Relativity I (Graduate)

2017–2019 **Graduate Teaching Assistant**, *Montana State University*.
Alternating semesters
- Calculus-based Classical Mechanics (Undergraduate)
- Modern Physics (Undergraduate)
- Solar System Astronomy (Undergraduate)

REFEREED JOURNAL PUBLICATIONS

3. *Probing Fundamental Physics with Gravitational Waves: The Next Generation*
S. E. Perkins, N. Yunes, E. Berti
Phys. Rev. D **103**, 044024 (2021). arXiv:2010.09010

2. *Fundamental Physics Implications for Higher-Curvature Theories from Binary Black Hole Signals in the LIGO-Virgo Catalog GWTC-1*
R. Nair, **S. Perkins**, H. O. Silva, N. Yunes
Phys. Rev. Lett. **123**, 191101 (2019). arXiv:1905.00870

1. *Probing Screening and the Graviton Mass with Gravitational Waves*
S. Perkins, N. Yunes
Class. Quant. Grav. **36**, 055013 (2019). arXiv:1811.02533

WORKS SUBMITTED FOR REVIEW

2. *Improved gravitational-wave constraints on higher-order curvature theories of gravity*
S. E. Perkins, R. Nair, H. O. Silva, N. Yunes
arXiv:2104.11189

1. *Cosmology with Love*
   D. Chatterjee, A. R. R., G. Holder, D. E. Holz, **S. Perkins**, K. Yagi, N. Yunes
   arXiv:2106.06589

CONFERENCE TALKS

4. *April APS Meeting* , Probing Fundamental Physics with Gravitational Waves: The Next Generation 2021
3. *Monthly Cosmic Explorer Consortium Meeting* , Future Tests of Fundamental Physics with GW 2021
2. *First Cosmic Explorer Meeting* , Fundamental Physics Panelist 2020
1. *April APS Meeting* , Probing Screening and the Graviton Mass with Gravitational Waves 2019

TECHNICAL SKILLS

Programming Languages	○ Proficient: Python, C++/C ○ Familiar: Java, HTML, CSS
Auxiliary Software/Operating Systems	○ Proficient: Mathematica, Latex, Linux, MacOS, git ○ Familiar: Windows, Docker Containers
Software Libraries	○ Proficient: GSL, OpenMP, POSIX Threads, Numpy, Scipy, Matplotlib ○ Familiar: CUDA, pandas

AWARDS AND ACHIEVEMENTS

2021-2022 **CAPS Graduate Fellowship**, *Center for Astrophysical Surveys at the University of Illinois at Urbana-Champaign*.
2021 **Scott Anderson Award**, *University of Illinois at Urbana-Champaign*.
2019 **Graduate Research Fellowship**, *University of Illinois at Urbana-Champaign*.
2017 **Graduate Meritorious Award**, *Montana State University*.
2017 **Faculty's Student Achievement Award**, *Texas A&M University*.
2017 **Randall C. Shepard Award in Astrophysics**, *Texas A&M University*.
2013–2017 **President's Endowed Scholarship**, *Texas A&M University*.
2013–2017 **Rose Lafferty Scholarship**, *St. Andrew's Episcopal Church*.
2013 **National Merit Finalist**, *Texas A&M University*.
2012 **Eagle Scout**, *Boy Scouts of America*.

MEMBERSHIPS

2020– **Cosmic Explorer Consortium**, *Member*.
2019– **LISA Consortium**, *Associate Member*.
2018– **American Physical Society**, *Member*.
2018–2019 **eXtreme Gravity Institute (XGI) at Montana State**, *Member*.

OUTREACH ACTIVITIES

2019 **Peaks and Potentials Youth Camp Course Intstructor**, *Montana State University*.
2018–2019 **XGI Outreach Volunteer**, *Montana State University*.
2015–2016 **Physics Festival Volunteer**, *Texas A&M University*.