

PUBLICATIONS OF DR. ANIL BHARDWAJ

Refereed Publications:

1. **A. Bhardwaj**, S.A. Haider, and R.P. Singhal, Auroral and Photoelectron Fluxes in Cometary Ionospheres, *Icarus*, 85, 216-228 (1990).
2. **A. Bhardwaj** and R.P. Singhal, Auroral and Dayglow Processes on Neptune, *Indian Journal of Radio and Space Physics*, 19, 171-176 (1990).
3. R.P. Singhal and **A. Bhardwaj**, Monte Carlo Simulation of Photoelectron Energization in Parallel Electric Fields: Electroglow on Uranus, *Journal of Geophysical Research*, 96, 15963-15972 (1991).
4. R.P. Singhal, S.C. Chakravarty, **A. Bhardwaj**, and B. Prasad, Energetic Electron Precipitation in Jupiter's Upper Atmosphere, *Journal of Geophysical Research*, 97, 18245-18256 (1992).
5. S.A. Haider, **A. Bhardwaj**, and R.P. Singhal, Role of Auroral and Photoelectrons on the Abundances of Methane and Ammonia in the Coma of Comet Halley, *Icarus*, 101, 234-243 (1993).
6. **A. Bhardwaj** and R.P. Singhal, Optically Thin H Lyman Alpha Production on Outer Planets: Low-Energy Proton Acceleration in Parallel Electric Fields and Neutral H Atom Precipitation from Ring Current, *Journal of Geophysical Research*, 98, 9473-9481 (1993).
7. **A. Bhardwaj**, S. A. Haider, and R. P. Singhal, Production and Emissions of Atomic Carbon and Oxygen in the Inner Coma of Comet Halley: Role of Electron Impact, *Icarus*, 120, 412-430 (1996).
8. M. Michael and **A. Bhardwaj**, On the Dissociative ionization of SO₂ in the Io's Atmosphere, *Geophysical Research Letters*, 24, 1971-1974 (1997).
9. **A. Bhardwaj**, On the Role of Solar EUV, Photoelectrons, and Auroral Electrons in the Chemistry of C(¹D) and the Production of Cl 1931 Å in the Inner Cometary Coma: A Case for Comet P/Halley, *Journal of Geophysical Research*, 104, 1929-1942 (1999).
10. **A. Bhardwaj** and M. Michael, On the Excitation of Io's Atmosphere by the Photoelectrons: Application of the Analytical Yield Spectrum of SO₂, *Geophysical Research Letters*, 26, 393-396 (1999).
11. **A. Bhardwaj** and M. Michael, Monte Carlo Model for Electron Degradation in SO₂ Gas: Cross Sections, Yield Spectra and Efficiencies, *Journal of Geophysical Research*, 104, 24713-24728 (1999).
12. **A. Bhardwaj** and G.R. Gladstone, Auroral Emissions of the Giant Planets, *Reviews of Geophysics*, 38, 295-353 (2000). {HIGHLIGHTED AS COVER PAGE OF THE JOURNAL}
13. M. Michael and **A. Bhardwaj**, FUV Emissions on Io: Role of Galileo-Observed Field-Aligned Energetic Electrons, *Geophysical Research Letters*, 27, 3137-3140 (2000).

14. G.R. Gladstone, J.H. Waite, Jr., D. Grodent, W.S. Lewis, F.J. Crary, R.F. Elsner, M.C. Weisskopf, T. Majeed, J.-M. Jahn, **A. Bhardwaj**, J.T. Clarke, D.T. Young, M.K. Dougherty, S.A. Espinosa, T.E. Cravens, A Pulsating Auroral X-Ray Hot Spot on Jupiter, *Nature*, 415, 1000-1003 (2002). **{NASA DID PRESS RELEASE ON THIS PAPER}**
15. R.F. Elsner, G.R. Gladstone, J.H. Waite, Jr., F.J. Crary, R.R. Howell, R.E. Johnson, P.G. Ford, A.E. Metzger, K.C. Hurley, E.D. Feigelson, G.P. Garmire, **A. Bhardwaj**, D. Grodent, T. Majeed, A.F. Tennant, M.C. Weisskopf, Discovery of Soft X-Ray Emission from Io, Europa and the Io Plasma Torus, *Astrophysical Journal*, 572, 1077-1082 (2002).
16. **A. Bhardwaj**, On the Solar EUV Deposition in the Inner Coma of Comets with Large Gas Production Rates, *Geophysical Research Letters*, 30(24), 2244, PLA 2/1-5 (2003).
17. T. Majeed, J. H. Waite, Jr., S. W. Bougher, R. V. Yelle, G. R. Gladstone, J. C. McConnell, and **A. Bhardwaj**, The Ionospheres-Thermospheres of the Giant Planets, *Advances in Space Research*, 33, No.2, 197-211 (2004).
18. P. Vatti Palle, J. M. Ajello, and **A. Bhardwaj**, The High Resolution Far Ultraviolet Spectrum of Electron-Excited SO₂, *Journal of Geophysical Research*, 109, A02310, pp.1-17 (2004).
19. O. P. Makarov, J. M. Ajello, P. Vatti Palle, I. Kanik, M. C. Festou, and **A. Bhardwaj**, Kinetic Energy Distributions and Line Profile Measurements of Dissociation Products of Water Upon Electron Impact, *Journal of Geophysical Research*, 109, A09303, pp.1-15 (2004).
20. R. F. Elsner, N. Lugaz, J. H. Waite, Jr., T. E. Cravens, G. R. Gladstone, P. Ford, D. Grodent, **A. Bhardwaj**, R. J. MacDowall, M. D. Desch, and T. Majeed, Simultaneous Chandra X-ray, HST Ultraviolet, and Ulysses Radio Observations of Jupiter's Aurora, *Journal of Geophysical Research*, 110, A01207, pp.1-16 (2005). **{NASA DID PRESS RELEASE ON THIS PAPER}**
21. **Anil Bhardwaj**, G. Branduardi-Raymont, R. F. Elsner, G. R. Gladstone, G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, Jr., and T. E. Cravens, Solar Control on Jupiter's Equatorial X-ray Emissions: 26-29 November 2003 XMM-Newton Observation, *Geophysical Research Letters*, 32, L03S08, pp.1-5 (2005). **{ESA DID PRESS RELEASE ON THIS PAPER; ALSO AGU JOURNAL HIGHLIGHT}**
22. **Anil Bhardwaj**, Discussion on Forum Article "What is the Aurora", *EOS Transactions, American Geophysical Union*, vol. 86, No.11, 110 (2005).
23. Joseph Ajello, Prahlad Vatti Palle, Hervé Abgrall, Evelyne Roueff, **Anil Bhardwaj**, and Jacques Gustin, The Electron Excited UV Spectrum of HD: Cross Sections and Transition Probabilities, *Astrophysical Journal Supplement Series*, 159, 314-330 (2005).
24. **Anil Bhardwaj**, R. F. Elsner, J. H. Waite, Jr., G. R. Gladstone, T. E. Cravens, and P.G. Ford, Chandra Observation of an X-ray Flare at Saturn: Evidence for Direct Solar Control on Saturn's Disk X-ray Emissions, *Astrophysical Journal Letters*, 624, L121-L124 (2005). **{NASA DID PRESS RELEASE ON THIS PAPER}**
25. **Anil Bhardwaj**, R. F. Elsner, J. H. Waite, Jr., G. R. Gladstone, T. E. Cravens, and P.G. Ford, The Discovery of Oxygen K α X-ray Emission from the Rings of Saturn, *Astrophysical Journal Letters*, 627, L73-L76 (2005). **{NASA DID PRESS RELEASE ON THIS PAPER}**

