

# Mudit Garg

Nationality: Indian

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## EDUCATION

08/2021 – 07/2025	PhD in Gravitational Wave Astrophysics <b>University of Zurich</b>	Advisor: Prof. Lucio Mayer
09/2018 – 12/2020	Master of Science in Physics <b>with distinction</b> <b>ETH Zurich</b>	GPA: 5.87/6 Thesis supervisor: Prof. Lavinia Heisenberg <i>Relativistic, ghost-free, and covariant hybrid model for MOND: <math>f(Q)</math></i>
07/2014 – 06/2018	Bachelor of Technology in Engineering Physics <b>IIT Delhi</b>	GPA: 8.15/10 Thesis supervisor: Prof. Ajit Kumar <i>Geodesics near a charged black hole in <math>(R \pm \mu^4/R)</math> gravity</i>

## SELECTED TALKS - 6 SEMINARS, 2 INVITED + 6 CONTRIBUTED CONFERENCES, AND 7 INDIVIDUAL

10/2024	<b>CTC Theory Seminar</b> at University of Maryland [25+25 minutes] <i>Decoding Astrophysics from inspiraling LISA MBHBs</i>	College Park
09/2024	<b>Astrophysics Seminar</b> at Johns Hopkins University [45+15 minutes] <i>Decoding Astrophysics from inspiraling LISA MBHBs</i>	Baltimore
09/2024	<b>Astro Seminar</b> at Columbia University <i>Decoding Astrophysics from inspiraling LISA MBHBs</i>	NYC
06/2024	<b>GRAPPA Seminar</b> at University of Amsterdam [45+15 minutes] <i>Astrophysical signatures on the LISA data stream from MBHBs</i>	Amsterdam
05/2024	<b>Cosmology Seminar</b> at Max Planck Institute for Astrophysics <i>Astrophysical signatures on GWs from LISA MBHBs</i>	Garching
02/2024	<b>DAMTP GR Seminar</b> at University of Cambridge [50+10 minutes] <i>Astrophysical signatures on the LISA data stream from MBHBs</i>	Cambridge
03/2025	<b>Workshop (Invited):</b> Frontiers of Astrophysical Black Holes Sexten Center for Astrophysics	Sexten TBD
08/2024	<b>Conference (Invited):</b> New ideas on the origin of BH mergers Niels Bohr Institute	Copenhagen
11/2024	<b>Meeting:</b> LISA Astrophysics Working Group at MPA <i>What solves the ‘final parsec’ problem for LISA Massive Black Hole Binaries?</i>	Garching
09/2023	<b>Meeting:</b> LISA Astrophysics Working Group at University of Milano-Bicocca <i>The minimum measurable eccentricity from GWs of LISA MBHBs</i>	Milan
07/2023	<b>Conference:</b> GW populations: what’s next? at University of Milano-Bicocca <i>The measurability of gas and eccentricity from GWs of LISA MBHBs</i>	Milan
11/2022	<b>Conference:</b> LISA data analysis: classical methods to machine learning CNRS, L2IT, APC, CEA, and CNES	Toulouse
09/2022	<b>Conference:</b> Origin, growth and feedback of BHs in dwarf galaxies Donostia International Physics Center	San Sebastian
05/2022	<b>Conference:</b> IMBHs: New Science from Stellar Evolution to Cosmology CIERA, Northwestern University	San Juan
10/2024	<b>CIERA theory group meeting</b> at Northwestern University <i>Decoding Astrophysics from inspiraling LISA MBHBs</i>	Evanston

09/2024	<b>Branch Lunch</b> at NASA Goddard <i>Decoding Astrophysics from inspiraling LISA MBHBs</i>	Greenbelt
09/2024	<b>Astro Coffee</b> at Institute of Advanced Study <i>Measuring eccentricity and gas-induced perturbation from GWs of LISA MBHBs</i>	Princeton
09/2024	<b>Monday Afternoon Talks</b> at MIT Kavli Institute <i>Decoding Astrophysics from inspiraling LISA MBHBs</i>	Boston
07/2024	<b>15<sup>th</sup> LISA Symposium</b> at University College Dublin <i>Poster: Astrophysical signatures on the LISA data stream from MBHBs</i>	Dublin
	<b>LISA Call</b>	Online
02/2025	Systematics in tests of GR using LISA MBHBs (invited)	Community
06/2024	Measuring eccentricity and gas from GWs of LISA MBHBs	Community
07/2023	Measuring eccentricity from GWs of LISA MBHBs	Data Challenge Working Group

