

CURRICULUM VITAE OF BHUWAN JOSHI

Personal Details

Bhuwan Joshi
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Research Area

Solar Physics, Solar-Terrestrial Relationship.

Research Interests

- **Solar eruptive phenomena:** Onset and evolution of Solar Flares and Coronal Mass Ejections (CMEs) using multi-wavelength and multi-point observations; modeling of coronal magnetic fields; hard X-ray (HXR) imaging and spectroscopy of solar transients.
- **Cyclic evolution of solar activity:** Long- and mid-term behavior of solar activity; north-south asymmetry; periodic patterns.
- **Space weather:** Propagation characteristics and geo-effectiveness of interplanetary CMEs.

Professional Experience

- Professor (January 2023 – present)
- Associate Professor (July 2017 – December 2022)
Physical Research Laboratory, Udaipur Solar Observatory, India
- Reader (January 2012 – July 2017)
Physical Research Laboratory, Udaipur Solar Observatory, India
- Research Professor (on sabbatical from PRL; September 2014 – May 2015)
School of Space Research, Kyung Hee University, South Korea
- Scientist-SD (August 2008 – December 2011)
Physical Research Laboratory, Udaipur Solar Observatory, India
- Post-Doctoral Fellow (May 2007 – July 2008)
Korea Astronomy and Space Science Institute, Daejeon, South Korea

Academic Qualifications

- 2007 Ph.D. (Physics, Solar Astronomy)
Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, India
Degree awarded by Kumaun University, Nainital, India
Thesis title: Investigations of solar flares associated activities from near-Sun to interplanetary medium
- 2000 Master of Science (Physics) with specialization in Astrophysics – First division
Kumaun University, Nainital, India
- 1998 Bachelor of Science with Physics, Mathematics (major subjects) – First division
CSJM Kanpur University, Kanpur, India

Successful Research Grants

- **Indian Principal Investigator**, Indo-German, DST-DAAD joint research project, “Exploration of solar flare X-ray emission magnetic reconnection”, heating and particle acceleration”, 2022-2024 (ongoing).
- **Indian Principal Investigator**, Indo-Austrian DST- BMWFW joint research project, “Onset of solar flares and flare-CME associations”, 2017–2019.
- **Co-Principal Investigator**, DST-SERB project, “Solar filament eruptions and their space weather consequences, 2017-2020.

Participation in Space Programs for Solar and Space Explorations

- Member, Science Working Group (SWG) for Aditya-L1 mission constituted by Chairman ISRO in February 2016 and extended in October 2018.
- Science Team Lead and Co-Investigator, High Energy L1 Orbiting X-ray Spectrometer (HELIOS) on board ADITYA-L1 mission.
- Member, Science Team for Solar X-ray Monitor (XSM) board Chandrayaan-2 mission.
- Co-I (science) on Venus Solar Soft X-ray Spectrometer (V3) recommended for ISRO’s Venus mission.

Supervision of Ph.D. Students

- Dr. Upendra Kushwaha (2010 – 2015)
Currently Assistant Professor, Department of Physics, University of Allahabad, Allahabad, India.
- Dr. Prabir Kumar Mitra (2016 – 2021)
Currently a Postdoctoral Fellow at Institute of Physics, University of Graz, Austria.
- Mr. Suraj Sahu (2017 – 2022)
Thesis submitted in July 2022.