26. S. A. Haider and **Anil Bhardwaj**, Radial Distribution of Production Rates, Loss Rates and Densities Corresponding to Ion Masses ≤ 40 amu in the Inner Coma of Comet Halley: Composition and Chemistry, *Icarus*, 177, 196-216 (2005).
27. **Anil Bhardwaj**, Stas Barabash, Yoshifumi Futaana, Yoichi Kazama, Kazushi Asamura, R. Sridharan, Mats Holmström, Peter Wurz, and Rickard Lundin, Low Energy Neutral Atom Imaging on the Moon with the SARA Instrument aboard Chandrayaan-1 Mission, *Journal of Earth System Sciences*, 114 (No.6), 749-760 (2005).
28. M. T. Capria, G. Cremonese, **A. Bhardwaj**, and M. C. De Sanctis, O(¹S) and O(¹D) emission lines in the spectrum of 153P/2002 C1 (Ikeya-Zhang), *Astronomy and Astrophysics*, 442, 1121-1126 (2005).
29. Yoshifumi Futaana, Stas Barabash, Mats Holmström, and **Anil Bhardwaj**, Low Energy Neutral Atoms Imaging of the Moon, *Planetary and Space Science*, 54 (no.2), 132-143 (2006).
30. K. Dennerl, C. M. Lisse, **A. Bhardwaj**, V. Burwitz, J. Englhauser, H. Gunell, M. Holmstrom, F. Jansen, V. Kharchenko, and P. Rodriguez, First observation of Mars with XMM-Newton: High resolution X-ray spectroscopy with RGS, *Astronomy and Astrophysics*, 451, 709-722 (2006).
31. Yoichi Kazama, Stas Barabash, **Anil Bhardwaj**, Kazushi Asamura, Yoshifumi Futaana, Mats Holmström, Rickard Lundin, R. Sridharan, and Peter Wurz, Energetic Neutral Atom Imaging Mass Spectroscopy of the Moon and Mercury Surfaces, *Advances in Space Research*, 37, No. 1, 38-44 (2006).
32. G. Branduardi-Raymont, **A. Bhardwaj**, R. Elsner, G. Gladstone G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, and T.E. Cravens, XMM-Newton Observations of X-ray Emission from Jupiter, *ESA Special Publication ESA SP-604*, Vol. 1, pp. 15-20 (2006).
33. T. E. Cravens, J. Clark, **A. Bhardwaj**, R. F. Elsner, J. H. Waite, Jr., A. N. Maurellis, and G. R. Gladstone, and G. Branduardi-Raymont, X-Ray Emission from the Outer Planets: Albedo for Scattering and Fluorescence of Solar X-Rays, *Journal of Geophysical Research*, 111, A07308, pp.1-11 (2006).
34. G. Branduardi-Raymont, **A. Bhardwaj**, R. Elsner, G. Gladstone G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, and T.E. Cravens, XMM-Newton Observations of X-ray Emission from Jupiter, *Advances in Geosciences*, Vol. 3, 203-214 (2006).
35. Marina Galand, **Anil Bhardwaj**, and Supriya Chakrabarti, On the Importance of the Cross-body Approach in Planetary Aeronomy, *Advances in Geosciences*, Vol. 2, 239-248 (2006).
36. **Anil Bhardwaj**, X-ray emission from Jupiter, Saturn, and Earth: A Short Review, *Advances in Geosciences*, vol.3, 215-230 (2006).
37. W. -H. Ip, I. -G. Jiang, D. Kinoshita, L.N. Hau, A. Fujiwara, Y. Saito, F. Yoshida, K.W. Min, **A. Bhardwaj**, H. Boehnhardt, P. Hartogh, T. M. Capria, G. Cremonese, A. Milillo, S. Orisini, D. Gautier, D. Jewitt, and T. Owen, A Mission Called SAPPORO, *Advances in Geosciences*, vol.3, 241-253 (2006).

