



Ashwani Pandey

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Area of Research

Extragalactic astronomy, high energy (X-rays/gamma-rays) astrophysics: active galactic nuclei (AGN), relativistic jets, blazars; Cloudy simulations

Research Experience

Nov 19, 2022– present	Postdoctoral Fellow with Prof Bozena Czerny Center for Theoretical Physics PAS, Warsaw, Poland
Jan 7, 2021–Nov 15, 2022	Postdoctoral Fellow with Prof C. S. Stalin Indian Institute of Astrophysics (IIA), Bengaluru, India
Jun 25, 2019–Jan 6, 2021	Postdoctoral Fellow Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, India

Education

2014–2019 (Degree awarded on Nov 1, 2019)	Ph.D. in Physics (Astronomy) Deen Dayal Upadhyaya (DDU) Gorakhpur University, Gorakhpur, U.P., India Title: Multi-wavelength Studies of TeV Blazars Supervisor: Dr. Alok Chandra Gupta (Scientist-F, ARIES, Nainital, U.K., India) Co-supervisor: Prof. S.N. Tiwari (Department of Physics, DDU Gorakhpur University, U.P., India)
2011–2013	M. Sc. in Physics Kumaun University, Nainital, U.K., India
2005–2008	B. Sc. in Physics, Chemistry & Mathematics Kumaun University, Nainital, U.K., India

Expertise

- Cloudy code for simulations of astronomical clouds and their spectra
- Programming: Python, IDL, Linux shell programming.
- Version control system: Git, Github
- Applications
 - *Fermi* (γ -ray) data analysis software: **Fermitools**, **Fermipy**.
 - X-ray data analysis softwares of several X-ray satellites e.g. *NuSTAR*, *Chandra*, *XMM-Newton*, *Swift*, *NICER*: **HeaSoft**, **SAS**, **CIAO**, **FTOOLS**, **XSPEC**, **DS9**.
 - Optical data analysis softwares: **IRAF/DOPHOT**
 - Broadband SED modeling package: **JetSeT**
 - LaTeX, LibreOffice/Microsoft Office
- Observations: Optical photometric, polarimetric, and spectroscopic observations.

Publications in Peer-reviewed Journals

26. “*Investigation of the correlation between optical and γ -ray flux variation in the blazar Ton 599*”
Bhoomika Rajput, Amit Kumar Mandal, **Ashwani Pandey**, C. S. Stalin, Walter Max-Moerbeck, and Blesson Mathew
Monthly Notices of the Royal Astronomical Society, 2023 (under review)
25. “*UV Fe II emission model and its relation to broad-line time delays for HE 0413-4031 observed in the optical and IR bands*”
Michal Zajaček, S. Panda, **A. Pandey**, R. Prince, A. Rodriguez-Ardila, V. Jaiswal, B. Czerny, K. Hryniewicz, M. Urbanowicz, P. Trzcionkowski, M. Sniegowska, Z. Fałkowska, M. L. Martinez-Aldama, N. Werner
Astronomy & Astrophysics, 2023 (under review)
24. “*Origin of broadband emission from the transition blazar B2 1308+326*”
Ashwani Pandey, Pankaj Kushwaha, Paul J. Wiita, Raj Prince, Bozena Czerny, and C. S. Stalin
Astronomy & Astrophysics, 2023 (under review)
23. “*Broad-line region in active galactic nuclei: dusty or dustless?*”
Ashwani Pandey, Bozena Czerny, Swayamtrupta Panda, Raj Prince, Vikram Kumar Jaiswal, and Mary Loli Martinez-Aldama
Astronomy & Astrophysics, 2023 (accepted for publication)
22. “*Investigating the origin of optical flares from TeV blazar S4 0954+65*”
Ashwani Pandey, Rumen Bachev, Bozena Czerny, Paul J. Wiita, Alok C. Gupta, Anton Strigachev, and Adam Popowicz
Astronomy & Astrophysics, 2023 (in press)

