

## Curriculum Vitae: Dr. Girjesh R Gupta

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### Research Interests:

Heating of solar corona and transition region. Solar UV and EUV spectroscopy. Propagation and damping of magnetohydrodynamic (MHD) waves. Small-scale transients. Dynamics of solar chromosphere, transition region and corona. Time series analysis. Imaging and spectroscopic instrumentations.

### Academic Qualifications:

2011	Ph.D. (Physics)	Joint Astronomy Program (JAP), IISc, Bangalore Work carried out at Indian Institute of Astrophysics, Bangalore
2005	M.Sc. (Physics)	Indian Institute of Technology Bombay, India
2003	B.Sc. (Physics)	University of Mumbai, India
2000	H.S.C. (Science)	Maharashtra State Board, Mumbai, India

### Professional Appointments:

Jan 2024–Present	Associate Professor	Physical Research Laboratory
Oct 2018–Dec 2023	Assistant Professor	Physical Research Laboratory
April 2018–Sept 2018	Rutherford Fellow	University of Cambridge
Sept 2013–March 2018	DST-INSPIRE Faculty	IUCAA, Pune
Aug 2011–Aug 2013	Post-Doctoral Fellow	MPS, Germany

### Awards, Fellowships and Grants:

- Rutherford Fellowship 2018 tenable at the University of Cambridge by Commonwealth Scholarship Commission (CSC) for 23 months.
- Parvez Guzdar Young Scientist Award 2017 instituted by the Institute for Plasma Research (IPR), Bhat, Gandhinagar.
- Justice Oak Best Thesis Award for the year 2011 by Astronomical Society of India (ASI) at 32<sup>nd</sup>-meeting of ASI, 20–22 March, 2014, IISER, Mohali.
- INSPIRE Faculty Fellowship by Department of Science & Technology (DST), Government of India, 2013 (Session-I).
- Best poster presentation in 'From the Heliosphere into the Sun' conference, 2012, Physikzentrum, Bad Honnef, Germany.
- Best poster presentation in the meeting of Astronomical Society of India–2009.
- Junior Research Fellowship (NET–JRF Dec–2004) for Ph.D. in India.
- *INSPIRE Research Grant: Study of MHD turbulence in the solar and astrophysical plasmas*, Dept. of Science and Technology (DST), Govt. of India, Amount: INR 35 Lakh, 2013–2018.
- ESA travel grant to attend Hinode-12 meeting 2018, IAU travel grant 2016, Hinode travel grant to attend Hinode-10 meeting 2016, COSPAR travel grant 2010.

## Research Guidance:

- Ph.D. Supervision: Ms. Ananya Rawat (August 2021–Aug 2025, JRF-2020 batch)
- Member of Doctoral Studies Committee (DSC):
  - Ms. Shanwalee Sow Mondal (Aug 2018–July 2022, A&A/PRL)
  - Mr. Suraj Sahu (Aug 2018–July 2022, USO/PRL)
  - Mr. Yogesh Maurya (Aug 2020– July 2024, USO/PRL)
  - Mr. Soumik Kar (Aug 2023– July 2027, PSDN/PRL)
- Supervision of a semester long project of 1<sup>st</sup> year JRFs of PRL as a part of PhD course-work
  - Mr. Satyam Agarwal: Physical properties of magnetically closed coronal loops in the solar corona (Jan-June 2020).
  - Ms. Ananya Rawat: Properties of UV bright points in solar active region (May-July 2021).
  - Mr. Sandeep Kumar: Observational characteristics of propagating waves in coronal loops (May-July 2021).
  - Ms. Ananya Rawat: Density and temperature diagnostics of a coronal loop (Aug-Dec 2021).
- Guidance to Bachelors and Masters students:
  - Ms. Monika Gundecha, Pune University, Aug 2016–May 2017.
  - Ms. Isha Sharma, Fergusson College, Pune, June 2017–March 2018.
  - Mr. Sunil Yadav, IISER Behrampur, May 2023–July 2023.
  - Ms. Jisna Jojo, St. Xavious College, Mumbai, Nov 2023–April 2024.

## Teaching Courses:

- Course on ‘UV and X-ray Sun’ as a part of 1<sup>st</sup> year JRF course-work during January 2024–May 2024, January 2022–May 2022, January 2021–May 2021, and January 2020–June 2020 at Udaipur Solar Observatory.
- A full semester course on ‘Research & Methodology’ as a part of 1<sup>st</sup> year JRF course-work during August 2019–December 2019 at Udaipur Solar Observatory.
- UN/CSSTEAP PG Course: The Sun and Space Weather (14 hours, September-2023).

