

## CURRICULAM VITAE

**Dr. Sanjiv K. Tiwari**, [Homepage link](#); Email: tiwari@lmsal.com  
Lockheed Martin Solar and Astrophysics Laboratory (LMSAL), &  
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### Education

Jun 2010: Ph.D. (Physics), Udaipur Solar Observatory/MLS University, Udaipur, India  
Mar 2003: M.Sc. (Physics) (I div.), V. B. S. Purvanchal University, India  
Aug 2000: B.Sc. (Physics, Maths) (I div.), V. B. S. Purvanchal University, India

### Appointments

Jun 2017 – present: Senior Research Scientist, Lockheed Martin (LMSAL)  
Dec 2016 – May 2017: Research Scientist, NASA’s MSFC, CSPAR/UAHuntsville, USA  
Dec 2013 – Dec 2016: NASA Postdoctoral Program (NPP) Fellow, NASA’s MSFC, USA  
Jan 2011 – Dec 2013: Postdoc, Max Planck Institute for Solar System Research, Germany  
Jun 2010 – Dec 2010: Postdoc, Udaipur Solar Observatory/Physical Research Lab., India  
Jul 2005 – Jun 2010: Ph.D.–Junior (2-yrs) & senior (3-yrs) research fellow, USO/PRL, India  
Jan 2005 – Jul 2005: Project Associate, Udaipur Solar Observatory/PRL, India  
Apr 2003 – Dec 2004: Physics and Maths Tutor for undergraduates, Allahabad, India.

### Adjunct Positions

Aug 2015 – present: Adjunct Graduate Faculty, The Center for Space Plasma and Aerodynamic Research (CSPAR), & Space Science Division, UAHuntsville  
Apr 2015 – Dec 2016: Research Scientist, CSPAR, UAHuntsville (UAH), USA  
Nov 2025 – present: Professor (honorary), Indian Center for Space Physics, India

### Research Interests & Expertise

**Coronal Heating:** Fine-scale dot-, loop-, and jet-like heating events and their magnetic origins; magnetic setting vs. coronal heating in ARs/QRs; energy transport in closed and open corona; subflare triggering in braided loops; AR nonpotentiality and coronal heating.  
**Sunspots:** Fine-scale structure & dynamics (penumbral filaments, umbral dots, light bridges, penumbral jets, bright dots); spectropolarimetric inversions (ME & depth-dependent).  
**Space Weather Prediction Research:** Magnetic twist, free energy, helicity, and non-potentiality in ARs using vector magnetograms and their relation to CME/flare properties; prominence/filament evolution/eruptions; MAG4 forecasting team member.

### Grants and Awards

Several NASA and NSF grants as PI or institutional PI, totaling over \$4M  
Justice Oak Best PhD Thesis Award, Astronomical Society of India, 2010  
Multiple prestigious fellowships: NASA NPP, Max Planck, PRL (India)

### Professional Services

NSO Users Committee Member, 2023–present  
Science and/or operations Team Member: Hinode/SOT, IRIS, MUSE, Hi-C missions  
Reviewer: ApJ/ApJL, Nature Journals, A&A/A&AL, Solar Physics., NASA & NSF panels  
Membership: SPD/AAS, AGU, ASI lifetime  
Many invited talks/colloquia at intl conferences, institutions, schools, and public venues.