38. **Anil Bhardwaj**, Ronald F. Elsner, G. Randall Gladstone, J. Hunter Waite, Jr., Graziella Branduardi-Raymont, Thomas E. Cravens, and Peter Ford, Low- to Mid-Latitude X-Ray Emission from Jupiter, *Journal of Geophysical Research*, 111, A11225, p. 1-16 (2006).
39. Andrew W. Yau, **Anil Bhardwaj**, Iver H. Cairns, C. Z. Cheng, Wing H. Ip, Yasumasa Kasaba, Kyoung W. Min, Masato Nakamura, Yoshifumi Saito, Solar Terrestrial and Planetary Science Missions in Asia-Oceania: Opportunities for Collaborative Research, *Advances in Geosciences*, vol. 2, 249-264 (2006).
40. D. McCann, S. Barabash, H. Nilsson, and **A. Bhardwaj**, Miniature Ion Mass Analyser, *Planetary and Space Science*, 55 (No.9), 1190-1196 (2007).
41. G. Branduardi-Raymont, **A. Bhardwaj**, R. F. Elsner, G. R. Gladstone, G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, Jr., and T. E. Cravens, A study of Jupiter's aurorae with *XMM-Newton*, *Astronomy and Astrophysics*, 463, 761-774 (2007). **{HIGHLIGHTED AS COVER PAGE OF THE JOURNAL}**
42. **Anil Bhardwaj**, G. R. Gladstone, R. F. Elsner, N. Østgaard, J. H. Waite, Jr., T. E. Cravens, S.-W. Chang, T. Majeed, and A. E. Metzger, First Terrestrial Soft X-ray Auroral Observation by the Chandra X-ray Observatory, *Journal of Atmospheric and Solar-Terrestrial Physics*, 69 (No.1-2), 179-187 (2007). **{NASA DID PRESS RELEASE ON THIS PAPER}**
43. G. Branduardi-Raymont, **A. Bhardwaj**, R. F. Elsner, G. R. Gladstone G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, Jr., and T.E. Cravens, Latest results on Jovian disk X-rays from XMM-Newton, *Planetary and Space Science*, 55 (no.9), 1126-1134 (2007).
44. **Anil Bhardwaj**, Ronald F. Elsner, G. Randall Gladstone, Thomas E. Cravens, Carey M. Lisse, Konrad Dennerl, Graziella Branduardi-Raymont, Bradford J. Wargelin, J. Hunter Waite, Jr., Ina Robertson, Nikolai Ostgaard, Peter Beiersdorfer, Steven L. Snowden, and Vasili Kharchenko, X-rays from Solar System Objects, *Planetary and Space Science*, 55 (No.9), 1135-1189 (2007). **{ONE OF THE TOP-50 MOST CITED PAPERS IN PLANETARY SPACE SCIENCE DURING JANUARY 2006 – FEBRUARY 2011}**
45. G. Branduardi-Raymont, **A. Bhardwaj**, R. F. Elsner, G. R. Gladstone, G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, Jr., and T. E. Cravens, Thermal and Non-thermal components of X-rays emissions from Jupiter, *Progress of Theoretical Physics Supplement*, No.169, pp.75-78 (2007).
46. M.T. Capria, G. Cremonese, **A. Bhardwaj**, M. C. De Sanctis, and E. Mazzotta Epifani, Oxygen emission lines in the high resolution spectra of 9P/Tempel 1 following the Deep Impact event, *Astronomy and Astrophysics*, 479, 257-263 (2008).
47. V. Kharchenko, **Anil Bhardwaj**, A. Dalgarno, D. Schultz, and P. Stancil, Modeling Spectra of the North and South Jovian X-ray Auroras, *Journal of Geophysical Research*, 113, A08229, doi:10.1029/2008JA013062 (2008).
48. **Anil Bhardwaj**, Ronald F. Elsner, G. Randall Gladstone, Graziella Branduardi-Raymont, Konrad Dennerl, Carey M. Lisse, Thomas E. Cravens, J. Hunter Waite, Jr., Nikolai Østgaard, Steven M. Petrinec, Bradford J. Wargelin, Ina Robertson, Peter Beiersdorfer, Steven L.

Snowden, Vasili Kharchenko, X-ray Emission from Planets and comets: Relationship with Solar X-rays and Solar Wind, *Advances in Geosciences*, vol. 15, 229-244 (2009).

49. Stas Barabash, **Anil Bhardwaj**, Martin Wieser, R. Sridharan, Thomas Kurian, Subha Varier, E. Vijayakumar, Veena Abhirami, K. V. Raghavendra, S. V. Mohankumar, M. B. Dhanya, Satheesh Thampi, Asamura Kazushi, Herman Andersson, Futaana Yoshifumi, Mats Holmström, Rickard Lundin, Johan Svensson, Stefan Karlsson, R. Daniele Piazza, Peter Wurz, Investigation of the solar wind – Moon interaction onboard Chandrayaan-1 mission with the SARA Experiment, *Current Science*, 96, 526-534 (2009).
50. M. B. Dhanya and **Anil Bhardwaj**, Relationship between Soft X-rays and EUV Emissions during Solar Flares: A Case Study for October-November 2003, in *Magnetic Coupling between the Interior and Atmosphere of the Sun*, edited by S. Hasan and R. J. Rutten, pp.475-477, *Astrophysics and Space Science*, Springer-Verlag Berlin Heidelberg (2010).
51. **Anil Bhardwaj**, C. H. Ishwara-Chandra, N. Udaya Shankar, Hiroaki Misawa, Kota Imai, Yoshizumi Miyoshi, Fuminori Tsuchiya, Tetsuro Kondo, and Akira Morioka, GMRT Observation of Jupiter's Synchrotron Radio Emission, *Astronomical Society of the Pacific*, Vol. 407, p.369-372 (2009).
52. **Anil Bhardwaj** and Sonal Kumar Jain, Monte Carlo model of electron energy degradation in a CO₂ atmosphere, *Journal of Geophysical Research*, 114, No. A11, A11309, pp 1-14 (2009). doi:10.1029/2009JA014298; **{TOP-MOST DOWNLOAD JOURNAL ARTICLE AT AGU WEBSITE}**
53. Martin Wieser, Stas Barabash, Yoshifumi Futaana, Mats Holmström, **Anil Bhardwaj**, R Sridharan, M.B. Dhanya, Peter Wurz, A. Schaufelberger, K. Asamura, Extremely high reflection of solar wind protons as neutral hydrogen atoms from regolith in space, *Planetary and Space Science*, 57, 2131-2134 (2009). doi:10.1016/j.pss.2009.09.012 **{ESA DID PRESS RELEASE ON THIS PAPER}**
54. M. Holmstrom, M. Wieser, S. Barabash, Y. Futaana, and **Anil Bhardwaj**, Dynamics of solar wind protons reflected by the Moon, *Journal of Geophysical Research*, 115, A06206 (2010) doi:10.1029/2009JA014843.
55. G. Branduardi-Raymont, **A. Bhardwaj**, R. F. Elsner, P. Rodriguez, X-rays from Saturn: A study with XMM-Newton and Chandra over the years 2002-05, *Astronomy and Astrophysics*, 510, A73, pp1-9 (2010). dio:10.1051/0004-6361/200913110
56. Yawei Hui, David R. Schultz, Vasili A. Kharchenko, **Anil Bhardwaj**, Graziella Branduardi-Raymont, Phillip C. Stancil, Thomas E. Cravens, Carey M. Lisse, and Alexander Dalgarno, Comparative analysis and variability of the Jovian X-ray spectra detected by the Chandra and XMM-Newton observatories, *Journal of Geophysical Research*, 115, A07102, pp1-19 (2010) doi:10.1029/2009JA014854.
57. **Anil Bhardwaj**, Martin Wieser, M. B. Dhanya, Stas Barabash, Futaana Yoshifumi, Mats Holmström, R. Sridharan, Peter Wurz, Audrey Schaufelberger, and Asamura Kazushi, The Sub-keV Atom Reflecting Analyzer (SARA) Experiment Aboard Chandrayaan-1 Mission: Instrument and Observations, *Advances in Geosciences*, vol. 19, 151-162 (2010).

