

Sandeep Aashish

Office: IV/126, Dept. of Physics, IIT Patna
Web: <https://www.iitp.ac.in/aashish>

Ph: +91 6115-233-979
Email: aashish@iitp.ac.in

EDUCATION	Ph.D. Physics, IISER Bhopal 08/2016 - 07/2020 Thesis: Covariant Quantum Gravitational Corrections to Scalar and Tensor Field Models Advisor: Prof. Sukanta Panda
	Integrated M.Sc. Physics, BITS Pilani 07/2012 - 05/2016 Thesis: Radiation Reaction as a Non-conservative Force Advisor: Dr. Asrarul Haque
RESEARCH POSITIONS	Assistant Professor since 05/2023 Dept. of Physics, Indian Institute of Technology, Patna
	Postdoc (Remote) 10/2022 - 05/2023 Aarhus University, Denmark and Truust Neuroimaging Inc., USA Advisor: Prof. Henrik D. Kjeldsen
	Assistant Professor 07/2021 - 07/2022 Dept. of Physics, KARE Krishnankoil (TN)
	Postdoc 08/2020 - 06/2021 IISER Bhopal Advisor: Prof. Sukanta Panda
RESEARCH INTERESTS	Physics of the early universe, signatures of new physics, Effective quantum gravity, Foundations of quantum mechanics
PUBLICATIONS	<ol style="list-style-type: none">1. S. Aashish, Abhijith A., Sukanta Panda and Rahul, 2022, <i>Inflation with antisymmetric tensor field: new candidates</i>, JCAP 04, 043.2. S. Aashish, S. Panda, Abbas A. Tinwala and A. Vidyarthi, 2021, <i>Covariant Effective Action for Scalar-Tensor Theories of Gravity</i>, JCAP 10, 006.3. S. Aashish, A. Padhy, S. Panda and A. Rana, 2021, <i>Inflation with an antisymmetric tensor field</i>, Springer Proc. Phys. 261, 367.4. S. Aashish and S. Panda, 2021, <i>One-Loop Effective Action for Nonminimal Natural Inflation Model</i>, Springer Proc. Phys. 261, 331.5. S. Aashish, 2020, <i>Note on stability and microcausality in Lorentz violating antisymmetric tensor field</i>, arXiv:2009.01794.6. S. Aashish, A. Padhy, S. Panda, 2020, <i>Gravitational waves from inflation with antisymmetric tensor field</i>, JCAP 12, 004.7. S. Aashish, 2020, <i>Covariant Quantum Gravitational Corrections to Scalar and Tensor Field Models</i>, arXiv:2007.13150.8. S. Aashish and S. Panda, 2020, <i>Covariant quantum corrections to a scalar field model inspired by nonminimal natural inflation</i>, JCAP 06, 009.9. S. Aashish and S. Panda, 2020, <i>On the quantum equivalence of an antisymmetric tensor field with spontaneous Lorentz violation</i>, Mod. Phys. Lett. A 33, 12050087.10. S. Aashish and S. Panda, 2019, <i>Quantum aspects of antisymmetric tensor field with spontaneous Lorentz violation</i>, Phys. Rev. D 100, 065010.

11. S. Aashish, A. Padhy, S. Panda, 2019, *Avoiding instabilities in antisymmetric tensor field driven inflation*, Eur. Phys. J. C **79**: 784.
12. S. Aashish, A. Padhy, S. Panda, et al., 2018, *Inflation with an antisymmetric tensor field*, Eur. Phys. J. C **78**: 887.
13. S. Aashish and S. Panda, 2018, *Covariant effective action for an antisymmetric tensor field*, Phys. Rev. D **97**, 125005.
14. S. Aashish and A. Haque, 2016, *Radiation Reaction as a Non-conservative Force*, Eur. J. Phys. **37**, 055202.
15. S. Aashish and A. Haque, 2015, *Average Lorentz self-force from electric field lines*, Eur. J. Phys. **36**, 055012.

TEACHING

IIT Patna

- Atomic and Molecular Physics, Autumn 2023
- Numerical Methods, Autumn 2023

KARE Krishnankoil

- Physics (Foundation), Spring 2021 - Autumn 2022

IISER Bhopal

- Crash course on quantum field theory, Summer 2017

AWARDS AND ACHIEVEMENTS

- Founded Physics Studio journal club (2017) at IISERB, TheoPhII.org (2021) at KARE, rabbe-l EdTech self-learning platform (2022) and researchtor.org (2022) at YCombinator Startup School.
- Awarded and declined KREA Postdoctoral Fellowship (2021), ITPC Zhejiang University Fellowship (2020), UNESCO-UCAS ICTP Asia Pacific Fellowship (2020).
- Foreign Travel Grant by CSIR (2019)
- CSIR-JRF AIR 43 (2016); IIT-JEE AIR 6451 (2012).
- Best Paper Publication award by BITSAA (2015).
- INSPIRE scholarship awarded and foregone (2012), Dakshana Scholarship (2010).

PRESENTATIONS AND POSTERS AT CONFERENCES

- | | |
|---|-----------------|
| IUCSS, Indiana University (Bloomington, USA) | Nov 2020 |
| • Invited conference talk on Quantum equivalence of antisymmetric tensor field with spontaneous Lorentz violation | |
| ICTP-Asia Pacific, Hangzhou (China) | Mar 2020 |
| • Talk on Covariant quantum gravitational corrections to natural inflation inspired scalar model | |
| HKUST, Hong Kong | Jul 2019 |
| • Gordon Research Conference poster on Inflation with antisymmetric tensor field | |
| SUSTech, Shenzhen (China) | Jun 2019 |
| • Visiting Fellow; talk on Avoiding instabilities in antisymmetric tensor inflation | |
| ICTS, Bengaluru | Jan 2019 |
| • Visitor talk on Cosmological and quantum properties of antisymmetric tensor field | |
| IIT Madras | Dec 2018 |
| • Conference talk on 1-Loop quantum gravitational corrections for Modified Natural Inflation | |
| IISER Bhopal | |
| • Aspects of antisymmetric tensor fields in the covariant effective action formalism | Jul 2018 |
| • Study of QCD Beta Function | Jan 2017 |
| • Classical Dynamics of Non-Conservative Systems | Jul 2017 |