- Ms. Binal Patel, SRF, PRL, 2018 – present

Supervision of Project Student

- Ms. Pooja Devi, Research Fellow, DST-SERB project entitled “Solar filament eruptions and their space weather consequences”, 2017 – 2020.
Currently pursuing PhD in Solar Physics at Kumaun University, Nainital

Supervision of Postdoctoral Fellows

- Dr. Hema Kharayat, 2019 – 2021
Currently Assistant Professor, Dept. of Physics, M.L.K. (PG) College, Balrampur, UP.
- Dr. M. Syed Ibrahim, 2018 – 2019
(Currently Postdoctoral Fellow, Kodaikanal Solar Observatory, IIA)
- Dr. Navin C. Joshi, 2018 – 2020
(Currently Assistant Professor, Dept. of Physics, SRM University, Delhi NCR-Sonepat)

Supervision of M.Tech Thesis of International Students (Under CSSTEAP program, affiliated to the UN)

1. Mr. Baburam Sharma, Tribhuvan University, Nepal, M.Tech (2021)
Currently pursuing PhD at Centre for Oceans, Rivers, Atmosphere and Land Sciences, Indian Institute of Technology (IIT), Kharagpur, India.
2. Mr. Mirkamalov Mirabbos, Samarkand State University, Uzbekistan, M.Tech (2018),
Currently pursuing PhD in Solar Physics at University of Science and Technology of China, Hefei, China under CAS-TWAS fellowship.

Supervision of MSc/MTech /Integrated MSc/BTech students

1. Mr. Karan Sen, MP University of Agriculture and Technology (MPUAT), Udaipur, 2022
2. Ms. Khushi Padiyar, MPUAT, Udaipur, 2022
3. Mr. Kush Sharma, University of Petroleum and Energy Studies, Dehradun, 2018
4. Ms. Aditi Bhatnagar, IISER Kolkata, 2017.
5. Ms. Preethi Manoharan, Bharathiar University, Coimbatore, 2012
6. Mr. Suvasis Swain, NIT Rourkela, 2010
7. Mr. Amritansh Vats, CBS, Mumbai University 2009

Teaching Courses in Pre-Ph.D. Coursework at PRL

1. Basics of astrophysics

2. Solar astrophysics and the active Sun
3. Coronal and heliospheric processes
4. Solar MHD

Commencement of New R&D Projects at USO/PRL

- **Udaipur-CALLISTO:** With an aim to establish a new solar observing facility for the real-time monitoring of solar activity in radio wavelength (~45-870 MHz) and facilitate the space weather research, I lead the development of CALLISTO solar radio spectrograph at USO/PRL. The Udaipur-CALLISTO became operational in October 2018 and providing uninterrupted data which is regularly being used to study the particle acceleration in solar flares and near-Sun evolution coronal mass ejections (CMEs) (<https://www.prl.res.in/~ecallisto/>).
- **Wide Band Solar Radio Spectrometer (WBSRS):** Our team, lead by me, has undertaken the development of a high resolution, state-of-the-art radio spectrometer for probing the solar radio bursts at a wide frequency range (~50-2500 MHz). The new instrument will provide complementary measurements of X-ray, UV and optical observations of powerful solar transients (flares, CMEs, jets, etc.). The signatures of solar radio bursts at higher frequencies will provide insights about the magnetic reconnection and processes of particle acceleration.

Awards and Recognitions

- Felicitated by the Chief Minister, Uttarakhand during the Youth Festival jointly organized by the Hindustan Times (HT) Media and Government of Uttarakhand on November 7, 2019 in Almora, Uttarakhand for contributions in the field of Solar Physics and Space Sciences.
- Awarded Research Professorship at School of Space Research, Kyung Hee University, South Korea for the academic year 2014 – 2015.
- Visiting scientist at Korea Astronomy and Space Science Institute (KASI), Daejeon, South Korea during the years 2011, 2013, 2014, 2015, 2018 and 2019.
- Our research paper entitled “Magnetic Reconnection During the Two-phase Evolution of a Solar Eruptive Flare” (Joshi et al., The Astrophysical Journal, 2009, vol. 706, 1438 – 1450) was selected for RHESSI Science Nugget. This nugget features our discovery of the large-scale contraction of coronal loops during early phase of a solar flare which was detected simultaneously in X-ray and EUV observations.
- Member, Solar Eclipse Expedition Team (sponsored by DST, Govt. of India) that visited Antalya, Turkey. The team successfully carried out the imaging observations of Total Solar Eclipse of March 29, 2006 along with related measurements of atmospheric parameters.

