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Girjesh R. Gupta

CURRICULUM VITAE

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Date of Birth: 8 May 1982
Nationality: Indian
Sex: Male
Marital status: Single

Education:

- 2011 Ph.D: Physics, Indian Institute of Astrophysics, Bangalore.
Degree awarded by Indian Institute of Science, Bangalore.
Thesis Supervisor: Prof. Dipankar Banerjee, I.I.A.
Title: On the Nature of Propagating MHD Waves in the Solar Atmosphere.
- 2005 M.Sc: Physics, Indian Institute of Technology, Bombay, India.
- 2003 B.Sc: Physics (major) and Mathematics, University of Mumbai, India.
- 2000 High School: BES's Junior College of Commerce and Science, Mumbai.

Academic Awards and Fellowships:

- Awarded best poster presentation in the meeting of Astronomical Society of India (ASI-2009).
- IIA Senior Research Fellowship towards Ph.D, August 2007–continued.
- IIA Junior Research Fellowship towards Ph.D, July 2006–July 2007.
- IISc Junior Research Fellowship towards Ph.D, August 2005–June 2006.
- Awarded Junior Research Fellowship (NET–JRF 2005) by Council of Scientific and Industrial Research, India for pursuing Ph.D. in India.
- Qualified National Graduate Aptitude Test in Engineering (GATE–2005) in Physics with all India rank 13th with percentile 99.61.

- Qualified National Joint Entrance Screening Test (JEST–2005) in Physics with percentile 97.25.
- Qualified State Level Eligibility Test (SLET–2004) of Maharashtra State for lectureship.

Research Interests:

Solar magnetohydrodynamics (MHD): Observational study of MHD wave propagation in stratified solar atmosphere and its role in acceleration of fast/slow solar wind and in heating of the solar corona. Dynamics of the solar chromosphere, transition region and corona. Spectroscopy in the solar atmosphere. Solar flares and coronal mass ejections (CMEs). Acceleration of fast solar wind. Heliophysics & Space weather.

Scientific Accomplishments:

2006–2010 (Ph.D. Thesis):

- Developed a tool to detect propagating waves in the solar atmosphere from a statistical approach.
- Detected a difference in the nature of wave propagation in the coronal hole where bright (network) regions show only upward propagation, as opposed to the dark (internetwork) regions which show evidence of both upward and downward propagating waves.
- Detected significant oscillations at boundary of active region and in the neighbourhood, rather than within the loops itself from the Solar Eclipse 2006 observations.
- Detection of accelerating waves in polar inter-plume regions within $1.2 R_{\odot}$ which were interpreted in terms of either Alfvén or fast magneto-acoustic waves.
- Comparison study between the plume and inter-plume regions supported the view that inter-plume regions are the preferred channel for the acceleration of the fast solar wind.
- Detected the presence of long period oscillations with periods between 15 min to 30 min in bright magnetic regions of quiet Sun.
- Detected the power halos and shadows like structures from the Fourier power maps which showed that low period powers are mainly concentrated in dark regions (internetwork) whereas long period powers are concentrated in bright magnetic regions (network) of quiet Sun.
- Detected the high frequency oscillations from the Solar Eclipse 2009 observations in intensity, velocity and line width with periods in the range of 25 s to 50 s, which may indicate that all the MHD wave modes are present together in the coronal structures.

Research Experience:

- Research project titled ‘Influence of Magnetic Field on Network and Internetwork Dynamics’ with Prof. Dipankar Banerjee, IIA, August 2006- Dec 2006.

- Research project titled ‘Fabrication and Performance Study of Cosmic Ray Muon Telescope’ with Prof. Raghav Verma, IIT Bombay, July 2004-April 2005.

Professional Visits:

- Max Planck Institute of Solar System Research, Lindau, Germany (February-2011).
- Max Planck Institute of Solar System Research, Lindau, Germany (January-2009) under the DAAD-DST Project based Personnel exchange Programme (PPP-2007).
- Armagh observatory, North Ireland, UK (April-2008) under the Royal Society-British Council joint project scheme.
- Max Planck Institute of Solar System Research, Lindau, Germany (September-2007) under the DAAD-DST Project based Personnel exchange Programme (PPP-2007).