58. Martin Wieser, Stas Barabash, Yoshifumi Futaana, Mats Holmström, **Anil Bhardwaj**, R Sridharan, M.B. Dhanya, Peter Wurz, Audrey Schaufelberger, Kazushi Asamura, First observation of a mini-magnetosphere above a lunar magnetic anomaly using energetic neutral atoms, *Geophysical Research Letters*, 37, L05103 (2010) doi:10.1029/2009GL041721. {HIGHLIGHTED AS COVER PAGE OF THE JOURNAL AND AGU JOURNAL HIGHLIGHTS}
59. Y. Futaana, S. Barabash, M. Wieser, M. Holmström, **A. Bhardwaj**, M. B. Dhanya, R. Sridharan, P. Wurz, A. Schaufelberger, K. Asamura, Protons in the Lunar Wake Observed by the SARA Instrument on Board Chandrayaan-1, *Journal of Geophysical Research*, 115, A10248, pp1-9, doi:10.1029/2010JA015264 (2010).
60. **Anil Bhardwaj** and Susarla Raghuram, Model for Cameron band emission in comets: A case for EPOXI mission target comet 103P/Hartley 2, *Monthly Notices of the Royal Astronomical Society*, 412, L25-L29 (2011). doi:10.1111/j.1745-3933.2010.00998.x
61. Charles Lue, Yoshifumi Futaana, Stas Barabash, Martin Wieser, Mats Holmstrom, **Anil Bhardwaj**, M. B. Dhanya, Peter Wurz, Strong influence of lunar crustal fields on the solar wind flow, *Geophysical Research Letters*, 38, L03202, pp1-5, doi:10.1029/2010GL046215 (2011).
62. Sonal Kumar Jain and **Anil Bhardwaj**, Model calculation of N₂ Vegard-Kaplan band emissions in Martian dayglow, *Journal of Geophysical Research*, 116, E07005 (2011). doi:10.1029/2010JE003778
63. **Anil Bhardwaj** and Sonal Kumar Jain, Calculations of N₂ triplet states vibrational populations and band emissions in Venusian dayglow, *Icarus*, 217, 752-758 (2012). doi:10.1016/j.icarus.2011.05.026
64. Sonal Kumar Jain and **Anil Bhardwaj**, Impact of solar EUV flux on CO Cameron band and CO₂⁺ UV doublet emissions in the dayglow of Mars, *Planetary and Space Science*, 63-64, 110-122 (2012). doi:10.1016/j.pss.2011.08.010
65. A. Schaufelberger, P. Wurz, S. Barabash, M. Wieser, Y. Futaana, M. Holmstrom, **A. Bhardwaj**, M. B. Dhanya, R. Sridharan, and K. Asamura, Scattering function for energetic neutral hydrogen atoms off the lunar surface, *Geophysical Research Letters*, 38, No. 22, L22202 (2011). doi:10.1029/2011GL049362.
66. Susarla Raghuram and **Anil Bhardwaj**, Model for the Production of CO Cameron band emission in Comet 1P/Halley, *Planetary and Space Science*, 63-64, 139-149 (2012). doi:10.1016/j.pss.2011.11.011
67. **Anil Bhardwaj** and Sonal Kumar Jain, Production of N₂ Vegard-Kaplan and other triplet band emissions in the dayglow of Titan, *Icarus*, 218, 989–1005 (2012). doi: 10.1016/j.icarus.2012.01.019
68. Y. Futaana, S. Barabash, M. Wieser, M. Homlström, C. Lue, P. Wurz, A. Shaufelberger, **A. Bhardwaj**, M. B. Dhanya, K. Asamura, Empirical Energy Spectra of Neutralized Solar Wind Proton from the Lunar Regolith, *Journal of Geophysical Research*, 117, No. E5, E05005 (2012). doi:10.1029/2011JE004019

69. **Anil Bhardwaj** and Susarla Raghuram, Coupled chemistry-emission model for atomic oxygen green and red-doublet emissions in comets: A case study for the comet C/1996 B2 Hyakutake, *Astrophysical Journal*, 748, 13 (18pp) (2012). doi:10.1088/0004-637X/748/1/13
70. A. Vorburger, P. Wurz, S. Barabash, M. Wieser, Y. Futaana, M. Holmström, **A. Bhardwaj**, K. Asamura, Energetic Neutral Atom Observations of Magnetic Anomalies on the Lunar Surface, *Journal of Geophysical Research*, 117, A07208 (2012). doi:10.1029/2012JA017553
71. **Anil Bhardwaj**, M. B. Dhanya, R. Sridharan, Stas Barabash, Futaana Yoshifumi, Martin Wieser, Mats Holmström, Charles Lue, Peter Wurz, Audrey Schaufelberger, and Asamura Kazushi, Interaction of solar wind with Moon: An Overview on the results from the SARA experiment aboard Chandrayaan-1, *Advances in Geosciences*, vol.30, pp. 35-56 (2012).
72. K. Dennerl, C.M. Lisse, **A. Bhardwaj**, D.J. Christian, S.J. Wolk, D. Bodewits, T.H. Zurbuchen, M. Combi, and S. Lepri, Solar system X-rays from charge exchange processes, *Astronomische Nachrichten*, 333, No. 4, 324–334 (2012) doi: 10.1002/asna.201211663 {SELECTED AS EDITOR'S CHOICE OF THE JOURNAL}
73. Susarla Raghuram and **Anil Bhardwaj**, Model for Atomic Oxygen Visible Line Emissions in Comet C/1995 O1 Hale-Bopp, *Icarus*, 223, 91-104 (2013). doi: 10.1016/j.icarus.2012.11.032
74. R. Sridharan, Tirtha Pratim Das, S.M. Ahmed, Gogulapati Supriya, **Anil Bhardwaj**, and J.A. Kamalakar, Spatial heterogeneity in the radiogenic activity of the lunar interior: Inferences from CHACE and LLRI on Chandrayaan-1, *Advances in Space Research*, 51, 168-178 (2013). http://dx.doi.org/10.1016/j.asr.2012.08.005
75. Y. Futaana, S. Barabash, M. Wieser, C. Lue, P. Wurz, A. Vorburger, **A. Bhardwaj**, K. Asamura, Remote Energetic Neutral Atom Imaging of Electric Potential Over a Lunar Magnetic Anomaly, *Geophysical Research Letters*, 40, 262–266 (2013). doi: 10.1002/grl.50135
76. M. B. Dhanya, **A. Bhardwaj**, Y. Futaana, M. Holmstrom, S. Barabash, M. Wieser, S. Fatemi, P. Wurz, A. Alok, and R. S. Thampi, Protons in the near-lunar plasma wake for aligned flow: Observations by SWIM/SARA aboard Chandrayaan-1, *Geophysical Research Letters*, 40, No. 12, pp. 2913–2917 (2013). doi:10.1002/grl.50617 {MADE THE RESEARCH HIGHLIGHT OF NATURE INDIA}
77. A. Vorburger, P. Wurz, S. Barabash, M. Wieser, Y. Futaana, C. Lue, M. Holmstrom, **A. Bhardwaj**, M. B. Dhanya, K. Asamura, Energetic Neutral Atom Imaging of the Lunar Surface, *Journal of Geophysical Research*, 118, No. 7, pp. 3937–3945 (2013). doi: 10.1002/jgra.50337
78. R. Sridharan, Tirth Prathim Das, S. M. Ahmed, and **Anil Bhardwaj**, Indicators for localized regions of heavier species in the lunar surface from CHACE on Chandrayaan-1, *Current Sciences*, 105, No.11, 1470-1472 (2013).
79. **Anil Bhardwaj** and Sonal Kumar Jain, CO Cameron band and CO₂⁺ UV doublet emissions in the dayglow of Venus: Role of CO in the Cameron band production, *Journal of Geophysical Research*, 118, 1–12 (2013). doi:10.1002/jgra.50345