Best Paper Awards

- Best paper award in the category of “Sun and Solar System” in the Astronomical Society of India (ASI) meeting held during 18-22 February 2019 at CHRIST (deemed to be university), Bengaluru for the paper “Evolution of solar magnetic fields and large-scale reconnection

events in extremely complex solar active region NOAA 12673” by Prabir K. Mitra and Bhuwan Joshi.

- Best paper award in the category of Space and Astrophysical Plasma in 32nd National Symposium on Plasma Science & Technology (PLASMA-2017) held in Institute for Plasma Research (IPR) Gandhinagar, Gujarat for the paper “Flux rope eruption from a sigmoid active region: triggering mechanism and large-scale magnetic reconnection” by Prabir K. Mitra and Bhuwan Joshi.
- First best paper award in Astronomy and Astrophysics session of 18th National Space Science Symposium (NSSS-2014) held in Dibrugarh, India during 29 January–1 February 2014 for the paper “Contraction and disruption of coronal magnetic fields during the failed eruption of a filament and associated M6.2 flare” by Bhuwan Joshi, Upendra Kushwaha and Astrid Veronig.
- Best poster paper award in the category of Space and Astrophysical Plasma in 28th National Symposium on Plasma Science & Technology (PLASMA-2013) held during 3–6 December 2013 in Bhubaneswar, India for the paper “Evidence of magnetic reconnection during the evolutionary phases of a solar prominence eruption” by Upendra Kushwaha and Bhuwan Joshi.

Invited Talks in National and International Conferences

1. “Active and explosive Sun: space and ground-based observations”, UN-CSSTEAP School on Space Weather, PRL, Ahmedabad, 20 - 30 December 2023.
2. “Physics of solar flares”, Regional Workshop on Solar Science with Aditya-L1, St. Joseph’s University, Bengaluru, 2- 6 January 2023.
3. “Solar magnetic flux ropes: Build-up, early evolution and eruption”, VELC/ Aditya-L1 Science Workshop, Kodaikanal Solar Observatory, Indian Institute of Astrophysics (IIA), 8-10 June 2022.
4. “Application of 2D and 3D magnetic reconnection in solar flares: A perspective”, 36th meeting (online) of Plasma Science Society of India (PSSI), Birla Institute of Technology, Mesra, Jaipur Campus, 13 - 15 December 2021.
5. “Solar source regions of space weather events”, The International Space Weather Initiative (ISWI) Workshop on Space Weather: Science and Applications (online), jointly organized by the United Nations Office for Outer Space Affairs and the Vikram Sarabhai Space Centre (VSSC), ISRO, 2 - 3 November 2021.
6. “Multi-wavelength view of solar activity: Space and ground-based observations”, Online Faculty Development Program (e-FDP) on “Theoretical and Practical Aspects in Applied Physics (TAPAAP-2021)” organized by Radha Govind Group of Institutions, Meerut, U.P., 24 - 28 September 2021.
7. “Observations of solar transients and their signatures at low-frequency radio emission by Udaipur- CALLISTO”, International Conference on Space Science and Technology organized by Space Education and Research Foundation (SERF), Ahmedabad, Gujarat, 5 - 7

April 2021.

