
Subhodeep Sarkar

Ph.D. Scholar in Theoretical Physics
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| CURRENT POSITION AND AFFILIATION | Research Scholar RSS2019005, Semester VII, 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 GravityBlack Hole Shadows |
| EDUCATION | Indian Institute of Information Technology, Allahabad, Uttar Pradesh, India Ph.D., Physics, <i>Expected: Summer 2023</i> <ul style="list-style-type: none">Thesis Title (tentative): <i>Probing the Near Horizon Structure of Black Holes using Perturbation Theory</i>Supervisor: Dr. Srijit Bhattacharjee, IIIT, AllahabadCGPI : 9.36 (as of Sem. V)Completed Credits: 60 (Min. Credits: 64) 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].
3. S. Sarkar, S. Kumar and S. Bhattacharjee, *Can we detect a supertranslated black hole?*, *Phys. Rev. D* **105** (2022) 084001 [2110.03547].

PUBLICATION
METRICS**INSPIRE HEP**

Papers: 3
Citations: 21
h-index: 3
Citations/paper (avg): 7

Google Scholar

Papers: 3
Citations: 22
h-index: 3
h10-index: 0

Semantic Scholar

Papers: 3
Citations: 15
h-index: 3
Highly Influential Citations: 1

Web of Science/Publons

Papers: 3
Citing Articles: 12
h-index: 2
Times Cited (avg): 4

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

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|---|--------------------|
| 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 | 2022 Even Semester |
| Program: M.Tech. in Bioinformatics | 2021 Even Semester |
| Instructor: Dr. Srijit Bhattacharjee | |
| Nonlinear Dynamics and Infectious Disease Modeling | 2022 Odd 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

- Testing the Strong Cosmic Censorship Conjecture in anti-de Sitter spacetimes 28 Jul 2022
Departmental Seminar, School of Physical Sciences
Indian Association for the Cultivation of Science, Kolkata
- The Strong Cosmic Censorship Conjecture in Anti-de Sitter Spacetimes 18 May 2022
Atlantic General Relativity 2022
Memorial University of Newfoundland and Labrador, Canada
- Testing the Strong Cosmic Censorship Conjecture in anti-de Sitter spacetimes [[Watch on YouTube](#)] 11 Mar 2022
Testing Aspects of General Relativity
IIT Gandhinagar, IIIT Allahabad, University of Lethbridge, Canada
- Inner-horizon Instability in BTZ Black Holes 14 Apr 2021
21st British Gravity Meeting (BritGrav21)
University College Dublin, Ireland
- Inner-horizon Instability in BTZ Black Holes 05 Oct 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 Dec 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 **Numerical Relativity Community Summer School** organized by the **Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, USA**, 08 - 12 August 2022.
- Attended **First IAGRG School on Gravitation and Cosmology** organized by the Indian Association of General Relativity and Gravitation (IAGRG), 16 - 28 May 2022.
- Attended **Atlantic General Relativity 2022** hosted by the **Memorial University of Newfoundland and Labrador, Canada**, 16 - 19 May 2022.
- Attended **Testing Aspects of General Relativity** hosted by **IIT Gandhinagar, IIIT Allahabad, University of Lethbridge, Canada**, 11 - 14 March 2022.
- 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 Teach-**

ing and Research (RAIPTR) 2019 organized by the Department of Applied Sciences, IIIT, Allahabad, 13 - 15 October 2019.

ACADEMIC VISITS,
PROJECTS AND
INTERNSHIPS

Academic Visits

Indian Association for the Cultivation of Science, Kolkata
Host: Dr. Sumanta Chakraborty
Period: 11 Jul 2022 to 05 Aug 2022

Project Student

Dec 2018 to Mar 2019

Saha Institute of Nuclear Physics
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.

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Prof. Lekha Nair

Former Head and Professor of Physics,
Department of Physics,
Jamia Millia Islamia.

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Prof. Somasri Sen

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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,
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Jamia Millia Islamia.

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CONTACT
INFORMATION

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E-mail: subhodeep.sarkar1@gmail.com, rss2019005@iiita.ac.in

OTHER
INFORMATION

Date of Birth: July 17, 1993
Nationality: Indian
Date of C.V.: August 15, 2022