

Aritra Kumar Gon

Curriculum Vitae

CONTACT INFORMATION

1 Homi Bhabha Road,
Tata Institute of Fundamental Research,
Mumbai, India

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EDUCATION

- PhD** in Physics, **2019 - present**
[Department of Theoretical Physics](#)
[Tata Institute of Fundamental Research, Mumbai, India](#)
Advisor: Prof. Rishi Khatri
- Master in Science** in Physics, **2017 - 2019**
[Indian Institute of Technology Madras, Chennai, India](#)
- Bachelor in Science** in Physics, **2014 - 2017**
[St. Xavier's College, Kolkata, India](#)

RESEARCH INTERESTS

- Secondary anisotropies and spectral distortions in the CMB
- Cosmology with Sunyaev-Zeldovich (SZ) effect and galaxy surveys
- Finding new probes to test models of Dark Matter and Dark Energy
- Early Universe Cosmology

PUBLICATIONS

1. E and B modes of the CMB y-type distortions: polarised kinetic Sunyaev-Zeldovich effect from the reionisation and post-reionisation eras.
[JCAP 2023 \[Published\]](#)
2. The pairwise and cross-pairwise y-type polarised kinetic Sunyaev Zeldovich effect from transverse velocity of galaxy clusters.
[arXiv:2308.01730 \[Under Review-JCAP\]](#)
3. E and B modes of the CMB y-type distortions: polarised kinetic Sunyaev-Zeldovich effect from patchy reionisation. **[In Prep.]**
4. Improving constraints on cosmological parameters using cross-pairwise method with unpolarised kinetic SZ effect . **[In Prep.]**
5. Duality in a hyperbolic interaction model integrable even in a strong confinement: multi-soliton solutions and field theory. [JoP:A 2019 \[Published\]](#)

CONFERENCE & SEMINAR TALKS

- Windows on the Universe, Recontres du Vietnam **2023**
Title: The y-type polarised kinetic Sunyaev-Zeldovich effect - Pairwise & cross-pairwise estimator, E and B modes
- Largest Cosmological Surveys and Big Data Science Workshop, **2023**
International Centre for Theoretical Sciences (ICTS), India

	<i>Title:</i> E and B modes of the CMB y-type distortions: polarised kinetic Sunyaev-Zeldovich effect with patchy reionisation	
	• COSMO' 22, Rio de Janeiro, Brazil.	2022
	<i>Title:</i> E and B modes of the CMB y-type distortions: polarised kinetic Sunyaev-Zeldovich effect	
	• State of the Universe seminar, TIFR, Mumbai, India.	2022
	<i>Title:</i> E and B modes of the CMB y-type distortions: polarised kinetic Sunyaev-Zeldovich effect	
CONFERENCE POSTERS	• Frontiers of Cosmology at Raman Research Institute, India	2023
INVITED TALKS	• IIT Madras Seminar, India,	2022
	<i>Title:</i> E and B modes of the CMB y-type distortions: polarised kinetic Sunyaev-Zeldovich effect	
SCHOOLS	• Largest Cosmological Surveys and Big Data Science School, ICTS, India	2023
	• ICTP Cosmology Summer School, Italy (online) (Lightning talk)	2022
	• Less Travelled Path of Dark Matter at ICTS, India (online)	2020
	• Physics of Early Universe at ICTS, India (online)	2020
TEACHING EXPERIENCE	Teaching Assistant , Tata Institute of Fundamental Research, Mumbai, India	
	<i>Course:</i> Cosmology (Graduate-level)	2023
	<i>Course:</i> Electrodynamics (Graduate-level)	2021
SERVICES & OUTREACH	- Journal Club organizer - Cosmology seminar series organizer - Participated in science outreach programme on Open day at TIFR. - Taught underprivileged school children during my Bachelor of Science.	
TECHNICAL SKILLS	- Programming: Python,C, Mathematica - Analysis Tools: CAMB, CLASS, 21cmFAST, HealPix, Colossus, PolSpice	
AWARDS & SCHOLARSHIPS	• S.N. Bhatt summer research fellowship at ICTS, Bangalore, India.	2018
	• Certificate of Merit - National Graduate Physics Examination	2016
	• Scholarship for Higher Education by Govt. of India.	2014
REFERENCES	Prof. Rishi Khatri Tata Institute of Fundamental Research, Mumbai	
	khatri@theory@tifr.res.in	

Prof. Subhabrata Majumdar

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Tata Institute of Fundamental Research, Mumbai

Prof. Aseem Paranjape

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