

Faizan Bhat

📍 Bangalore, India ✉ faizanbhat@iisc.ac.in ☎ +91-9682656078 🌐 GitHub
 🔗 faizanphysics.com 🏠 Inspire HEP

Education

PhD	Theoretical High-Energy Physics	Jan 2020 – Present
	<ul style="list-style-type: none"> Institute: Indian Institute of Science, Bangalore Advisor: Prof. Aninda Sinha Thesis: New approaches for the S-matrix and conformal bootstrap 	
MS-Thesis	Theoretical High-Energy Physics	Aug 2018 – Aug 2019
	<ul style="list-style-type: none"> Institute: International Centre for Theoretical Sciences (ICTS), Bangalore Advisor: Prof. Rajesh Gopakumar, Centre Director Thesis: Perturbative Mellin correlators in $\mathcal{N} = 4$ Supersymmetric Yang-Mills theory 	
BS-MS	Major: Physics, Minor: Mathematics	Aug 2014 – Aug 2019
	<ul style="list-style-type: none"> Institute: Indian Institute of Science Education and Research, Bhopal GPA: Major: 3.9/4.0 (9.73/10), Overall: 3.7/4.0 (9.27/10) 	

Publications

- Bootstrapping string models with entanglement minimization and Machine Learning** Sep 2024
 Faizan Bhat, Debapriyo Chowdhury, Arnab Priya Saha, Aninda Sinha
 To be published, [arXiv: 2409.18259 \[hep-th\]](#)
- Perturbative Mellin amplitudes of $\mathcal{N} = 4$ SYM** Dec 2023
 Faizan Bhat, Pronobesh Maity
 To be published, [arXiv: 2312.17692 \[hep-th\]](#)
- Bootstrapping high-energy observables** Nov 2023
 Faizan Bhat, Debapriyo Chowdhury, Aninda Sinha, Shaswat Tiwari, Ahmadullah Zahed
 Published: JHEP 03 (2024) 157, [arXiv: 2311.03451 \[hep-th\]](#)
- A Celestial route to AdS bulk locality** Apr 2023
 Faizan Bhat, Ahmadullah Zahed
 Published: JHEP 08 (2023) 112, [arXiv: 2304.02003 \[hep-th\]](#)
- Twistor coverings and Feynman diagrams** Dec 2021
 Faizan Bhat, Rajesh Gopakumar, Pronobesh Maity, Bharathkumar Radhakrishnan
 Published: JHEP 05 (2022) 150, [arXiv: 2112.05115 \[hep-th\]](#)

Teaching

Teaching Assistant at IISc Bangalore	Aug 2022
<ul style="list-style-type: none"> Course: Mathematical Methods for Physics 	

- Instructor: Prof. Aninda Sinha
- Responsibilities: Conducting regular tutorials. Helping set up and grading weekly assignments. Helping set up the mid-term/end-term test papers and grading the answer sheets.

Talks and Poster presentations

- **Studying the experimental ρ -parameter using the numerical S-matrix bootstrap** Mar 2024
Event: ICTP/SISSA Journal Club
Venue: International Centre for Theoretical Physics (ICTP), Trieste, Italy
- **Bootstrapping High-Energy Observables (video)** Dec 2023
Event: [Indian Strings Meeting '23](#)
Venue: Indian Institute of Technology, Bombay, India
- **Bootstrapping scattering amplitudes at high energies** Oct 2023
Event: [ICTP Workshop on String Theory, Holography, and Black Holes](#)
Venue: International Centre for Theoretical Physics (ICTP), Trieste, Italy
- **A celestial route to AdS Bulk locality** Jul 2023
Event: [Advanced Summer School in Quantum Field Theory and Quantum Gravity](#)
Venue: ICISE, Quy Nhon, Vietnam

Awards and Fellowships

- [Prime Minister's Research Fellowship](#) given to exceptional UG students for pursuing doctoral research in India Jan 2020 - Present
- [HECAP Short-term Visiting Fellowship](#) of ICTP, Trieste, Italy Feb 2024 - Mar 2024
- [Long Term Visiting Students Fellowship](#) of ICTS, Bangalore, India Aug 2018 - Dec 2019
- [ICTS-S.N.Bhatt Memorial Excellence Fellowship](#) of ICTS, Bangalore, India May 2018 - Jul 2018
- [Visiting Students Research Program Fellowship](#) of the Tata Institute for Fundamental Research (TIFR), Mumbai, India May 2017 - July 2017
- Recipient of the "*Best Student Researcher*" award as a part of the VSRP fellowship of TIFR, Mumbai, India May 2017 - July 2017
- [INSPIRE-Scholarship for Higher Education](#) given to exceptional students for UG studies in India Aug 2014 - Aug 2019

Conferences and workshops

- [Strings 2025](#), Abu Dhabi, UAE Jan 2025
- [QCD meets Gravity '24](#), National Taiwan University (NTU), Taipei, Taiwan Dec 2024
- [Cosmological Correlators](#), National Taiwan University (NTU), Taipei, Taiwan Dec 2024
- [Indian Strings Meeting](#), IIT Bombay, Mumbai, India Dec 2023
- [ICTP Workshop on String Theory, Holography, and Black Holes](#), ICTP, Trieste, Italy Oct 2023
- [Advanced Summer School in Quantum Field Theory and Quantum Gravity](#), Quy Nhon, Vietnam July 2023

Technical Skills

- **Languages:** C++, Python, HTML
- **Packages:**
 - Mathematica
 - MATLAB
 - [PyTorch](#): a Python package for Deep Learning via neural networks
 - [Strawberry Fields](#): a Python package for simulating continuous-variable quantum computations
 - [SDPB](#): a parallelized, arbitrary-precision semi-definite optimization package

Science Communication

- [Dark Matters](#), Kernel - the IISc research newsletter
- [Rapid Method to Detect SARS-CoV-2 Spike S1 Antigen](#), Research Highlights, IISc
- [3D shaping of microscopic membranes that underlie cellular processes](#), IISc Press Release

Languages

English, Hindi, Urdu, Kashmiri