### Mentoring

Three postdocs, 13 REU students, seven master students, and seven high-school interns

## Selected Refereed Journal Publications

1. **S. K. Tiwari**, N. Panesar, R. Moore, S. Savage, A. Winebarger, G. Vigil, & Hi-C Flare team, “A sudden fine-scale bright kernel captured by Hi-C Flare in 11 MK emission during an M1.6-class solar flare’s post-maximum phase”, 2025, ApJ Letters, in press
2. **S. K. Tiwari**, L. A. Wilkerson\*, N. K. Panesar, R. L. Moore, A. R. Winebarger, “Dominance of Bursty over Steady Heating of the 4-8 MK Coronal Plasma in a Solar Active Region: Quantification Using Maps of Minimum, Maximum, and Average Brightness”, 2023, ApJ, 942, 2. (\*REU student)
3. **S. K. Tiwari**, V. Hansteen, B. De Pontieu, N. K. Panesar, D. Berghmans, “SolO/EUI Observations of Ubiquitous Fine-scale Bright Dots in an Emerging Flux Region: Comparison with a Bifrost MHD Simulation”, 2022, ApJ, 929, 103.
4. N. K. Panesar, **S. K. Tiwari**, D. Berghmans et al, “The Magnetic Origin of Solar Campfires”, 2021, ApJ Letters, 921, 20.
5. **S. K. Tiwari**, C. Evans, N. Panesar, A. Prasad, R. Moore, “Are the Brightest Coronal Loops Always Rooted in Mixed-polarity Magnetic Flux?”, 2021, ApJ, 908, 151.
6. **S. K. Tiwari**, N. K. Panesar, R. L. Moore, B. De Pontieu, A. R. Winebarger, L. Golub et al, “Fine-scale Explosive Energy Release at Sites of Prospective Magnetic Flux Cancellation in the Core of the Solar Active Region Observed by Hi-C 2.1, IRIS, and SDO”, 2019, ApJ, 887, 56.
7. **S. K. Tiwari**, R. L. Moore, B. De Pontieu, T. Tarbell, N. K. Panesar, A. R. Winebarger, & A. Sterling, “Evidence of Twisting and Mixed-polarity Solar Photospheric Magnetic Field in Large Penumbra Jets: IRIS and Hinode Observations”, 2018, ApJ, 869, 147.
8. E. A. Avallone\*, **S. K. Tiwari**, N. K. Panesar, R. L. Moore, & A. R. Winebarger, “Critical magnetic field strengths for solar coronal plumes in quiet regions and coronal holes?”, 2018, ApJ, 861, 111 (\*REU student).
9. **S. K. Tiwari**, J. K. Thalmann, N. K. Panesar, R. L. Moore, & A. R. Winebarger, “New Evidence that Magnetoconvection Drives Solar-Stellar Coronal Heating”, 2017, ApJ Letters, 843, L20.
10. **S. K. Tiwari**, R. Moore, A. Winebarger, & S. Alpert, “Transition Region/Coronal Signatures and Magnetic Setting of Sunspot Penumbra Jets: Hinode/FG, Hi-C, and SDO/AIA Observations”, 2016, ApJ, 816, 92.
11. S. Alpert\*, **S. K. Tiwari**, R. L. Moore, A. Winebarger, & S. Savage, “Hi-C Observations of Sunspot Penumbra Bright Dots”, 2016, ApJ, 822, 35. (\*REU student)
12. **S. K. Tiwari**, M. van Noort, S. K. Solanki & A. Lagg, “Depth-dependent Global Properties of a Sunspot Observed by Hinode (SOT/SP)”, 2015, A&A, 583, 119.
13. **S. K. Tiwari**, D. A. Falconer, R. L. Moore, P. Venkatakrishnan, A. Winebarger, & I. Khazanov, “Near-Sun speed of CMEs and the magnetic nonpotentiality of their source active regions”, 2015, GRL, 42, 5702.
14. **S. K. Tiwari**, C. Alexander, A. Winebarger, & R. L. Moore, “Trigger Mechanism of Solar Subflares in a Braided Coronal Structure”, 2014, ApJ Letters, 795, L24.
15. **S. K. Tiwari**, M. van Noort, A. Lagg, & S. K. Solanki, “Structure of Sunspot Penumbra Filaments: a remarkable uniformity of properties”, 2013, A&A, 557, 25.

Full list of publications: [ADSABS](#); [Google Scholar](#); [ORCID](#)