80. A. Vorburger, P. Wurz, S. Barabash, M. Wieser, Y. Futaana, M. Holmstrom, **A. Bhardwaj**, K. Asamura, First Direct Observation of Sputtered Lunar Oxygen, *Journal of Geophysical Research*, 119, pp.1-14 (2014). DOI: 10.1002/2013JA019207
81. Charles Lue, Yoshifumi Futaana, Martin Wieser, Stas Barabash, **Anil Bhardwaj**, Peter Wurz, Chandrayaan-1 observations of backscattered solar wind protons from the lunar regolith: Dependence on solar wind velocity, *Journal of Geophysical Research*, 119, 968-975 (2014). DOI: 10.1002/2013JE004582
82. Susan McKenna-Lawlor, **A. Bhardwaj**, Franco Ferrari, Nikolay Kuznetsov, A.K. Lal, Yinghui Li, Aiko Nagamatsu, Rikho Nymmik, Michael Panasyuk, Vladislav Petrov, Guenther Reitz, Lawrence Pinsky, Sheikh Muszaphar Shukor, A.K Singhvi, Ulrich Straube, Leena Tomi, Townsend Lawrence, Feasibility study of astronaut standardized career dose limits in LEO and the outlook for BLEO, *Acta Astronautica*, 104, Issue 2, 565-573 (2014). DOI: 10.1016/j.actaastro.2014.07.011
83. Yuki Harada, Yoshifumi Futaana, Stas Barabash, Martin Wieser, Peter Wurz, **Anil Bhardwaj**, Kazushi Asamura, Yoshifumi Saito, Shoichiro Yokota, Hideo Tsunakawa, Shinobu Machida, Backscattered Energetic Neutral Atoms from the Moon in the Earth's plasma sheet observed by Chandrayaan-1/SARA instrument, *Journal of Geophysical Research*, 119, 1-12 (2014). DOI: 10.1002/2013JA019682
84. Susarla Raghuram and **Anil Bhardwaj**, Photochemistry of atomic oxygen green and red-doublet emissions in comets at larger heliocentric distances, *Astronomy and Astrophysics*, 566, A134 (2014). DOI 10.1051/0004-6361/201321921
85. Adam Masters, Nicholas Achilleos, Craig Agnor, Stefano Campagnola, Sebastian Charnoz, Bruno Christophe, Andrew Coates, Leigh Fletcher, Geraint Jones, Laurent Lamy, Francesco Marzari, Nadine Nettelmann, Javier Ruiz, Richard Ambrosi, Nicolas Andre, **Anil Bhardwaj**, Jonathan Fortney, Candice Hansen, Ravit Helled, Georg Moragas-Klostermeyer, Glenn Orton, Licia Ray, Serge Reynaud, Nick Sergis, Ralf Srama, Martin Volwerk, Neptune and Triton: Essential pieces of the Solar System puzzle, *Planetary and Space Science*, 104, 108-121 (2014). DOI: 10.1016/j.pss.2014.05.008
86. A. Decock, E. Jehin, P. Rousselot, D. Hutsemékers, J. Manfroid, S. Raghuram, **A. Bhardwaj**, B. Hubert, Forbidden oxygen lines at various nucleocentric distances in comets, *Astronomy and Astrophysics*, 573, A1, pp. 1-11 (2014). DOI : 10.1051/0004-6361/201424403
87. Sonal Kumar Jain and **Anil Bhardwaj**, Production of N₂ Vegard-Kaplan and Lyman-Birge-Hopfield emissions on Pluto, *Icarus*, 247, 285-290 (2015). DOI: 10.1016/j.icarus.2014.08.032
88. Smitha V. Thampi, R. Sridharan, Tirtha Pratim Das, S.M. Ahmed, J.A. Kamalakar, and **Anil Bhardwaj**, The spatial distribution of molecular hydrogen in the lunar atmosphere – new results, *Planetary and Space Science*, 106, 142–147 (2015). DOI:10.1016/j.pss.2014.12.018
89. Susan McKenna-Lawlor, **A. Bhardwaj**, Franco Ferrari, Nikolay Kuznetsov, A.K. Lal, Yinghui Li, Aiko Nagamatsu, Rikho Nymmik, Michael Panasyuk, Vladislav Petrov, Guenther Reitz, Lawrence Pinsky, Sheikh Muszaphar Shukor, A.K Singhvi, Ulrich Straube, Leena Tomi,

Townsend Lawrence, Recommendations to mitigate against Human health risks incurred due to energetic particle irradiation beyond low earth orbit/BLEO, *Acta Astronautica*, 109, 182–193, (2015). doi:10.1016/j.actaastro.2014.11.009

