

BHOOMIKA

Universidad de Chile, Santiago
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PERSONAL DETAILS

Date of Birth and Place : 21st November 1991, Sri Ganganagar, Rajasthan
Nationality : Indian
Languages : Hindi, English

CURRENT POSITION

CATA Post Doctoral Fellow at Universidad de Chile

RESEARCH HIGHLIGHTS

Study of high energy γ -ray emission process in blazars.
Analysis of the correlation between optical and GeV flux variation in blazars using one zone leptonic modeling.
Long-term γ -ray spectral and flux variations in blazars.
Study of polarization properties in low energy optical band to understand the magnitude and direction of the magnetic field within the emission region of blazars' jets.

EDUCATION

CATA Post Doctoral Fellow December 2022
Universidad de Chile, Santiago

Post Doctoral Fellow January 2022 - September 2022
Christ (Deemed to be University), Bangalore

Visiting Researcher May 2021 - Dec 2021
Indian Institute of Astrophysics, Bangalore

Ph.D in Physics January 2015 - April 2021
Indian Institute of Astrophysics, Bangalore

Thesis Title : The Optical-GeV connection in Fermi blazars
Thesis Supervisor : Prof. C.S.Stalin

Master of Science in Physics
Maharaja Ganga Singh University, Bikaner, Rajasthan(2010-2012)
Percentage : 83.58

Bachelor of Science
Maharaja Ganga Singh University, Bikaner, Rajasthan(2007-2010)
Percentage : 81.78

PUBLICATIONS IN REFEREED JOURNAL

Paliya V.S., **Bhoomika Rajput**, Stalin C.S., Pandey S.B., *Broadband observations of the γ -ray emitting Narrow Line Seyfert 1 galaxy SBS 0846+513*, 2016, ApJ, 819, 121

Bhoomika Rajput, Stalin C.S., Sahayanathan S., Rakshit S., Mondal A.K., *Temporal correlation between the optical and γ -ray flux variations in the blazar 3C 454.3*, 2019, MNRAS, 1781

Bhoomika Rajput, Stalin C.S., Rakshit S., *Long term γ -ray variability of Blazars*, 2020, A & A, 634, A80

Bhoomika Rajput, Stalin C.S., Sahayanathan S., *Correlation between optical and γ -ray flux variations in bright flat spectrum radio quasars*, 2020, MNRAS, 498, 5128

Bhoomika Rajput, Shah Zahir, Stalin C.S., Sahayanathan S., Rakshit S., *Correlation between optical and γ -ray flux variations in BL Lacs*, 2021, MNRAS, 505, 1772

Bhoomika Rajput, Ashwani Pandey, *γ -ray flux and spectral variability of blazar Ton 599 during its 2021 flare*, 2021, Galaxies, 9, 118

Ashwani Pandey, **Bhoomika Rajput**, Stalin C.S., *Correlation between optical flux and polarization variations in Flat Spectrum Radio Quasars on diverse timescales*, 2022, MNRAS, 510, 1809

Bhoomika Rajput, Ashwani Pandey, Stalin C.S., Blesson Mathew, *Study of correlation between optical flux and polarization variations in BL Lac objects*, 2022, MNRAS, 517, 3236

PROJECTS IN PROGRESS

Bhoomika Rajput, Amit Kumar Mondal, Stalin C.S., Blesson Mathew, *Long-term multiwavelength analysis and SED modelling of TON 599 during 2008-2023*, 2023(in preparation)

Bhoomika Rajput, Stalin C. S., Ashwani Pandey, *Optical spectroscopic observations of bright Fermi detected blazar candidates of uncertain type.*, 2023 (in preparation)

TECHNICAL STRENGTHS

Operating System	Windows and Linux
Languages	Python, Latex
HPC experience	Hydra, Nova(IIA, Bangalore)

AWARDS

Secured 122nd position in GATE - 2014 (Graduate Aptitude Test Engineering)

Qualified NET-JRF 2014 (National Eligibility Test)

CONFERENCES ATTENDED

International

Extragalactic Relativistic Jets: Cause and Effect

ICTS-TIFR campus, Bangalore, 12-20 October, 2015

Nature of participation : Poster presentation

Title : Intra-night optical variability of the NLSy1 galaxy SBS J0849+5108

- **International Fermi Symposium,**
Baltimore(MD) USA, 14-19 October, 2018.
Nature of participation : Poster presentation
Title : Temporal correlation between the optical and γ -ray flux variation

National

Jet Triggering Mechanism in Black Hole Source

Tata Institute of Fundamental Research, Mumbai, 20-23, January 2016

Nature of participation : Contributed talk

Title : Variability in Blazar jets through Optical and GeV observations

- **Wide Band Spectral and Timing Studies of Cosmic X-ray Sources,**
Tata Institute of Fundamental Research, Mumbai, 10-13, January 2017
Nature of participation : Contributed talk
Title : Variability in Blazar jets through Optical and GeV observations
- **XXXV Meeting of Astronomical Society of India,**
B.M. Birla Auditorium, Jaipur, 6-10 March, 2017
Nature of participation : Poster presentation
Title : The connection between Optical and GeV flux Variation in Blazars
- **Recent Trends in the Study of Compact Objects - Theory and Observations (RETCO-III),**
Indian Institute for Space Science and Technology, Trivandrum, 5-7 June 2017
Nature of participation : Contributed talk
Title : γ -ray spectral properties of bright Fermi detected Blazars.
- **High Energy Emission from Active Galactic Nuclei,**
University of Calicut, 28-30 November, 2017
Nature of participation : Contributed talk
Title : Multiband Variability analysis of bright Fermi Blazars.
- **Astronomical Society of India, 2019,**
Christ University, Bangalore, 18-22 February, 2019
Nature of participation : Contributed talk
Title : Multiband Variability analysis of Fermi bright Blazars.
- **Astronomical Society of India, 2020,**
IISER Tirupathi, Andhra Pradesh, 13-17 February, 2020
Nature of participation : Poster Presentation
Title : Characterization of the correlation between optical and γ -ray flux variations in bright flat spectrum radio quasars.
- **Astronomical Society of India, 2021,**
ICTS-TIFR, Bengaluru, IISER, Mohali and IUCAA, Pune
18-23 February, 2021
Nature of participation : Attended Workshops
(I) Computational Astrophysics: An Emerging Avenue for Indian Astronomy Community and
(II) Science with CTA

- **Astronomical Society of India, 2022,**
IIT Roorkee and ARIES Nainital
25-29 March, 2022
Nature of participation : Thesis talk
Title : The optical-GeV connection in Fermi Blazars