

Shubham Kejriwal

PH.D. STUDENT · PHYSICS

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Professional Summary

Third-year Ph.D. candidate studying gravitational wave sources for the upcoming LISA mission. Experience in the LISA data analysis pipeline, modeling and inference of perturbative “beyond vacuum-GR” effects, and search for electromagnetic counterparts. Proficient in Bayesian statistics and machine learning with a working knowledge of general-relativistic wave-form modeling.

Education

National University of Singapore (NUS)

PH.D. PHYSICS

Singapore

2023 —

- Gravitational Waves Group, Department of Physics, Faculty of Science, NUS
- Advisor: Asst. Prof. Alvin J. K. Chua

Shiv Nadar University

B.SC. (RESEARCH) IN PHYSICS WITH A MINOR IN MATHEMATICS (DISTINCTION)

Delhi, India

2018 — 2022

- Undergraduate Thesis: “On the Effects of Relative Motion on Gravitational Waves from Extreme-Mass-Ratio Inspirals”

Teaching and Mentoring

TEACHING AND TEACHING ASSISTANCE

- HS1502 “Conceptual Introduction to Machine Learning”, NUS.
(2023-24: Semester 2, 2024-25: Semester 1).
- COS1000 “Computational Thinking for Scientists”, NUS.
(2023-24: Semester 1 and 2, 2024-25: Semester 1).
- PC5252 “Bayesian Statistics and Machine Learning”, NUS.
(2023-24: Semester 1, 2024-25: Semester 2).

STUDENTS MENTORED

- (co-advisor) Ms. Sheena Abigail, Final Year Project, M.Sc. Physics, NUS (2024-25).

Publications

Total 5 articles available as preprints or publications. Also see [inspire-HEP](#) and [arXiv](#).

- S. Kejriwal**, F. Duque, A. J. K. Chua, J. Gair (2025)
Bias-Corrected Importance Sampling for Inferring Beyond Vacuum-GR Effects in Gravitational Wave Sources; ([arXiv](#)).
- F. Duque, **S. Kejriwal**, L. Sberna, L. Speri, J. Gair (2024)
Constraining accretion physics with gravitational waves from eccentric extreme-mass-ratio inspirals; ([PRD](#)).
- D. R. Pasham, **S. Kejriwal**, E. Coughlin, V. Witzany, A. J. K. Chua, M. Zająček, T. Wevers, Y. Ajay (2024)
Alive and Strongly Kicking: Stable X-ray Quasi-Periodic Eruptions from eRO-QPE2 over 3.5 Years; ([arXiv](#)).
- S. Kejriwal**, V. Witzany, M. Zająček, D. R. Pasham, A. J. K. Chua. (2024)
Repeating Nuclear Transients as Candidate Electromagnetic Counterparts of LISA Extreme Mass Ratio Inspirals; ([MNRAS](#)).
- S. Kejriwal**, L. Speri, A. J. K. Chua. (2024)
Impact of Correlations on the Modeling and Inference of Beyond Vacuum-GR Effects in Extreme-Mass-Ratio Inspirals; ([PRD](#)).

Presentations

TALKS (*REMOTE)

2025

- 245th American Astronomical Society Meeting, Washington D.C., Special Session on Repeating Transients, (Invited Review Talk, Declined).

2024

- LISA Meeting Talk, Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Potsdam, Germany (Invited).
- 15th International LISA Symposium 2024, University College, Dublin, Ireland.
- 17th Marcel Grossmann Meeting (MGXVII), The ‘Gabriele d’Annunzio’ University, Italy (Invited, Declined).
- 27th Capra Meeting on Radiation Reaction in General Relativity, NUS, Singapore.
- LIGO Seminar Talk, California Institute of Technology, California, USA.
- *Gravity Theory Group Seminar Talk, University of Illinois, Urbana-Champaign, Illinois, USA (Invited).

2023

- *Amaldi15 - Premiere International Conference on Gravitational Waves.
- 1st Trieste Meeting on the Physics of Gravitational Waves, SISSA, Italy.

POSTERS

2024

- Faculty of Science 95th Anniversary Symposium, Department of Physics, NUS, Singapore.
- Physics Engagement Camp, Department of Physics, NUS, Singapore.

Service and Outreach

ORGANIZED EVENTS

- 27th Capra Meeting on Radiation Reaction in General Relativity (2024), Local Organizing Committee.
- Annual Physics Conference (2023 and 2025), Department of Physics, NUS, Singapore, Organizing Committee.

PROFESSIONAL COLLABORATIONS

- LISA Consortium (Associate Member).
- LISA Figures of Merit, Science Objective 3: “Probe the dynamics of dense nuclear clusters using EMRIs”.
- FastEMRIWaveforms (FEW) — modular, fast, and accurate EMRI waveforms.

References

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| • PROF. ALVIN J. K. CHUA,
(Ph.D. Advisor) | • PROF. ENRICO BARAUSSE,
(Advisor, Mentor) | • PROF. JONATHAN GAIR,
(Advisor, Mentor) |
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