90. **Anil Bhardwaj** and Vrinda Mukundan, Monte Carlo model for electron degradation in methane gas, *Planetary and Space Science*, 111, 34–43 (2015). 10.1016/j.pss.2015.03.008
91. A. Vorburger, P. Wurz, S. Barabash, M. Wieser, Y. Futaana, **A. Bhardwaj**, K. Asamura, Imaging the South Pole - Aitken Basin in Backscattered Neutral Hydrogen Atoms, *Planetary and Space Science*, 115, 57–63 (2015). doi:10.1016/j.pss.2015.02.007
92. **Anil Bhardwaj**, S.V. Mohankumar, Tirtha Pratim Das, P. Pradeepkumar, P. Sreelatha, B. Sundar, Amarnath Nandi, Dinakar Prasad Vajja, M.B. Dhanya, Neha Naik, G. Supriya, R. Satheesh Thampi, G. Padma Padmanabhan, Vipin K. Yadav, A.V. Aliyas, MENCA Experiment aboard India's Mars Orbiter Mission, *Current Science*, 109, No. 6 (2015). doi: 10.18520/v109/i6/1106-1113.
93. **Anil Bhardwaj**, M.B. Dhanya, Abhinaw Alok, Stas Barabash, Martin Wieser, Y. Futaana, Peter Wurz, Audrey Vorburger, Mats Holmstrom, Charles Lue, Yuki Harada and K Asamura, A New View on Solar wind interaction with Moon, *Geosciences Letters*, 2, No.10, pp. 1-15 (2015). DOI: 10.1186/s40562-015-0027-y.
94. Hajime Kita, Hiroaki Misawa, **Anil Bhardwaj**, Fuminori Tsuchiya, Takeshi Sakanoi, Yasumasa Kasaba, Chihiro Tao, Yoshizumi Miyoshi, and Akira Morioka, Relation between the short-term variation of the Jovian radiation belt and thermosphere derived from radio and infrared observations, *Journal of Geophysical Research*, 120, 6614–6623 (2015). doi: 10.1002/2015JA021374
95. Susarla Raghuram, **Anil Bhardwaj**, and Marina Galand, Prediction of forbidden ultraviolet and visible emissions in comet 67P/Churyumov-Gerasimenko, *Astrophysical Journal*, 818, No. 2: 102, pp.1-12 (2016). doi:10.3847/0004-637X/818/2/102
96. Charles Lue, Yoshifumi Futaana, Stas Barabash, Yoshifumi Saito, Masaki Nishino, Martin Wieser, Kazushi Asamura, **Anil Bhardwaj**, and Peter Wurz, Scattering characteristics and imaging of energetic neutral atoms from the Moon in the terrestrial magnetosheath, *Journal of Geophysical Research*, 121, 432–445 (2016). doi:10.1002/2015JA021826
97. P. R. Shreedevi, Smitha V. Thampi, D. Chakrabarty, R. K. Choudhary, Tarun Kumar Pant, **Anil Bhardwaj**, S. Mukherjee, On the latitudinal changes in ionospheric electrodynamics and composition based on observations over the 76-77 E meridian from both hemispheres during a geomagnetic storm, *Journal of Geophysical Research*, 121, 1557–1568 (2016). doi: 10.1002/2015JA021841
98. Vrinda Mukundan and **Anil Bhardwaj**, Monte Carlo model for electron degradation in Xenon, *Proceedings of Royal Society A*, 472, issue 2187 (2016). doi:10.1098/rspa.2015.0727
99. M B Dhanya, **Anil Bhardwaj**, Yoshifumi Futaana, Stas Barabash, Abhinaw Alok, Martin Wieser, Mats Holmstrom, Peter Wurz, Characteristics of proton velocity distribution functions in the near-lunar wake from Chandrayaan-1/SWIM observations, *Icarus*, 271, pp.120-130 (2016). doi: 10.1016/j.icarus.2016.01.032

100. Tirtha Pratim Das, Smitha V. Thampi, **Anil Bhardwaj**, S .M. Ahmed, R. Sridharan, First Observation on the Latitudinal and Altitudinal Distribution of Neon-20 in the Sunlit Lunar Exosphere: Results from CHACE aboard MIP/Chandrayaan-1, *Icarus*, 272, 206–211 (2016). doi: 10.1016/j.icarus.2016.02.030
101. **Anil Bhardwaj**, Smitha V. Thampi, Tirtha Pratim Das, M. B. Dhanya, Neha Naik, Dinakar Prasad Vajja, P. Pradeepkumar, P. Sreelatha, G. Supriya, J. K. Abhishek, S.V. Mohankumar, R. Satheesh Thampi, Vipin K. Yadav, B. Sundar, Amarnath Nandi, G. Padma Padmanabhan and A.V. Aliyas, On the evening time exosphere of Mars: Result from MENCA aboard Mars Orbiter Mission, *Geophysical Research Letters*, 43, 1862–1867 (2016). doi: 10.1002/2016GL067707 **{MADE THE ISRO STORY OF THE WEEK}**
102. C. M. Lisse, R. L. McNutt, Jr., S. J. Wolk, F. Bagenal, S. A. Stern, G. R. Gladstone, T. E. Cravens, M. E. Hill, P. Kollmann, H. A. Weaver, D. F. Strobel, H. A. Elliott, D. J. McComas, R.P. Binzel, B.T. Snios, **A. Bhardwaj**, A. Chutjian, L. A. Young, C.B. Olkin, and K.A. Ennico, The Puzzling Detection of X-rays From Pluto by Chandra, *Icarus*, 287, 103–109 (2017). doi: 10.1016/j.icarus.2016.07.008 **{NASA DID PRESS RELEASE ON THIS PAPER}**
103. Prakash Chauhan, **Anil Bhardwaj**, P Senthil Kumar, Prabhjot Kaur, and N Bhandari, Understanding our celestial neighbors: An Indian perspective in planetary sciences and exploration, *Proceedings of Indian National Science Academy*, 82 (No.3), 403-423 (2016). DOI: 10.16943/ptinsa/2016/48457
104. R.K. Choudhary, K.M. Ambili, Siddhartha Choudhury, and **Anil Bhardwaj**, On the origin of the ionosphere at the Moon using results from Chandrayaan-1 S-Band Radio Occultation Experiment and a photochemical model, *Geophysical Research Letters*, 43, 10,025–10,033 (2016). DOI: 10.1002/2016GL070612
105. A. Vorburger, P. Wurz, S. Barabash, Y. Futaana, M. Wieser, **A. Bhardwaj**, M. B. Dhanya, and K. Asamura, Transport of solar wind plasma onto the lunar nightside surface, *Geophysical Research Letters*, 43, 10,586–10,594 (2016). DOI: 10.1002/2016GL071094
106. Smitha V. Thampi, P. R. Shreedevi, R. K. Choudhary, Tarun Kumar Pant, D. Chakrabarty, S. Sunda, S. Mukherjee, and **Anil Bhardwaj**, Direct observational evidence for Disturbance Dynamo on the daytime low latitude ionosphere: A case study based on the 3 June 28, 2013 Space Weather Event, *Journal of Geophysical Research*, 121, 10,064–10,074 (2016). DOI: 10.1002/2016JA023037
107. **Anil Bhardwaj**, Tarun Kumar Pant, R. K. Choudhary, Dibyendu Nandy, P. K. Manoharan, Space Weather Research – Indian Perspective, *Reprise of 2001 Space Weather Monograph*, *Space Weather*, 14, 1082–1094 (2016). doi:10.1002/2016SW001521
108. **Anil Bhardwaj**, Smitha V. Thamp, Tirtha Pratim Das, M. B. Dhanya, Neha Naik, Dinakar Prasad Vajja, P. Pradeepkumar, P. Sreelatha, Abhishek J. K., R. Satheesh Thampi, Vipin K. Yadav, B. Sundar, Amarnath Nandi, G. Padma Padmanabhan, and A.V. Aliyas, Observation of Suprathermal Argon in the exosphere of Mars, *Geophysical Research Letters*, 44, 1-8 (2017). DOI: 10.1002/2016GL072001

