
Subhodeep Sarkar

Ph.D. Scholar in Theoretical Physics
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CURRENT POSITION AND AFFILIATION	Research Scholar RSS2019005, Semester V, Department of Applied Sciences, Indian Institute of Information Technology (IIIT), Allahabad Uttar Pradesh, India
EMPLOYMENT	Indian Institute of Information Technology, Allahabad, Uttar Pradesh, India <ul style="list-style-type: none">Position: Senior Research Fellow and Teaching Assistant, Department of Applied Sciences July 2021 - PresentPosition: Junior Research Fellow July 2019 - July 2021 Project: Near Horizon Structure of Black Holes Grant No.: ECR/2017/002124 Principal Investigator: Dr. Srijit Bhattacharjee Funding Agency: Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India
RESEARCH INTERESTS	Gravitational and Black Hole Physics <ul style="list-style-type: none">Black Hole Perturbation TheoryInternal Structure of Black HolesSemi-classical Aspects of GravityQuantum Aspects of Black Holes
EDUCATION	Indian Institute of Information Technology, Allahabad, Uttar Pradesh, India Ph.D., Physics, <i>Expected: Summer 2023</i> <ul style="list-style-type: none">Supervisor: Dr. Srijit Bhattacharjee, IIIT, Allahabad Jamia Millia Islamia (Central University), New Delhi, India M.Sc., Physics, June 2018 <ul style="list-style-type: none">CGPA: 9.5 (<i>Placed in First Class with Distinction</i>)Project Supervisor: Prof. Anjan Ananda SenTopic: The Generalized Proca Action in the Randall-Sundrum Braneworld ScenarioSpecial Papers: General Theory of Relativity, Quantum Field Theory, Particle Physics, Classical Field Theory Asutosh College, University of Calcutta, Kolkata, West Bengal, India B.Sc.(Honours), Physics, June 2016 <ul style="list-style-type: none">Result: First Class with Honours (<i>Secured 63.625 %</i>) National Gems Higher Secondary School, Kolkata, West Bengal, India Indian School Certificate Examination - I.S.C. (Higher Secondary), May 2012 <ul style="list-style-type: none">Result: <i>Secured 96.00% (aggregate)</i> Indian Certificate of Secondary Education - I.C.S.E. (Secondary), May 2010 <ul style="list-style-type: none">Result: <i>Secured 95.40% (aggregate)</i>

PUBLICATIONS
AND PREPRINTS**Published Papers**

1. S. Bhattacharjee, S. Sarkar and A. Bhattacharyya, *Scalar perturbations of black holes in Jackiw-Teitelboim gravity*, *Phys. Rev. D* **103** (2021) 024008 [2011.08179].
2. S. Bhattacharjee, S. Kumar and S. Sarkar, *Mass inflation and strong cosmic censorship in a nonextreme BTZ black hole*, *Phys. Rev. D* **102** (2020) 044030 [2005.09705].

Preprints

1. S. Sarkar, S. Kumar and S. Bhattacharjee, *Can we detect a supertranslated black hole?*, 2110.03547.

TEACHING
EXPERIENCE**Teaching Assistant**, Department of Applied Sciences, IIIT, Allahabad

Engineering Physics	2021 Odd Semester
Paper Code: SEGP132C	2020 Odd Semester
Program: B.Tech. in IT and ECE	2019 Odd Semester
Instructor: Dr. Srijit Bhattacharjee	
Biological Data Analytics (Biostatistics)	2021 Odd Semester
Paper Code: SBDA131C	2020 Odd Semester
Program: M.Tech. in Bioinformatics	
Instructor: Dr. Srijit Bhattacharjee	
Computational Methods in Physics using Python (CoMP-Py)	2021 Summer Break
Program: Short Term Certificate Course	
Instructor: Dr. Srijit Bhattacharjee	
Numerical Methods for Bioinformatics	2021 Even Semester
Program: M.Tech. in Bioinformatics	
Instructor: Dr. Srijit Bhattacharjee	

SKILLS

Languages:

- English (C1), Bengali (Native), Hindi (Bilingual).

Programming:

- Experienced in Python (NumPy, SciPy, Matplotlib), and Mathematica.
- Familiar with C/C++, Fortran, Pandas, Numba, Julia, Maple, Cadabra.

Document Creation:

- LaTeX, Markdown.

MEMBERSHIP
AND SERVICE

- Life Member, Indian Association for General Relativity and Gravitation (IAGRG).