8. "Signatures of 3D magnetic reconnection in circular ribbon flares", Advances in Observation and Modelling of Solar Magnetism and Variability, Indian Institute of Astrophysics (IIA), Bangalore, 1 - 4 March, 2021
9. "Outstanding Problems in Solar Flares and Particle Acceleration - Observational Perspective", Second Aditya-L1 Science Meet, Space Science Programme Office (SSPO), ISRO HQ, Bengaluru, 17 December 2020.
10. "Solar flares and associated phenomena: multi-wavelength investigations", Aditya L1 Science Working Group (SWG) meeting, 13 May 2020.
11. "The Sun and Space Weather" and "Exploring solar eruptions with multi-wavelength observations from ground and space", Workshop on Fundamentals of Astronomy, B.M. Birla Planetarium, Jaipur, 6 - 7 January 2020.
12. "Solar eruptive phenomena and their low-frequency radio observations by e-CALLISTO", Plenary talk, Symposium on Advances in Physics from small to large scales, Department of Physics (UGC-centre of advanced study), Kumaun University, Nainital, Uttarakhand, India, 14 - 16 March 2019.
13. "Role of magnetic reconnection in solar flares: An observational overview", DAE-BRNS sponsored National Conference on Advances in Plasma Science and Technology, Sri Shakti Institute of Science and Technology, Coimbatore, Tamilnadu, India, 24 - 26 October 2018.
14. "Large-scale eruptive phenomena on the Sun and their interplanetary consequences", Plenary talk, Symposium on Advances in Physics from small to large scales, Department of Physics (UGC-centre of advanced study), Kumaun University, Nainital, Uttarakhand, India, 27 - 28 March 2018.
15. "HEL1OS and its science objectives", Workshop on "Science with Aditya L1 mission" organized by Astronomical Society of India (ASI), Jaipur, India, 6 March 2017.
16. "Solar activity and its effect in the interplanetary medium: Current research and future prospects", Research Orientation Workshop sponsored by Directorate of Higher Education, Uttarakhand State Government, M.B. Govt. P. G. College, Haldwani, Nainital, Uttarakhand, India, 22 January 2016.
17. "Observational aspects of magnetic reconnection and energy release in solar flares: The RHESSI perspective", Asia-Pacific Solar Physics Meeting (APSPM), Seoul National University, Seoul, South Korea, 3 - 6 November 2015.
18. "Multi-wavelength overview of solar flares", International Conference on Space and Plasma Sciences, Maihar, M.P., India, 22 - 24 September 2015.
19. "High Energy X-ray Solar Spectrometer", Aditya Science Meeting, IIA, Bangalore, India, 20 May 2013.
20. "Eruptive phenomena on the Sun: An overview", RKMUV-IUCAA Introductory workshop on solar physics, Ramakrishna Mission Vivekananda University, Howrah, India, 5 - 7 February 2013.

21. "Solar flares: A multi-wavelength perspective", Solar radio workshop, National Centre for Radio Astronomy (NCRA-TIFR), Pune, India, 23 - 25 November 2011.
22. "Observational aspects of magnetic reconnection and energy release in solar eruptive phenomena", Workshop on Physics of the solar transition region and corona, IUCAA, Pune, India, September 5 - 7, 2011.
23. "Multi-wavelength signatures of magnetic reconnection in solar flares: The RHESSI perspective", International astrophysics forum Alpbach IAFA 2011 - frontiers in space environment research, Alpbach, Austria, June 24, 2011.
24. "The dynamic Sun", UGC sponsored national Seminar on recent advances in helio-physics, D.B.F. Dayanand College of Arts and Science, Solapur, India, 5 - 6 February 2010.
25. "RHESSI, Radio and H α investigations of an X-class flare and associated CME near the Sun and in the interplanetary medium", International conference on challenges for solar cycle 24, PRL, Ahmedabad, India, 22 - 25 January 2007.
26. "Solar flares: what multi-wavelength observations tell us?", Workshop for physics teachers and researchers, 11 November 2006, Kumaun University, Nainital, India.
27. "Periodic behavior of solar flare activity: the intermediate-term periodicities", Indo-Chinese workshop on recent advances in solar physics, Indian Institute of Astrophysics, Bangalore, India, 7-11 November 2005.