21. “Wavelength-resolved reverberation mapping of intermediate-redshift quasars HE 0413-4031 and HE 0435-4312: Dissecting Mg II, optical Fe II, and UV Fe II emission regions”
R. Prince, M. Zjacek, S. Panda, K. Hryniewicz, V.K. Jaiswal, B. Czerny et al. (including **Ashwani Pandey**)
Astronomy & Astrophysics, 2023 (in press)
20. “Dusty plasma in active galactic nuclei”,
B. Czerny, M. Zjacek, M. Naddaf, M. Sniegowska, S. Panda, A. Rózanska, T. Adhikari, **A. Pandey**, et al.,
European Physical Journal D, **77**, 56, 2023
19. “Detection of minute-timescale γ –ray variability in BL Lacertae by Fermi-LAT”,
Ashwani Pandey*, and C. S. Stalin,
Astronomy & Astrophysics, **668**, 152, 2022.
18. “Study of correlation between optical flux and polarization variations in BL Lac objects”,
Bhoomika Rajput, **Ashwani Pandey**, C. S. Stalin, and Blesson Mathew
Monthly Notices of the Royal Astronomical Society, **517**, 3236–3256, 2022.
17. “Characterizing the optical nature of the blazar S5 1803+784 during its 2020 flare”,
A. Agarwal, **Ashwani Pandey**, Aykut Özdönmez, Ergün Ege, Avik Kumar Das, Volkan Karakulak
Astrophysical Journal, **933**, 42, 2022.
16. “Variable mass accretion and failed wind explain changing look phenomena in NGC 1365”,
Santanu Mondal, Tek P. Adhikari, Krzysztof Hryniewicz, C. S. Stalin, and **Ashwani Pandey**,
Astronomy & Astrophysics, 662, A77, 2022.
15. “Intra-night optical variability monitoring of γ –ray emitting blazars”,
K.Subbu Ulaganatha Pandian*, A.Natarajan, C.S.Stalin, **Ashwani Pandey**, S. Muneer and B. Natarajan,
Journal of Astrophysics and Astronomy, 43, 48, 2022.
14. “Correlation between optical flux and polarization variations in Flat Spectrum Radio Quasars on diverse timescales”,
Ashwani Pandey*, Bhoomika Rajput, and C. S. Stalin,
Monthly Notices of the Royal Astronomical Society, **510**, 1809–1836, 2022.
13. “ γ -ray flux and spectral variability of blazar Ton 599 during its 2021 flare”,
Bhoomika Rajput* and **Ashwani Pandey**,
Galaxies, **9**, 118, 2021.
12. “Investigation of the correlation patterns and the Compton dominance variability of Mrk 421 in 2017”,
MAGIC Collaboration: V. A. Acciari et al., FACT Collaboration: D. Baack et al., Other groups and collaborations: F. D’Ammando et al., (including **Ashwani Pandey**),
Astronomy & Astrophysics, **655**, A89, 2021.

11. “*Breaks in the X-ray spectra of high redshift blazars and the intervening medium*”,
Haritma Gaur, Prashanth Mohan*, **Ashwani Pandey**,
Astrophysical Journal, **914**, 46 (11pp), 2021.
10. “*NuSTAR View of TeV Blazar Mrk 501*”,
Ashwani Pandey
Galaxies, **8(3)**, 55, 2020.
9. “*Optical Variability of Three Extreme TeV Blazars*”,
Ashwani Pandey*, Alok C. Gupta, G. Damjanovic, Paul J. Wiita, O. Vince, and M. D. Jovanovic,
Monthly Notices of the Royal Astronomical Society, **496**, 1430–1444, 2020.
8. “*Optical Variability of the TeV Blazar IES 0806+524 on Diverse Timescales*”,
Ashwani Pandey*, Alok C. Gupta, S. O. Kurtanidze, Paul J. Wiita, G. Damjanovic, R. Bachev, Jin Zhang, O. M. Kurtanidze, A. Darriba, R. A. Chigladze, G. Latev, M. G. Nikolashvili, S. Peneva, E. Semkov, A. Strigachev, S. N. Tiwari, and O. Vince,
Astrophysical Journal, **890**, 72 (11pp), 2020.
7. “*Full Orbital Solution for the Binary System in the Northern Galactic Disk Microlensing Event Gaia16aye*”,
Lukasz Wyrzykowski*, P. Mroz, K. A. Rybicki, M. Gromadzki, Z. Kolaczowski, et al. (including **Ashwani Pandey**),
Astronomy & Astrophysics, **633**, A98, 2020.
6. “*Characterizing Optical Variability of OJ 287 in 2016–2017*”,
Alok C. Gupta*, Haritma Gaur, Paul J. Wiita, **Ashwani Pandey**, P. Kushwaha, S. M. Hu, O. M. Kurtanidze, E. Semkov, G. Damjanovic, A. Goyal, M. Uemura, A. Darriba, Xu Chen, O. Vince, M. F. Gu, Z. Zhang, R. Bachev, R. Chanishvili, R. Itoh, M. Kawabata, S. O. Kurtanidze, T. Nakaoka, M. G. Nikolashvili, L. Stawarz, & A. Strigachev,
Astronomical Journal, **157**, 95 (12pp), 2019.
5. “*Optical Flux and Spectral Variability of the TeV Blazar PG 1553+113*”,
Ashwani Pandey*, Alok C. Gupta, Paul J. Wiita, & S. N. Tiwari,
Astrophysical Journal, **871**, 192 (8pp), 2019.
4. “*X-ray Intraday Variability of the TeV Blazar Mrk 421 with Chandra*”,
Vishi Aggrawal, **Ashwani Pandey**, Alok C. Gupta*, Paul J. Wiita, K. K. Yadav, & S. N. Tiwari,
Monthly Notices of the Royal Astronomical Society, **480**, 4873–4883, 2018.
3. “*X-ray Flux and Spectral Variability of Six TeV Blazars with NuSTAR*”,
Ashwani Pandey*, Alok C. Gupta, & Paul J. Wiita,
Astrophysical Journal, **859**, 49 (11pp), 2018.
2. “*X-ray Intra-day Variability of Five TeV Blazars with NuSTAR*”,
Ashwani Pandey*, Alok C. Gupta, & Paul J. Wiita,
Astrophysical Journal, **841**, 123 (17pp), 2017.