Skills:

- Familiar with Linux and Windows operating systems.
- Familiar with Computer programming language Fortran 90.
- Data analysis using several IDL packages from the Solarsoft (SolarSoft is a set of integrated software libraries, data bases, and system utilities which provide a common programming and data analysis environment for Solar Physics).

Miscellaneous:

- Tee seminar at Max Planck Institute of Solar System Research, Lindau, Germany, February 23, 2011.
- Received COSPAR travel grant to attend COSPAR-2010 meeting.
- Oral Presentation in In-House Scientific Meeting, IIA, April 09, 2010.
- Attended the Heliophysics Summer School at UCAR, Boulder in July 2009 fully funded by organizers.
- Attended the Solar Physics Summer School at National Solar Observatory, New Mexico in June 2009.
- Received Dept. of Science & Technology (DST), Govt. of India, travel grant to attend NSO summer school in June, 2009.
- Oral Presentation in In-House Scientific Meeting, IIA, April 17, 2009.
- Attended the winter school on Solar Physics at Kodaikanal Observatory in Dec 2006.
- Attended the summer school on Radio Astrophysics at National Centre for Radio Astrophysics in May 2006.

Conferences:

1. Oral presentation in the *1st Asia-Pacific Solar Physics meeting, March 21–24, 2011*, Indian Institute of Astrophysics, Bangalore, India.
2. Poster presentation in the *Space Climate Symposium 4, 16–21 January, 2011*, Goa, India.
3. Oral presentation in the *13th Young Astronomer's Meeting, 3–5 September, 2010*, Physical research Laboratory, Ahmedabad India.
4. Oral presentations in the *38th COSPAR Scientific Assembly, 18–25 July, 2010*, Bremen, Germany.
5. Oral presentations in the *7th Annual Meeting of AOGS, 5–9 July, 2010*, Hyderabad, India.
6. Oral presentation in the *12th Young Astronomer's Meeting, 14–16 March, 2009*, Indian Institute of Technology, Kharagpur, India.
7. Poster presentation in the *Meeting of Astronomical Society of India, 18–20 February, 2009*, Indian Institute of Astrophysics, Bangalore, India.
8. Poster presentation in the *Magnetic Coupling between the Interior and the Atmosphere of the Sun, 2–5 December 2008*, Indian Institute of Astrophysics, Bangalore, India.
9. Attended *The RAS National Astronomy Meeting, 31 March–4 April, 2008*, Queen's University, Belfast, UK.
10. Attended *National Symposium on Gamma Ray Astronomy, 23–24 November, 2007*, Indian Institute of Astrophysics, Bangalore, India.
11. Attended the *Meeting of Astronomical Society of India, 7–9 February, 2007*, Osmania University, Hyderabad, India.
12. Attended the *Young Astronomer's Meeting, 3–5 January, 2007*, Indian Institute of Astrophysics, Bangalore, India.

Refereed Publications:

1. *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
2. *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
3. *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

4. *Accelerating waves in polar coronal holes as seen by EIS & SUMER*
Gupta, G. R., Banerjee, D., Teriaca, L., Imada, S., Solanki, S., 2010, **APJ**, 718, 11-22
5. *Propagating MHD waves in coronal holes*
 Banerjee, D., **Gupta, G. R.**, Teriaca, L., 2010, **SSRv**, Online First
6. *Propagating intensity disturbances in polar corona as seen from AIA/SDO*
 Krishna Prasad, S., Banerjee, D., **Gupta, G. R.**, 2011, **A&A**, 528, L4
7. *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., Accepted, **Solar Physics**
8. *Nature of quiet Sun oscillations using data from Hinode, SoHO and TRACE spacecrafts*
Gupta, G. R., Subramanian, S., Banerjee, D., Madjarska, M. S., Doyle, J. G., (to be Submitted)

Conference proceedings:

1. *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

References:

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- Prof. J. G. Doyle
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