# Imtiyaz Ahmad Bhat

Centre for Theoretical Physics Jamia Millia Islamia, New Delhi 110025 ⊠ imtiyaz@ctp-jamia.res.in www.ctp-jamia.res.in additional information



Curriculum Vitae

Date of Birth Nationality

01 March 1988 Indian

# Contact Information

Imtiyaz Ahmad Bhat Centre for Theoretical Physics Fax: (+91) 01933-240232 Jamia Millia Islamia New Delhi 110025, INDIA

Voice: (+91) 9622298778 *E-mail:* imtiyaz@ctp-jamia.res.in *WWW:* www.ctp-jamia.res.in/people/imtiyaz.html

## Research Interests

Phenomenology of elementary particles, Baryonic asymmetry, Dark matter, Cosmology (mainly Early Universe), neutrino Physics and Primodial Black Holes(PBH's)

# Present Position

Presently I am working as Assistant Professor (Contractual) in the Department of Physics Islamic University of Science and Techology (IUST).

#### Courses taught

• Relativistic Quantum Physics(9th Semester BSc.-MSc. Integrated program )

- Quantum Field Theory (10th Semester BSc.-MSc. Integrated program)
- Electromagnetic Theory (4th Semester BSc.-MSc. Integrated program)
- Optics (3rd Semester BSc.-MSc. Integrated program)

### Education

Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, INDIA

Ph.D. Candidate, Physics, 2021

- Thesis Topic: "Dark Matter and Baryonic Asymmetry in Beyond Standard Models"
- Supervisor: Prof. Rathin Adhikari
- Jamia Millia Islamia, New Delhi, INDIA

M.Sc. Physics, 2012

University of Kashmir (Govt Boys Degree College Pulwama) J and K INDIA

B.Sc. (Hons) Physics, 2010

### Honors and Awards

- Gold Medalist
- Inspire fellowship Award 2014 (IF2014)
- JKSET-2016

#### Publications

- 1. Non-thermal acceleration radiation of atoms near a black hole in presence of dark energy Syed Masood, I. A. Bhat and Li-Gang Wang *arXiv: 2211.08793 [gr-qc]* (Accepted in PRD).
- Gamma Ray Bursters and Black Holes in the Gravity's Rainbow Moh. Vaseem, I. A. Bhat, and Anver Aziz, Int. J. Geom. Methods Mod. Phys.(Accepted) arXiv: 2211.17224 [gr-qc] doi:10.1142/S0219887823500810.
- 3. The effect of loop quantum gravitational rainbow functions on the formation of naked singularities

Moh Vaseem Akram, **I. A. Bhat**, Anver Aziz, and Mir Faizal, Int.J.Mod.Phys.A **37** (2022) 28n29, 2250179 *arXiv: 2202.11906 [gr-qc]* 

4. Anomalous Magnetic Moment and Higgs Coupling of the Muon in a Sequential U(1) Gauge Model with Dark Matter

R. Adhikari, **I. A. Bhat**, Debasish Borah, Ernest Ma and Dibyendu Nanda, Phys.Rev.D **105** (2022) 3, 035006 arXiv:2109.05417 [hep-ph].

5. Dark matter mass from relic abundance, an extra U(1) gauge boson, and active-sterile neutrino mixing

I. A. Bhat and R. Adhikari, Phys. Rev. D **101** (2020) no.7, 075030 *arXiv:1906.10185 [hep-ph]*.

6. Inflation, reheating, leptogenesis and bounds on soft supersymmetry breaking parameters I. A. Bhat, G. K. Chakravarty and R. Adhikari,,

arXiv:2012.15256 [hep-ph] (In communication with PRD).

Dark Matter Mass in Extra U(1) Gauge Model

 A. Bhat and R. Adhikari,
 Springer Proc. Phys. 248 (2020), 257-263
 doi:10.1007/978-981-15-6292-1-31.

On going Work

• Hawking radiation studies (Primary and secondary spectra analysis) using BlackkHawk

# Talks Delivered/ Poster Presentation

- Dark Matter and U(1) gauge Models
   Review talk in An Inaugural Conference on Current Status of Cosmology The Thanu Padmanabhan
   Center for Cosmology and Science Popularization(CCSP) SGT University, October 17-19 2022
- 2. Dark matter mass in extended U(1) gauge model Contributed talk in *National Symposium on Theoretical High Energy Physics*, S.G.T.B Khalsa College, University of Delhi December 20, 2019.
- 3. Dark matter and Neutrino mases in the light of Baryonic Asymmetry of the Universe Contributed talk in *Recent Advances in Experimental and Theoretical Physics (RAETP-2018)*, Central University of Jammu, April 17-18 2018.
- 4. Dark matter mass in Extra U(1) gauge model Poster presented in XXIII DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM, IIT MADRAS, 10 – 14 December 2018.

### Conference and Symposia Attended

- An Inaugural Conference on Current Status of Cosmology, The Thanu Padmanabhan Center for Cosmology and Science Popularization(CCSP) SGT University, October 17-19 2022
- XVI Workshop on High Energy Physics Phenomenology (WHEPP), IIT Guwahati, Assam India, 1-10 December 2019.
- **INDO-SOUTH AFRICA Workshop on Gravitation and Cosmology**, Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, 03–04 March 2018.
- 15<sup>th</sup> Workshop on High Energy Physics Phenomenology (WHEPP), IISER, Bhopal, 14 23 December 2017.
- GIAN course on Cosmological and Theoretical Applications of Exact Solutions of Einstein'sEquations, Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, 12 – 23 February 2016.
- General relativity Centennial, Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, 10 -12 December 2015.
- Workshop on Cosmology with Large Scale Structures, Centre for Theoretical Physics, Jamia Millialslamia, New Delhi, 5 – 9 January 2015.
- International Conference on Matters of Gravity and the Universe, Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, 27 29 October 2014.
- XX SERC Preparotary School In High Energy Physics(2014),

#### Computer Skills

- o Languages: C, Python, Basic Fortran, Use of Unix shell scripts
- Applications: Mathematica, Maple, LATEXdatabase, spreadsheet, and presentation software
- Hep-Tools: FeynCalc, LoopTools, Package X, MicroOmega, SARAH, JaxoDraW.
- Cosmology Packages: CosmoMath, BlackHawk
- GR Packages: GR-Tensor (Maple Based) and OGRE (Mathematica based.)
- Experience in Grid Mathematica and Cluster Codes.
- Operating Systems: Unix/Linux, Windows, Macintosh.