1. “*Multiband Optical Variability of the Blazar OJ 287 During Its Outbursts in 2015-2016*”, Alok C. Gupta*, Aditi Agarwal, Alka Mishra, H. Gaur, P. J. Wiita, M. F. Gu, O. M. Kurtanidze, G. Damjanovic, M. Uemura, E. Semkov, A. Strigachev, R. Bachev, O. Vince, Z. Zhang, B. Villarroel, P. Kushwaha, **Ashwani Pandey**, T. Abe, R. Chanishvili, R. A. Chigladze, J. H. Fan, J. Hirochi, R. Itoh, Y. Kanda, M. Kawabata, G. N. Kimeridze, S. O. Kurtanidze, G. Latev, R. V. Muñoz Dimitrova, T. Nakaoka, M. G. Nikolashvili, K. Shiki, L. A. Sigua, & B. Spassov, **Monthly Notices of the Royal Astronomical Society**, **465**, 4423–4433, 2017.

Paper Reviewed

I served as a referee for three papers: one in the Astrophysical Journal Supplement Series (ApJS), one in the Astrophysical Journal (ApJ), and one in the Astronomical Journal (AJ).

Seminars/Conferences/Schools

- International conference/workshop
 1. Attended “**Broadband Spectral and Timing Studies with Astrosat, Chandra and XMM-Newton : A COSPAR capacity building workshop**” during March 9-20, 2019 at IISER Mohali, India.
 2. Oral presentation on “**X-ray Intraday Flux and Spectral Variability of TeV Blazars with NuSTAR**” in the conference titled “**Half a Century of Blazars and Beyond**” at Torino, Italy, during June 11-15, 2018.
 3. Oral presentation on “**X-ray Intra-day Variability of Five TeV Blazars with NuSTAR**” in the conference titled “**Wide Band Spectral and Timing Studies of Cosmic X-ray Sources**” at TIFR, Mumbai, India, during January 10-13, 2017.
- National conference/workshop
 1. Oral presentation on “**Detection of minute-timescale γ -ray variability in BL Lacertae by Fermi-LAT**” in the 41st Annual Meeting of the Astronomical Society of India (ASI) hosted by Indian Institute of Technology Indore, India during March 1-5, 2023.
 2. Thesis presentation on “**Multi-wavelength Studies of TeV Blazars**” in the 38th Annual Meeting of the Astronomical Society of India (ASI) hosted by Indian Institute of Science Education & Research (IISER) Tirupati, Transit Campus during February 13-17, 2020.
 3. Oral presentation on “**X-ray Intra-day Variability of Five TeV Blazars with NuSTAR**” in the conference titled “**REcent Trends in the study of Compact Objects: Theory and Observation (RETCO-III)**” at IIST, Thiruvananthapuram, Kerala, India, during June 05-07, 2017.
 4. Attended a workshop on “**ASTROSAT Data Analysis**” held at Tezpur University, from 3-5 May, 2017.

Personal Details

Date of Birth : 03 June, 1988

Marital status : Married

Languages: English, Hindi

Sex : Male

Nationality : Indian

Google Scholar Publication Details (as at October 19, 2023)

Citations : 281

h-index : 9

i10-index : 9

Link: <https://scholar.google.co.in/citations?user=rdFCKx8A AAAJ&hl=en>