Invited Lectures and Colloquia

1. "Magnetic explosions on the Sun and their interplanetary effects" webinar organized by JECRC University, Jaipur, 1 October 2020.
2. "Solar structure and processes", Aryabhata Research Institute of Observational Science (ARIES), Nainital, Uttarakhand, lecture series for Ph.D. students (12 lectures), February 19 - 24, 2020.
3. "Eruptions of magnetic flux ropes from the Sun and their interplanetary consequences", 10 September 2019, Korea Astronomy and Space Science Institute, Daejeon, South Korea.
4. "Propagation of coronal mass ejections from near-Sun to near-Earth environment", 3 September 2019, School of Space Research, Kyung Hee University, Suwon, South Korea.
5. "Origin and evolution of solar coronal transients", Astrophysics Colloquium, Institute of Physics, University of Graz, Graz, Austria, 29 January 2019.
6. "Solar activity and eruptive phenomena", Aryabhata Research Institute of Observational Science (ARIES), Nainital, Uttarakhand, lecture series for Ph.D. students (10 lectures), December 24 - 29, 2018.
7. "Structure and evolution of interplanetary coronal mass ejections (ICMEs) during solar cycles 23 and 24", Divisional invited talk at Solar and Space Weather Group, Korea Astronomy and Space Science Institute (KASI), Daejeon, South Korea, 21 June 2018.

8. "Triggering and evolution of eruptive phenomena on the Sun: A Multi-wavelength perspective", Colloquium at Korea Astronomy and Space Science Institute (KASI), Daejeon, South Korea, 20 June 2018.
9. "Magnetic field configuration of the active region corona and energy release during solar flares", Colloquium at Kyung Hee University, Suwon, South Korea, 12 June 2018.
10. "Multi-wavelength signatures of magnetic reconnection and energy release processes in solar eruptive phenomena", Astrophysics Colloquium, Institute of Physics, University of Graz, Graz, Austria, 1 August 2016.
11. Lectures on "Active and eruptive Sun", Short Course on Space Weather organized by CSSTEAP at PRL, Ahmedabad, India during 9 May - 8 June 2016.
12. Lectures on "Solar structure and processes", Kadi Sarva Vishwavidyalaya, Gandhinagar, Gujarat, India, 4 - 5 April 2016.
13. "Destabilization and eruption of active region prominences", Seminar at School of Space Research, Kyung Hee University, Yongin, South Korea, 10 November 2015.
14. "Signatures of magnetic reconnection in solar flares: A multi-wavelength perspective", Colloquium at Physical Research Laboratory, Ahmedabad, India, 9 October 2013.
15. "Solar flares: observations and interpretations", Korea Astronomy and Space Science Institute (KASI), Daejeon, South Korea, 13 September 2013.
16. "HXR emission from solar flares: A perspective", Seminar at School of Space Research, Kyung Hee University, Suwon, South Korea, 10 September 2013.
17. "Solar eruptive phenomena: A multi-wavelength perspective", Space Physics Laboratory, Vikram Sarabhai Space Centre, Thiruvananthapuram, India, February 25, 2013.

Organization of Scientific Events

- Member, Scientific Advisory Committee (SAC) of National Symposium on Plasma Science and Technology (PLASMA conference) organized by Plasma Science Society of India (PSSI) for 5 successive events during 2017-2022.
- Session Chair, VELC/ Aditya-L1 Science Workshop, Kodaikanal Solar Observatory, Indian Institute of Astrophysics (IIA), 8-10 June 2022.
- Co-chair in PS-3 (Solar and planetary sciences) on 1 February 2022 of 21st National Space Science Symposium 2022 held during 31 January 2022 - 4 February 2022.
- Session Chair, "Active Sun Physics", Workshop on Multi-payload and Multi-Observatory Science with Aditya-L1, 39th meeting the Astronomical Society of India (ASI), 16 February 2021.
- Session Chair, Meeting on Future Mission Discussions, ISRO headquarters, 6-7 July 2021.