109. M B Dhanya, **Anil Bhardwaj**, Yoshifumi Futaana, Stas Barabash, Martin Wieser, Mats Holmström, Peter Wurz, New suprathermal proton population around Moon: Observation by SARA on Chandrayaan-1, *Geophysical Research Letters*, 44, 4540-4548 (2017). DOI: 10.1002/2017GL072605 **{MADE THE ISRO STORY OF THE WEEK}**
110. Charles Lue, Yoshifumi Futaana, Stas Barabash, Martin Wieser, **Anil Bhardwaj**, Peter Wurz, and Kazushi Asamura, Solar wind scattering from the surface of Mercury: Lessons from the Moon, *Icarus*, 296, 39-48 (2017). doi: 10.1016/j.icarus.2017.05.019
111. Nithin Mohan, Subhashis Roy, Govind Swarup, Divya Oberoi, Niruj Mohan Ramanujam, C. Suresh Raju, **Anil Bhardwaj**, Radio observation of Venus at meter wavelengths using the GMRT, *Icarus*, 297, 119-125 (2017). doi:10.1016/j.icarus.2017.06.026
112. Megha Bhatt, Vishnu Reddy, Juan A. Sanchez, Karsten Schindler, Edward Cloutis, Paul Mann, Lucille Le Corre, **Anil Bhardwaj**, Composition of Jupiter irregular satellites sheds light on their origin, *Astronomy and Astrophysics*, 608, A67, pp.1-8 (2017). doi.:10.1051/0004-6361/201630361
113. Tirtha Pratim Das, Smitha V. Thampi, M. B. Dhanya, **Anil Bhardwaj**, S. M. Ahmed, and R. Sridharan, Upper limit of helium-4 in the sunlit lunar exosphere during magnetotail passage under low solar wind condition: Result from CHACE aboard MIP in Chandrayaan-1, *Icarus*, 297, 189–194 (2017). doi:10.1016/j.icarus.2017.07.001
114. P. Janardhan, Santosh Vadawale, Bhas Bapat, K. P. Subramanian, D. Chakrabarty, Prashant Kumar, Aveek Sarkar, Nandita Srivastava, R. Satheesh Thampi, Vipin K. Yadav, M. B. Dhanya, Govind G. Nampoothiri, J. K. Abhishek, **Anil Bhardwaj** and K. Subhalakshmi, Probing the heliosphere using in situ payloads on board Aditya-L1, *Current Science*, 113 (No.4), 620-624 (2017). doi: 10.18520/cs/v113/i04/620-624
115. Vrinda Mukundan and **Anil Bhardwaj**, Dayside ionosphere of Titan: Impact on calculated plasma densities due to variations in the model parameters, *Icarus*, 299, 222–239 (2018). doi.:10.1016/j.icarus.2017.07.022
116. Megha Bhatt, Christian Wohler, Deepak Dhingra, Guneshwar Thangjam, Daniela Rommel, Urs Mall, **Anil Bhardwaj**, Arne Grumpe, Compositional studies of Mare Moscoviense: New perspectives from Chandrayaan-1 VIS-NIR data, *Icarus*, 303, 149-165 (2018). doi.:10.1016/j.icarus.2017.10.009
117. Vrinda Mukundan and **Anil Bhardwaj**, A Model for Negative Ion Chemistry in Titan's Ionosphere, *Astrophysical Journal*, 856:168 (11pp) (2018). doi.:10.3847/1538-4357/aab1f5
118. Smitha V. Thampi, C. Krishnaprasad, **Anil Bhardwaj**, Yuni Lee, R. K. Choudhary, and T. K. Pant, MAVEN-NGIMS observations of the response of Martian ionosphere to the interplanetary coronal mass ejections of March 2015, *Journal of Geophysical Research*, 123, 1-13 (2018). doi: 10.1029/2018JA025444
119. M B Dhanya, **Anil Bhardwaj**, Abhinaw Alok, Yoshifumi Futaana, Stas Barabash, Martin Wieser, Mats Holmström, and Peter Wurz, First observation of transport of solar wind protons scattered from magnetic anomalies into the near lunar wake: Observations by

SARA/Chandrayaan-1, *Geophysical Research Letters*, 45, 8826–8833 (2018). doi: 10.1029/2018GL079330