#### RESEARCH VISITS

10/2024	<b>Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)</b> <i>Host: Prof. Shane Larson</i>	Evanston
09/2024	<b>Center for Computational Astrophysics (CCA), Flatiron Institute</b> <i>Host: Prof. Will Farr, Dr. Yan-Fei Jiang, and Dr. Matteo Cantiello</i>	NYC
02/2024	<b>Institute of Gravitational Wave Astronomy</b> <i>Host: Prof. Alberto Vecchio</i>	Birmingham
02/2024	<b>Institute of Cosmology and Gravitation</b> <i>Host: Prof. Ian Harry</i>	Portsmouth
11/2023	<b>Max Planck Institute for Gravitational Physics (Albert Einstein Institute)</b> <i>Host: Dr. Jonathan Gair</i>	Potsdam

#### PROGRAMS/SCHOOLS

07/2025	<b>MIAPbP Program:</b> Enabling Future GW Astrophysics in the Milli-Hertz Regime <i>Munich Institute for Astro-, Particle and BioPhysics</i>	Garching
09/2024	<b>Workshop:</b> Fundamental Physics Meets Waveforms With LISA <i>Max Planck Institute for Gravitational Physics (Albert Einstein Institute)</i>	Potsdam
09/2023	<b>Kavli-Villum School:</b> Gravitational Waves <i>Corfu Summer Institute</i>	Corfu
11/2022	<b>Workshop:</b> LISA data analysis: classical methods to machine learning <i>CNRS, L2IT, APC, CEA, and CNES</i>	Toulouse
07/2022	<b>Workshop:</b> LISA Data Challenge Workshop <i>LISA Data Challenge Working Group</i>	Online
01/2022	<b>Saas-Fee School:</b> Multi-Messenger GW Astronomy <i>Swiss Society for Astrophysics and Astronomy</i>	Saas-Fee
08/2021	<b>NBIA School:</b> Gravitational wave astrophysics <i>Niels Bohr Institute, University of Copenhagen</i>	Copenhagen

#### PROFESSIONAL RESPONSIBILITIES AND MEMBERSHIPS

2025 –	Referee for ApJ
2023 –	Organizer of the ‘GWs, BHs, and Compact Binaries’ seminar <i>Department of Astrophysics, University of Zurich</i>
2022 –	Contributor to the LISA DiscIMRI hydrodynamical code comparison project <i>Tasks: Literature review, plot making, and text writing</i>

- 2021 – | Member of the LISA consortium, its astrophysics, waveforms, and data challenge working groups, and its early career scientist group (LECS)
- 2021 – | Teaching assistant for several astrophysics courses at the University of Zurich
- 2021 | Research assistant at the Department of Astrophysics, University of Zurich

## SKILLS

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### Software and programming language

- **LISABETA**: Added several waveform modules. Also, experienced user and frequently edits it to suit a given project's needs. It provides a complete LISA response and Bayesian inference primarily using the PTMCMC sampler.
- **ERYN**: I have performed reversible jump MCMC with this sampler in LISABETA.
- **MATHEMATICA**: Frequent user to do analysis and plotting.
- **PYTHON**: I mainly use this programming language to perform analysis and make plots.

**Languages**: English | German (A1.1) | Hindi

## REFERENCES

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### **Lucio Mayer (Advisor)**

University of Zurich,  
Zurich, Switzerland  
lucio.mayer[at]uzh.ch

### **Daniel D'Orazio**

Space Telescope Science Institute,  
Baltimore, USA  
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### **Jonathan Gair**

MPI for Gravitational Physics (AEI),  
Potsdam, Germany  
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### **Shubhanshu Tiwari**

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