- Session Chair, parallel session on “Astrophysics and Spectroscopy”, Symposium on Advances in Physics from small to large scales, Department of Physics (UGC-centre of advanced study), Kumaun University, Nainital, Uttarakhand, 14-16 March 2018

Keynote and Resource Speaker

1. “Our Sun and space weather”, Workshop for secondary and higher secondary school teachers organized by School Education Department, Govt. of Rajasthan, Udaipur, 10 October 2022.
2. “Sun: The ultimate driver of space weather”, National Science Day- 2022 celebrations, Department of Education, Mohanlal Sukhadia University (MLSU), Udaipur, Rajasthan, 28 February 2022.
3. Sun and space, Workshop for government teachers of Science and Math organized by the District Institute of Education and Training (DIET), Govt. of Rajasthan, Udaipur, 6-7 January 2022.
4. “Sun, heliosphere and space weather” (in Hindi), Vidya Bhawan Sr. Sec. School, Udaipur, Dr. Abdul Kalam Jayanti Celebrations, 21 October 2021.
5. “Solar system and space exploration”, Maharana Mewar Vidya Mandir (MMVM), Udaipur, 25 January 2020.
6. “Sun and space weather” workshop on Model Rocketry conducted by Vikram A. Sarabhai Community Centre and Atal Tinkering Lab (a NITI Aayog Program) at Abhinav School, Udaipur on 17 July 2019.
7. “Sun and solar activity”, Regional Science Congress, Navoday Vidyalaya Simiti, Rajasmand, Rajasthan, 15 - 20 November 2010.
8. “The dynamic Sun” (in Hindi), 42nd, State level science, development and population education fair, Rajasthan State Institute of Educational Research and Training (SIERT), Gurukul Ashwasan Balgram Higher Secondary School, Alawas, Distt. Pali, Rajasthan, 10 - 14 July 2010. (Invited)

Membership of Professional Bodies

- Member of International Astronomical Union (IAU)
- Life member of Astronomical Society of India (ASI): L-2065
- Life member of Plasma Science Society of India (PSSI): LM-1305
- Life member of Indian Radio Science Society (InRaSS): LM0642022
- Life member of Indian Society of Remote Sensing (ISRS): (L-4770)

Current Professional Responsibilities and Services

1. Referee for research papers of various astrophysical and space science journals (ApJL, ApJ, A&A, Solar Physics, JASTP, AdSpR, JAA, etc.).

2. Member of Doctoral Studies Committee (DSC) of 5 PhD students registered at IIT Gandhinagar.
3. Invited to prepare a document on future solar missions which was submitted to Chairperson, SWG, Aditya L1 mission (July 2021).
4. Frequently serving as external project evaluator and examiner at MLSU, Udaipur.
5. Delivered several invited talks in national and international conferences.
6. Invited as a guest lecturer by various institutes and university.
7. Have been a part of two Solar Eclipse Expedition teams (Antalya, Turkey and Patna, India).

Institute Responsibilities

- **PRL committees:**
 - 1) Member of Academic Committee.
 - 2) Member of Library Committee.
 - 3) Member of Official Language Implementation Committee (OLIC).
 - 4) Member of Research Fellows Welfare Committee (RFWC).
 - 5) Chairman, Monitoring and Maintenance Committee for USO Hostel.
 - 6) Member, JRF Interview Committee (2019-2022)
 - 7) Coordinator, JRF Interview Committee-2020, 2021, 2022.
- **USO committees:**
 - 1) Chairman of Staff Welfare Committee (SWC).
 - 2) Chairman, Hostel Committee
 - 3) Member, Public Outreach Committee.
 - 4) Member, IRC committee (purchase).
 - 5) Member, Hindi Pakhwada committee.
- **Others professional activities:**
 - 1) Representative of Joint Entrance Screening Test (JEST) for Udaipur centre since 2019.
 - 2) Member, Editorial Board of PRL Hindi magazine 'Vikram' during 2017-2020.
 - 3) Have authored popular science articles in Hindi for magazines and newsletters.