## Other Professional Activities/Services:

- Lead Investigator on ‘Waves and Oscillations in Sunspots with SUIT/Aditya-L1’.
- Reviewer for ApJ, A&A, Frontiers Astronomy & Space, RAA, JAPA Scientific Journals.
- SOC Member, 3rd Aditya-L1 Support Cell Workshop, 25–27 Feb 2023, IIT BHU, Varanasi & LOC Member, Solar Physics Workshop at USO, 3–5 April, 2023, Udaipur.
- Individual member of International Astronomical Union (IAU), Life time member of Astronomical Society of India (ASI - L 2171) & Plasma Science Society of India (PSSI - LM 1601).

## PRL-related Work:

- Member of Academic Committee (AC) of PRL since 20 April 2021.
- Member of PRL JRF interview Committee (2019–2023).
- Member of PRL Hindi Maah Committee 2023
- Member of Vikram Patrika Editorial Committee since 9 June 2021.
- Chairman, USO/PRL canteen committee during Jan 2021–Dec 2022.
- Coordinator for organisation of periodic USO seminars during January 2019–June 2021.

## Refereed Publications:

- *Effect of area divergence and frequency on damping of slow magnetoacoustic waves propagating along umbral fan loops*  
Rawat, Ananya, [Gupta, Girjesh](#), 2024, **MNRAS**, under revision
- *Exploring magnetic coupling of solar atmosphere through frequency modulations of 3-min slow magnetoacoustic waves*  
Rawat, Ananya, [Gupta, Girjesh](#), 2023, **Bull. Soc. R. Sci. Liege**, In press, arXiv:2309.02398
- *Exploring source region of 3-min slow magnetoacoustic waves observed in coronal fan loops rooted in sunspot umbra*  
Rawat, Ananya, [Gupta, Girjesh](#), 2023, **MNRAS**, 525, 4815–4831, arXiv:2308.03490
- *Spectroscopic and imaging observations of transient hot and cool loops by IRIS and SDO*  
[Gupta, Girjesh R.](#), Nayak, Sushree, 2022, **MNRAS**, 512, 3149, arXiv:2203.03529
- *Wave amplitude modulation in fan loops as observed by AIA/SDO*  
Sharma, A., Tripathi, D., Erdélyi, R., [Gupta, G. R.](#), Ahmed, G. A., 2020, **A&A**, 638, A6, arXiv:2004.05797
- *Hinode EIS line widths in the quiet corona up to  $1.5 R_{\odot}$*   
Del Zanna, G., [Gupta, G. R.](#), Mason, H. E., 2019, **A&A**, 631, A163, arXiv:1905.09783
- *Exploring the damping of Alfvén waves along a long off-limb coronal loop, up to  $1.4 R_{\odot}$*   
[Gupta, G. R.](#), Del Zanna, G., Mason, H. E., 2019, **A&A**, 627, A62, arXiv:1905.08194
- *Observation and modeling of chromospheric evaporation in a coronal loop related to active region transient brightening*  
[Gupta, G. R.](#), Sarkar, A., Tripathi, D., 2018, **ApJ**, 857, 137, arXiv:1803.11172
- *Stellar flare oscillations: Evidence for oscillatory reconnection and evolution of MHD modes*  
Doyle, J. G., Shetye, J., Antonova, A. E., Kolotkov, D. Y., Srivastava, A. K., Stangalini, M., [Gupta, G. R.](#), Avramova, A., Mathioudakis, M., 2018, **MNRAS**, 475, 2842
- *Direct observations of different sunspot waves influenced by umbral flashes*  
Sharma, A., [Gupta, G. R.](#), Tripathi, D., Kashyap, V., Pathak, A., 2017, **ApJ**, 850, 206, arXiv:1710.08438
- *Spectroscopic evidence of Alfvén wave damping in the off-limb solar corona*  
[Gupta, G. R.](#), 2017, **ApJ**, 836, 4, arXiv:1612.09551
- *Fan loops observed by IRIS, EIS and AIA*  
Ghosh, A., Tripathi, D., [Gupta, G. R.](#), Polito, V., Mason, H. E., Solanki, S. K., 2017, **ApJ**, 835, 244, arXiv:1701.01617
- *IRIS and SDO observations of recurrent explosive events*  
[Gupta, G. R.](#), Tripathi, D., 2015, **ApJ**, 809, 82, arXiv:1506.05327
- *Spectroscopic observations of a coronal loop: basic physical plasma parameters along the full loop length*  
[Gupta, G. R.](#), Tripathi, D., Mason, H., 2015, **ApJ**, 800, 140, arXiv:1412.7428
- *Sunspot waves and triggering of homologous active region jets*  
Chandra, R., [Gupta, G. R.](#), Mulay, S., Tripathi, D., 2015, **MNRAS**, 446, 3741, arXiv:1410.8315

