

# Scott Perkins

## 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

### Academic Research

- 2022– **Postdoctoral Researcher**, *Lawrence Livermore National Laboratory*.  
PI: Dr. Will Dawson
- 2019–2022 **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

5. *Cosmology with Love: Measuring the Hubble constant using neutron star universal relations*  
D. Chatterjee, A. R. R., G. Holder, D. E. Holz, **S. Perkins**, K. Yagi, N. Yunes  
Phys. Rev. D **104**, 083528 (2021). arXiv:2106.06589
4. *Improved gravitational-wave constraints on higher-order curvature theories of gravity*  
**S. E. Perkins**, R. Nair, H. O. Silva, N. Yunes  
Phys. Rev. D **104**, 024060 (2021). arXiv:2104.11189
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

1. *Are Parametrized Tests of General Relativity with Gravitational Waves Robust to Unknown Higher Post-Newtonian Order Effects?*  
**S. Perkins**, N. Yunes  
arXiv:2201.02542

## CONFERENCE TALKS

6. *April APS Meeting*, Improved bounds on higher-order curvature theories of gravity through gravitational wave catalogs 2022
5. *Midwest Relativity Meeting*, Constraining Quadratic Theories with Gravitational Wave Catalogs 2021
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 Python, C++/C, Java, HTML, CSS

Auxiliary Software/Operating Systems Mathematica, Latex, Linux, MacOS, git, Docker Containers, Windows, pandoc

Software Libraries GSL, OpenMP, POSIX Threads, Numpy, Scipy, Matplotlib, 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 Instructor**, *Montana State University.*
- 2018-2019 **XGI Outreach Volunteer**, *Montana State University.*
- 2015-2016 **Physics Festival Volunteer**, *Texas A&M University.*