

# Tabasum Rahnuma

## Contact Information

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Department of Physics  
Indian Institute of Science Education and Research  
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## Education

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- **Indian Institute of Science Education and Research, Bhopal, Madhya Pradesh, India**  
*Senior Research Fellow,* *July 2019-Present*  
Area of Research: Quantum Gravity and Celestial Holography.  
Topic of Interest: Quantum Field theory, Gravitational Waves and Memory Effect, Black holes and Holography.
- **Utkal University** **Bhubaneswar, Odisha, India**  
*Master of Science in Physics,* *July 2016-April 2018*  
Specialization: Advanced Particle Physics and Field Theory  
Programming Languages: Basic Fortran 77, C & C++.
- **Gopabandhu Science College, Odisha** **Cuttack, Odisha**  
*Bachelor of Science,* *July 2012-April 2015*  
Honors: Physics
- **CYBERNET, Odisha** **Cuttack, Odisha**  
*Post Graduate Diploma in Computer Education,* *June 2012-July 2013*
- **Gopabandhu Science College** **Cuttack, Odisha**  
*Higher Secondary Education (CHSE),* *May 2010-March 2012*
- **Govt. Girls' High School, Odisha** **Cuttack, Odisha**  
*Secondary Education,* *April 2008-March 2010*

## Work Experience

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- **Fundamental physics UK, Ministry of Education India** **Southampton University,**  
**2022 Chennai- Southampton Workshop** *March 28th - 30th, 2022*  
Holography, gauge theories and black holes.

- **Princeton Center for Theoretical Science**  
***Virtual Workshop on Celestial Holography '22***  
Asymptotic symmetries, amplitudes, and CFT bootstrap methods.

**New Jersey, United States**  
*Feb 1st - 4th, 2022*
- **Kavli Asian Winter School (KAWS)**  
***on Strings, Particles and Cosmology***  
Blackhole information paradox, Gravitational S-Matrix, Holography, CFT, etc.

**ICTS-TIFR, Bengaluru**  
*Jan 10th - 23rd, 2022*
- **Abdus Salam International Centre for Theoretical Physics (ICTP)**  
***School on Superstring Theory and Related Topics***  
Holography with Averaging, Aspects of the Swampland Symmetries, Anomalies and Topology.

**Trieste, Italy**  
*October 18th - 22nd, 2021*
- **School of Physical Science, NISER**  
***Summer Project Programme***  
Measurement of the strange B meson lifetime using decay channel  $B_s^0 \rightarrow J/\Psi + \Phi$  at the CMS detector
  - Obtained the data analysis report of the Monte Carlo simulation.
  - Analyzed and generated reports of both real and simulated data.**Analysis Framework:** Root (RooFit)

**Bhubaneswar, Odisha**  
*May 2017- July 2017*
- **Department of Physics, Utkal University, Odisha**  
***Skill Development Workshop***  
Instrumentation and Repairing of Basic Instruments.

**Bhubaneswar, Odisha**  
*March-2017- April-2017*
- **Department of Physics, Utkal University, Odisha**  
***Summer Research Project (DST-INSPIRE)***  
Optical Property study of Arsenic Selenide Thin Film.
  - Characterisation of the thin film.
  - Generated XRD and UV spectroscopy report.

**Bhubaneswar, Odisha**  
*April 2014- June 2014*

## Teaching Experience

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- **Department of Physics, IISER, Bhopal**  
***Teaching Assistantship***  
For BS-MS degree courses on,
  - Mathematical Methods, 3rd year by Dr. Auditya Sharma.
  - Quantum Field Theory-I and II, 4th year by Dr. Arnab Rudra.
  - General Theory of Relativity, 4th year by Dr. Nabamita Banerjee.
  - Newtonian and Classical Mechanics, 3rd year by Dr. Nabamita Banerjee.

**Bhopal, MP**  
*Jan 2020- present*

## Achievements

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- **Joint CSIR-UGC Junior Research Fellowship (July 2019- Present)**  
◦ , *Indian Institute of Science Education and Research, Bhopal, MP.*
- **Eligibility of Lectureship(NET) Exam (Dec 2018)**  
◦ , *Joint CSIR-UGC NET Examination*
- **IMA Scholarship (2016-2018)**  
◦ , *Institute of Mathematics and Applications (IMA), Bhubaneswar.*
- **Award of INSPIRE Scholarship for the year 2012 (1788/2012) (2013 –2015)**  
◦ , *Innovation in Science Pursuit for Inspired Research (INSPIRE),  
Department of Science & Technology (DST), New Delhi-110016.*
- **Certificate of Merit (01/2009)**  
◦ , *Uranium Talent Search Examination (UTSE).*

## Publications

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**“Asymptotic Symmetry of Four Dimensional Einstein-Yang-Mills and Einstein-Maxwell Theory”** Co-authored with Nabamita Banerjee, IISER, Bhopal, India and Ranveer Kumar Singh, NHETC and Department of Physics and Astronomy, Rutgers University, 126 Frelinghuysen Rd., Piscataway NJ 08855, USA.

N. Banerjee, T. Rahnema and R. K. Singh, “Asymptotic Symmetry of Four Dimensional Einstein-Yang-Mills and Einstein-Maxwell Theory,” [https://doi.org/10.1007/JHEP01\(2022\)033](https://doi.org/10.1007/JHEP01(2022)033).