PUBLICATIONS OF DR. BHUWAN JOSHI

* First author is a student or postdoc under my supervision

(a) Refereed publications

1. *Sahu, Suraj, **Joshi, Bhuwan**, Prasad, Avijeet, and Cho, Kyung-Suk, (2022), Evolution of magnetic fields and energy release processes during homologous eruptive flares, **The Astrophysical Journal** (in press), arXiv:2212.04150.
2. Mithun, N. P. S., Vadawale, Santosh V., Zanna, Giulio Del, Rao, Yamini K., **Joshi, Bhuwan**, Sarkar, Aveek, Mondal, Biswajit, Janardhan, P., Bhardwaj, Anil, and Mason, Helen E. (2022), Soft X-Ray Spectral Diagnostics of Multithermal Plasma in Solar Flares with Chandrayaan-2 XSM, **The Astrophysical Journal**, 939, 112, <https://doi.org/10.3847/1538-4357/ac98b4>
3. *Patel, Binal D., **Joshi, Bhuwan**, Cho, Kyung-Suk, Kim, Rok-Soon, and Moon, Yong-Jae (2022), Near-Earth Interplanetary Coronal Mass Ejections and Their Association with DH Type II Radio Bursts During Solar Cycles 23 and 24, **Solar Physics**, 297, 139, <https://doi.org/10.1007/s11207-022-02073-7>
4. *Sahu, Suraj, **Joshi, Bhuwan**, Sterling, Alphonse C., Mitra, Prabir K., and Moore, Ronald L. (2022), Homologous Compact Major Blowout-eruption Solar Flares and their Production of Broad CMEs, **The Astrophysical Journal**, 930, 41, <https://doi.org/10.3847/1538-4357/ac5cc1>
5. *Mitra, Prabir K., **Joshi, Bhuwan**, Veronig, Astrid M., and Wiegelmann, Thomas (2022), Multiwavelength Signatures of Episodic Nullpoint Reconnection in a Quadrupolar Magnetic Configuration and the Cause of Failed Flux Rope Eruption, **The Astrophysical Journal**, 926, 143, <https://doi.org/10.3847/1538-4357/ac4756>
6. Bora, K., Bhattacharyya, R., Prasad, Avijeet, **Joshi, Bhuwan**, and Hu, Qiang (2022), Comparison of the Hall Magnetohydrodynamics and Magnetohydrodynamics Evolution of a Flaring Solar Active Region, **The Astrophysical Journal**, 925, 197, <https://doi.org/10.3847/1538-4357/ac3bce>