TALKS AND
POSTER
PRESENTATIONS**Talks**

- Inner-horizon Instability in BTZ Black Holes 14 April 2021
21st British Gravity Meeting (BritGrav21)
University College Dublin, Ireland
- Inner-horizon Instability in BTZ Black Holes 05 October 2020
Workshop on Mathematical and Computational Approaches for
Solving the Source-Free Einstein Field Equations
ICERM, Brown University, USA

Poster Presentations

- Inner-horizon Instability in BTZ Black Holes 19 December 2020
31st Meeting of the Indian Association for General Relativity
and Gravitation (IAGRG)
IIT, Gandhinagar on behalf of IAGRG

WORKSHOPS,
CONFERENCES
AND OTHER
ACADEMIC
ACTIVITIES

- Attended **21st British Gravity Meeting (BritGrav21)** hosted by the Relativity Group in the School of Mathematics and Statistics at **University College Dublin**, 12 - 16 April 2021.
- Attended **31st Meeting of the Indian Association for General Relativity and Gravitation (IAGRG)** organized by IIT, Gandhinagar on behalf of IAGRG, 19 - 20 December 2020.
- Attended **Virtual Workshop on Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects** organized by ICERM, Brown University, USA, 16 - 20 November 2020.
- Attended **Virtual Workshop on Mathematical and Computational Approaches for the Einstein Field Equations with Matter Fields** organized by ICERM, Brown University, USA, 26 - 30 October 2020.
- Attended **Virtual Workshop on Workshop on Mathematical and Computational Approaches for Solving the Source-Free Einstein Field Equations** organized by ICERM, Brown University, USA, 05 - 09 October 2020.
- Attended **Online Workshop on Testing GR using Gravitational Waves** organized by IIT, Gandhinagar and IACS, Kolkata, 13 - 14 August 2020.
- Attended **Student Talks on Trending Topics in Theory (ST4) 2020**, 04 - 14 July 2020.
- Volunteered for **Applications of Data Science in Astrophysics and Gravitational Wave Research (DSAP) 2019**, organized by IIIT, Allahabad, 01 - 03 November 2019.
- Volunteered for **XXXIV Annual Indian Association of Physics Teachers (IAPT) Convention 2019** organized by the Department of Applied Sciences, IIIT, Allahabad, 13 - 15 October 2019.
- Volunteered for **National Seminar on Recent Advances & Innovations in Physics Teaching and Research (RAIPTR) 2019** organized by the Department of Applied Sciences, IIIT, Allahabad, 13 - 15 October 2019.

PROJECTS AND
INTERNSHIPS

- Project Student** Dec 2018 to Mar 2019
Saha Institute of Nuclear Physics, Kolkata
Supervisor: Prof. Koushik Dutta
Topic: Vector Dark Matter Production at the End of Inflation
- M.Sc. Project Student** Jul 2017 to May 2018
Centre for Theoretical Physics,
Jamia Millia Islamia
Supervisor: Prof. Anjan Ananda Sen
Topic: Gravitation (Basics of General Relativity, Modified Theories of Gravity, Generalized Proca Theories, Warped Geometry and the Randall-Sundrum Model)
- Summer Student** May 2017 to Jul 2017
Department of Theoretical Physics,
Indian Association for the Cultivation of Science
Supervisor: Prof. Dilip Kr. Ghosh
Topic: A Reading Course on Quantum Field Theory
- Visiting Student** Dec 2016 to Jan 2017
Quantum Information and Computation Group,
Harish-Chandra Research Institute
Supervisor: Prof. Ujjwal Sen
Topic: A Reading Course on Quantum Entanglement and Quantum Information Theory

REFERENCES

- Prof. Srijit Bhattacharjee
Assistant Professor of Physics,
Department of Applied Sciences,
IIIT, Allahabad. E-mail: srijitb@iiita.ac.in
- Prof. Lekha Nair
Former Head and Professor of Physics,
Department of Physics,
Jamia Millia Islamia. E-mail: lnair@jmi.ac.in
- Prof. Somasri Sen

Associate Professor of Physics,
Department of Physics,
Jamia Millia Islamia.

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Prof. Anjan Ananda Sen
Professor of Physics,
School of Arts and Sciences,
Ahmedabad University.
Centre for Theoretical Physics,
Jamia Millia Islamia

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Prof. Tabish Qureshi
Director and Professor of Physics,
Centre for Theoretical Physics,
Jamia Millia Islamia.

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CONTACT
INFORMATION

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OTHER
INFORMATION

Date of Birth: July 17, 1993
Nationality: Indian
Religion: Agnostic atheist
Date of C.V.: Nov 15, 2021