Mudit Garg

Nationality : Indian
Date of Birth : 19/01/1996

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Education

08/2021 – Present	PhD in Gravitational Waves Astrophysics **University of Zurich**	Supervisor: Prof. Dr. Lucio Mayer
09/2018 – 12/2020	Master of Science in Physics **with distinction** **ETH Zurich** Thesis: Relativistic, ghost-free, and covariant hybrid model for MOND: f(Q) *under Prof. Dr. Lavinia Heisenberg*	GPA: 5.87/6
07/2014 – 06/2018	Bachelor of Technology in Engineering Physics **Indian Institute of Technology Delhi** Thesis: Geodesics near a charged black hole in $(R \pm \mu^4/R)$ gravity *under Prof. Dr. Ajit Kumar*	GPA: 8.15/10

Selected Talks/Presentations

11/2022	**Annual PhD Jamboree** Institute for Computational Science, University of Zurich† *Eccentric Binaries in the LISA band*	Zurich
11/2022	**Conference:** LISA data analysis: from classical methods to machine learning *CNRS, L2IT, APC, CEA, and CNES*† *TBD*	Toulouse
09/2022	**Conference:** Origin, growth and feedback of black holes in dwarf galaxies *Donostia International Physics Center* *The imprint of Gas on GWs from LISA IMBH Binaries*	Donostia-San Sebastian
05/2022	**Conference:** Intermediate-Mass Black Holes: New Science from Stellar Evolution to Cosmology CIERA, Northwestern University *Gas impact on GWs from LISA IMBH Binaries*	San Juan
02/2022	**Annual PhD seminar** Institute for Computational Science, University of Zurich *The Future of GWs*	Zurich
11/2021	**Annual PhD Jamboree** Institute for Computational Science, University of Zurich *IMBH Binaries detectable by LISA*	Zurich

∗ Attended online † Will participate

Programs/Schools

11/2022	**Workshop:** LISA data analysis: from classical methods to machine learning *CNRS, L2IT, APC, CEA, and CNES*†	Toulouse, France
07/2022	**Workshop:** LISA Data Challenge Workshop *LISA Data Challenge Working Group*∗	Online
07/2022	**Workshop:** From Scattering Amplitudes to Gravitational-Wave Predictions for Compact Binaries *Pauli Center for Theoretical Studies, ETH Zurich & University of Zurich*	Zurich, Switzerland
06/2022	**Meeting:** LISA Astrophysics Working Group *Institute for Gravitational Wave Astronomy, University of Birmingham*∗	Birmingham, UK
01/2022	**Saas-Fee School:** Compact-Object Astrophysics in the Era of Multi-Messenger Astronomy *Swiss Society for Astrophysics and Astronomy*	Saas-Fee, Switzerland
08/2021	**NBIA School:** Gravitational wave astrophysics *Niels Bohr Institute, University of Copenhagen*	Copenhagen, Denmark
06/2021	**Meeting:** LISA Astrophysics Working Group *Institute for Computational Science, University of Zurich*∗	Zurich, Switzerland

∗ Attended online † Will participate

Publications

2022	"The imprint of gas on gravitational waves from LISA intermediate-mass black hole binaries" ***Mudit Garg***, *Andrea Derdzinski, Lorenz Zwick, Pedro R. Capelo, Lucio Mayer*	MNRAS
2022	"Dirty waveforms: multiband harmonic content of gas-embedded gravitational wave sources" *Lorenz Zwick, Andrea Derdzinski,* ***Mudit Garg****, Pedro R. Capelo, Lucio Mayer*	MNRAS
2020	"Non-linear extension of non-metricity scalar for MOND" *Fabio D'Ambrosio,* ***Mudit Garg****, Lavinia Heisenberg*‡	PLB
2020	"ADM formulation and Hamiltonian analysis of Coincident General Relativity" *Fabio D'Ambrosio,* ***Mudit Garg****, Lavinia Heisenberg, Stefan Zentarra*‡	arXiv

‡ Alphabetical order

Skills

Programming Languages: Python | LaTeX | R

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

Software: Mathematica | LALSuite

Others: PyTorch | Terminal | Git

Assistance

02/2022 – 06/2022	**Teaching Assistant** for "Universe: Contents, Origin, Evolution and Future" *Supervisor: Prof. Dr. Lucio Mayer & Dr. Pedro R. Capelo*	University of Zurich
09/2021 – 01/2021	**Teaching Assistant** for "Theoretical Astrophysics" *Supervisor: Prof. Dr. Robert Feldmann*	University of Zurich
02/2021 – 07/2021	**Research Assistant** at Institute for Computational Science *Supervisor: Prof. Dr. Lucio Mayer*	University of Zurich
10/2019 – 12/2020	**Research Assistant** at Chair of Strategic Management and Innovation *Supervisor: Dr. Yash Raj Shrestha & Zoe Jonassen*	ETH Zurich
03/2019 – 07/2019	**Course Assistant** for "Quantum Field Theory II" *Supervisor: Prof. Dr. Massimiliano Grazzini*	University of Zurich

Pre-Doctorate relevant projects

04/2020 – 11/2020	**GW Data Project**: Distinguishing deviations from GR and eccentricity effects in GWs data *Supervisor: Dr. Maria Haney*	University of Zurich
02/2020 – 06/2020	**Machine Learning Course Project**: Mini projects related to regression, feature selection, data imputation, neural networks, and CNN using PyTorch framework	ETH Zurich
10/2018 – 01/2019	**GW Theory Project**: Gravitational waves and their propagation in the ΛCDM Universe *Supervisor: Prof. Dr. Philippe Jetzer*	University of Zurich

Other Activities

- **Hobbies and Interests**: Badminton, Cooking, Board games, and Trekking