7. *Ibrahim, Syed, Uddin, Wahab, **Joshi, Bhuwan**, Chandra, Ramesh, and Awasthi, Arun Kumar (2021), Investigation of two coronal mass ejections from circular ribbon source region: Origin, Sun-Earth propagation and Geoeffectiveness, **Research in Astronomy and Astrophysics**, 21, 318, <https://doi.org/10.1088/1674-4527/21/12/318>
8. *Patel, Binal D., Joshi, **Bhuwan**, Cho, Kyung-Suk, and Kim, Rok-Soon (2021), DH Type II Radio Bursts During Solar Cycles 23 and 24: Frequency-Dependent Classification and Their Flare-CME Associations, **Solar Physics**, 296, 142, <https://doi.org/10.1007/s11207-021-01890-6>
9. *Kharayat, Hema, **Joshi, Bhuwan**, Mitra, Prabir K., Manoharan, P. K., and Monstein, Christian (2021), A Transient Coronal Sigmoid in Active Region NOAA 11909: Build-up Phase, M-class Eruptive Flare, and Associated Fast Coronal Mass Ejection, **Solar Physics**, 296, 99, <https://doi.org/10.1007/s11207-021-01830-4>
10. **Joshi, Bhuwan**, Mitra, Prabir K., Bhattacharyya, R., Upadhyay, Kushagra, Oberoi, Divya, Raja, K. Sasikumar, and Monstein, Christian (2021), Two-Stage Evolution of an Extended C-Class Eruptive Flaring Activity from Sigmoid Active Region NOAA 12734: SDO and Udaipur-CALLISTO Observations, **Solar Physics**, 296, 85, <https://doi.org/10.1007/s11207-021-01820-6>
11. *Mitra, Prabir K. and **Joshi, Bhuwan** (2021), Successive occurrences of quasi-circular ribbon flares in a fan-spine-like configuration involving hyperbolic flux tube, **Monthly Notices of the Royal Astronomical Society**, 503, 1017-1035, <https://doi.org/10.1093/mnras/stab175>
12. Vadawale, Santosh V., Mithun, N. P. S., Mondal, Biswajit, Sarkar, Aveek, Janardhan, P., **Joshi, Bhuwan**, Bhardwaj, Anil, Shanmugam, M., Patel, Arpit R., Adalja, Hitesh Kumar L., Goyal, Shiv Kumar, Ladiya, Tinkal, Tiwari, Neeraj Kumar, Singh, Nishant, and Kumar, Sushil (2021), Observations of the Quiet Sun during the Deepest Solar Minimum of the Past Century with Chandrayaan-2 XSM: Sub-A-class Microflares outside Active Regions, **The Astrophysical Journal Letters**, 912, L13, <https://doi.org/10.3847/2041-8213/abf0b0>
13. Vadawale, Santosh V., Mondal, Biswajit, Mithun, N. P. S., Sarkar, Aveek, Janardhan, P., **Joshi, Bhuwan**, Bhardwaj, Anil, Shanmugam, M., Patel, Arpit R., Adalja, Hitesh Kumar L., Goyal, Shiv Kumar, Ladiya, Tinkal, Tiwari, Neeraj Kumar, Singh, Nishant, and Kumar, Sushil (2021), Observations of the Quiet Sun during the Deepest Solar

Minimum of the Past Century with Chandrayaan-2 XSM: Elemental Abundances in the Quiescent Corona, **The Astrophysical Journal Letters**, 912, L12, <https://doi.org/10.3847/2041-8213/abf35d>

14. *Joshi, Navin Chandra, **Joshi, Bhuwan**, and Mitra, Prabir K. (2021), Evolutionary stages and triggering process of a complex eruptive flare with circular and parallel ribbons, **Monthly Notices of the Royal Astronomical Society**, 501, 4703-4721, <https://doi.org/10.1093/mnras/staa3480>
15. *Devi, Pooja, Démoulin, Pascal, Chandra, Ramesh, Joshi, Reetika, Schmieder, Brigitte, and **Joshi, Bhuwan** (2021), Observations of a prominence eruption and loop contraction, **Astronomy and Astrophysics**, 647, A85, <https://doi.org/10.1051/0004-6361/202040042>
16. Mithun, N. P. S., Vadawale, Santosh V., Shanmugam, M., Patel, Arpit R., Tiwari, Neeraj Kumar, Adalja, Hiteshkumar L., Goyal, Shiv Kumar, Ladiya, Tinkal, Singh, Nishant, Kumar, Sushil, Tiwari, Manoj K., Modi, M. H., Mondal, Biswajit, Sarkar, Aveek, **Joshi, Bhuwan**, Janardhan, P., and Bhardwaj, Anil (2021), Ground calibration of Solar X-ray Monitor on board the Chandrayaan-2 orbiter, **Experimental Astronomy**, 51, 33-60, <https://doi.org/10.1007/s10686-020-09686-5>
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18. Prasad, Avijeet, Dissauer, Karin, Hu, Qiang, Bhattacharyya, R., Veronig, Astrid M., Kumar, Sanjay, and **Joshi, Bhuwan** (2020), Magnetohydrodynamic Simulation of Magnetic Null-point Reconnections and Coronal Dimmings during the X2.1 Flare in NOAA AR 11283, **The Astrophysical Journal**, 903, 129, <https://doi.org/10.3847/1538-4357/abb8d2>
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(b) Review article

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