- *Observations of dissipation of slow magneto-acoustic waves in a polar coronal hole*  
**Gupta, G. R.**, 2014, **A&A**, 568, A96, arXiv:1407.1017
- *The dynamical behaviour of a jet in an on-disk coronal hole observed with AIA/SDO*  
Chandrashekhar, K., Morton, R. J., Banerjee, D., **Gupta, G. R.**, 2014, **A&A**, 562, A98, arXiv:1310.7853
- *Characteristics of polar coronal hole jets*  
Chandrashekhar, K., Bemporad, A., Banerjee, D., **Gupta, G. R.**, Teriaca, L., 2014, **A&A**, 561, A104, arXiv:1310.8106
- *Nature of quiet-Sun oscillation using data from the Hinode, SOHO, and TRACE spacecraft*  
**Gupta, G. R.**, Srividya, S., Banerjee, D., Madjarska, M., Doyle, J. G., 2013, **Solar Physics**, 282, 67-86, arXiv:1209.5252
- *Spectroscopic observations of propagating disturbances in polar coronal hole: Evidence of slow magneto-acoustic waves*  
**Gupta, G. R.**, Teriaca, L., Marsch, E., Solanki, S., Banerjee, D., 2012, **A&A**, 546, A93, arXiv:1209.3524
- *Propagating MHD waves in coronal holes*  
Banerjee, D., **Gupta, G. R.**, Teriaca, L., 2011, **SSRv**, 158, 267–288, arXiv:1009.2980
- *Spectroscopic observation of oscillations in the corona during the total Solar eclipse of July 22, 2009*  
Singh, J., Hasan, S. S., **Gupta, G. R.**, Nagaraju, K., Banerjee, D., 2011, **Solar Physics**, 270, 213-233
- *Propagating intensity disturbances in polar corona as seen from AIA/SDO*  
Krishna Prasad, S., Banerjee, D., **Gupta, G. R.**, 2011, **A&A**, 528, L4, arXiv:1102.2979
- *Accelerating waves in polar coronal holes as seen by EIS and SUMER*  
**Gupta, G. R.**, Banerjee, D., Teriaca, L., Imada, S., Solanki, S., 2010, **ApJ**, 718, 11–22, arXiv:1005.3453
- *Statistical detection of propagating waves in a polar coronal hole*  
**Gupta, G. R.**, O'Shea, E., Banerjee, D., Popescu, M., Doyle, J. G., 'Magnetic Coupling between the Interior and Atmosphere of the Sun', *Astrophysics and Space Science Proceedings*, 2010, 433-436, arXiv:0902.4333
- *Intensity oscillation in the corona as observed during the total Solar eclipse of March 29, 2006*  
Singh, Jagdev, Hasan, S. S., **Gupta, G. R.**, Banerjee, D., Muneer, S., Raju, K. P., Bagare, S. P., Srinivasan, R., 2009, **Solar Physics**, 260, 125–134
- *Propagating waves in polar coronal holes as seen by SUMER & EIS*  
Banerjee, D., Teriaca, L., **Gupta, G. R.**, Imada, S., Stenborg, G., Solanki, S., 2009, **A&A**, 499, L29–L32, arXiv:0905.1013
- *On the statistical detection of propagating waves in polar coronal holes*  
**Gupta, G. R.**, O'Shea, E., Banerjee, D., Popescu, M., Doyle, J. G., 2009, **A&A**, 493, 251–257, arXiv:0902.2676

## Outreach Activities:

- Member of National Science Day NSD–2019,–2020, –2023 committee of PRL, Ahmedabad.
- Presentation and posters on 'The Active Sun and Space Weather' in Hindi at Jawahar Navodaya Vidyalaya, Mavli organised by USO, 3 March, 2020, Udaipur.
- Demonstration of posters and AstroKit on *National Science Day*, 29 February, 2020, PRL.
- Presentation on 'Sun and solar activity' to school students on World Space Week celebration, 10 October 2019, Udaipur Solar Observatory, Udaipur.
- Member of evaluation committee of essays for VOICE-2019 Category-2, PRL.
- Demonstrated AstroKit on *Science Express* organised by PRL, 23 January 2019, Govt. Senior Secondary School, Badgaon, Udaipur, India.
- Prepared Physics question paper for National Science Day–2019, –2023.
- Demonstrated experiments on *Science Express* of PRL, December 22–23, 2018, Rajkot.
- Demonstrated AstroKit to school students on *Space Day*, 9 October, 2018, USO, Udaipur.