



Dipankar Barman

Prime Minister's Research Fellow

- Research Scholar
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Personal Information

DATE OF BIRTH : 17-03-1998
 LANGUAGES : English, Hindi, Bengali (Native).
 NATIONALITY : Indian.
 RESIDENCE : Uttar Dinajpur, West Bengal, India.

Software Skills

Languages : Python, Fortran 90, html, css.
 Professional Softwares : Mathematica, MatLab, Gnuplot, Origin Pro.

Research Interests

General Relativity and Cosmology
 Quantum Field Theory
 Quantum entanglement.

About Ph.D. Research

Influence of Gravity on Quantum Entanglement
 Advisor: Dr. Bibhas Ranjan Majhi, IIT Guwahati, Guwahati.

Quantum nature of gravity is yet to be understood. Quantum entanglement phenomenon (QEP) is expected to play a significant role in illuminating this. Therefore it is natural to understand the role of gravity on QEP. Here we target this through the following investigations. (a) How do entanglement properties between two accelerated frames behave when they interact with background quantum fields (non-thermal and thermal)? (b) What is the influence of curvature of spacetime on QEP? (c) Nature of QEP in different stages of (FLRW) Universe. (d) What is the role of excited fields states on QEP?

Completed Works

- 2021 Role of thermal field in entanglement harvesting between two accelerated Unruh-DeWitt detectors, D. Barman, S. Barman and B. R. Majhi, JHEP 07 (2021) 124, arXiv:2104.11269.
- 2022 Constructing an entangled Unruh Otto engine and its efficiency, Dipankar Barman, Bibhas Ranjan Majhi, JHEP 05 (2022) 046, arXiv:2111.00711.
- 2021* Entanglement harvesting from conformal vacuums between two Unruh-DeWitt detectors moving along null paths, S. Barman, D. Barman and B. R. Majhi, arXiv:2112.01308.
- 2022* Entanglement harvesting between two inertial Unruh-DeWitt detectors from non-vacuum quantum fluctuations, D. Barman, S. Barman and B. R. Majhi, arXiv:2205.08505.

Teaching Experience

- Nov 2021 - Jan 2022 PH 110 - B.Tech. Laboratory Course Indian Institute of Technology Guwahati.
- Mar 2022 - Present PH 110 - B.Tech. Laboratory Course Indian Institute of Technology Guwahati.
- Apr 2022 - May 2022 Science Project Guidance for College Exhibition Lalit Chandra Bharali College, Guwahati.
- May 2022 - Present Renewable Energy and Energy Harvesting Lalit Chandra Bharali College, Guwahati.

Education

- since 2020 Ph.D. Physics Indian Institute of Technology Guwahati, Guwahati. Course work CGPA : 8.85/10
- 2018-2020 Master of Science in Physics Indian Institute of Technology Madras, Chennai. CGPA : 8.37/10
- 2015-2018 Bachelor of Science (Physics Major) Ramakrishna Mission Residential College, Narendrapur University Of Calcutta, Kolkata. Percentage : 67.6%
- 2013-2015 Higher Secondary (W.B.C.H.S.E.) Sudarsanpur D.P.U. Vidyachakra, Raiganj, West Bengal. Percentage : 86.6%

Achievements

- Oct 2021 Prime Minister's Research Fellows.
- Feb 2020 Scored All India Rank 65 in GATE Examination.
- 2019 Recipient of IIT Madras Merit Scholarship for Masters Students.
- Dec 2018 Scored All India Rank 211 in NET Examination.

Conferences Attended

- Feb 8-10th, 2022 Future Trends in Gravitational Physics, S.N.B.N.C.B.S.
- May 16-28th, 2022 First IAGRG School on Gravitation and Cosmology.