120. H. Kita, H. Misawa, **A. Bhardwaj**, F. Tsuchiya, G. Murakami, C. Tao, T. Kimura, K. Yoshioka, A. Yamazaki, Y. Kasaba, I. Yoshikawa, M. Fujimoto, Short-term variation 1 in the dawn-dusk asymmetry of the Jovian radiation belt obtained from GMRT and Hisaki EXCEED observations, *Astrophysical Journal Letters*, 872, L24 (5pp) (2019). doi.:10.3847/2041-8213/ab0427
121. Smitha V. Thampi, C. Krishnaprasad, P. R. Shreedevi, Tarun Kumar Pant, and **Anil Bhardwaj**, Acceleration of energetic ions in corotating interaction region near 1.5 AU: Evidence from MAVEN, *Astrophysical Journal Letters*, 880, L3 (9pp) (2019). doi.:10.3847/2041-8213/ab2b43
122. C. Krishnaprasad, Smitha V. Thampi, and **Anil Bhardwaj**, On the response of Martian ionosphere to the passage of a corotating interaction region: MAVEN observations, *Journal of Geophysical Research*, 124, 6998–7012 (2019). doi: 10.1029/2019JA026750
123. S. K. Mishra and **A. Bhardwaj**, Photoelectron sheath on lunar sunlit regolith and dust levitation, *Astrophysical Journal*, 884:5, pp.1-11 (2019). <https://doi.org/10.3847/1538-4357/ab3e08>
124. C. Wöhler, A. Grumpe, M. Bhatt, A. A. Berezhnoy, V. V. Shevchenko, and **A. Bhardwaj**, Detection of an excessively strong 3- μm absorption near the lunar highland crater Dufay, *Astronomy and Astrophysics*, 630, L7, pp.1-7 (2019). <https://doi.org/10.1051/0004-6361/201935927>
125. Vrinda Mukundan, Smitha Thampi, **Anil Bhardwaj**, and C. Krishnaprasad, The dayside ionosphere of Mars: Comparing a one-dimensional photochemical model with MAVEN Deep Dip campaign observations, *Icarus*, 113502, pp.1-16 (2020). <https://doi.org/10.1016/j.icarus.2019.113502>
126. K. K. Rahul, J. K. Meka, S. Pavithraa, P. Gorai, A. Das, J. -I. Lo, B. N. Raja Sekhar, B. -M. Cheng, **A. Bhardwaj**, N. J. Mason, B. Sivaraman, Infrared attenuation upon phase change from amorphous to crystalline in astrochemical propargyl ether ices, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 224, 117393 (2020). doi: 10.1016/j.saa.2019.117393
127. Rishitosh K. Sinha, Vijayan Sivaprahasam, Megha Bhatt, Harish Nandal, Nandita Kumari, Neeraj Srivastava, Indhu Varatharajan, Dwijesh Ray, Christian Wöhler, and **Anil Bhardwaj**, Geological characterization of Chandrayaan-2 landing site in the south polar region of the Moon, *Icarus*, 113449 (2020). <https://doi.org/10.1016/j.icarus.2019.113449>
128. Jayesh Pabari, S. N. Nambiar, V. S. Shah, **A. Bhardwaj**, Lunar Regolith and Water Ice Escape due to Micrometeorite Bombardment, *Icarus*, 338, 113510, pp.1- (2020). <https://doi.org/10.1016/j.icarus.2019.113510>
129. M. Shanmugam, S. V. Vadawale, Arpit R. Patel, Hitesh Kumar, N. P. S. Mithun, Tinkal Ladiya, S. K. Goyal, Neeraj K. Tiwari, Nishant Singh, Sushil Kumar, Deepak Kumar Painkra, Y. B. Acharya, **Anil Bhardwaj**, A. K. Hait, A. Patinge, Abinandhan Kapoor, H. N. Suresh Kumar,

Neeraj Satya, Gaurav Saxena and K. Kalpana, Solar X-ray Monitor on-board Chandrayaan-2 Orbiter, *Current Science*, 118, no. 1, pp. 45-52 (2020). doi: 10.18520/cs/v118/i1/45-52

130. M. Shanmugam, S. V. Vadawale, Arpit R. Patel, N. P. S. Mithun¹, Hitesh Kumar Adalaja, Tinkal Ladiya, Shiv Kumar Goyal, Neeraj K. Tiwari, Nishant Singh, Sushil Kumar, Deepak Kumar Painkra, A. K. Hait, A. Patinge, Abhishek Kumar, Saleem Basha, Vivek R. Subramanian, R. G. Venkatesh, D. B. Prashant, Sonal Navle, Y. B. Acharya, S. V. S. Murty and **Anil Bhardwaj**, Alpha Particle X-Ray Spectrometer On-board Chandrayaan-2 Rover, *Current Science*, 118, no. 1, pp. 53-61 (2020). doi: 10.18520/cs/v118/i1/53-61
131. S. Raghuram, D. Hutsemékers, C. Opitom, E. Jehin, **A. Bhardwaj**, and J. Manfroid, Atomic carbon, nitrogen, and oxygen forbidden emission lines in the water-poor comet C/2016 R2 (Pan-STARRS), *Astronomy and Astrophysics*, 635, A108, pp. 1-15 (2020). <https://doi.org/10.1051/0004-6361/201936713>
132. K. K. Rahul, Shiva Karthik, Jaya Krishna Meka, Ankan Das, Vijayanand Chandrasekaran, B N Rajasekhar, J -I Lo, B -M Cheng, Padmanabhan Janardhan, **Anil Bhardwaj**, Nigel J Mason, and B. Sivaraman, Residue from Vacuum Ultraviolet Irradiation of Benzene Ices: Insights into the Physical Structure of Astrophysical Dust, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 231, 117797, pp.1-4 (2020). <https://doi.org/10.1016/j.saa.2019.117797>
133. N. P. S. Mithun, S. V. Vadawale, M. Shanmugam, Arpit R. Patel, Nishant Singh, Sushil Kumar, Neeraj Kumar Tiwari, Shiv Kumar Goyal, Amit Basu Sarbadhikari, Garima Arora, Yash Srivastava, Hitesh Kumar Adalja, Tinkal Ladiya, Deepak Kumar Painkra, S. B. Banerjee, V. R. Patel, and **Anil Bhardwaj**, Calibration of Alpha Particle X-ray Spectrometer (APXS) on-board Chandrayaan-2 Pragyaan rover: Empirical approach, *Planetary and Space Sciences*, 187, 104923. (2020). <https://doi.org/10.1016/j.pss.2020.104923>
134. Susarla Raghuram, and **Anil Bhardwaj**, A photochemical model of ultraviolet atomic line emissions in the inner coma of comet 67P/Churyumov-Gerasimenko, *Icarus*, 374, 113790 (2020). <https://doi.org/10.1016/j.icarus.2020.113790>
135. M. Hess, C. Wöhler, M. Bhatt, A. A. Berezhnoy, A. Grumpe, K. Wohlfarth, **A. Bhardwaj**, and V. V. Shevchenko, Processes governing the VIS/NIR spectral reflectance behavior of lunar swirls, *Astronomy and Astrophysics*, 639, A12, pp.1-18 (2020). <https://doi.org/10.1051/0004-6361/201937299>
136. S. K. Mishra and **A. Bhardwaj**, Electrostatic charging of permanently shadowed craters on the Moon, *Monthly Notices of the Royal Astronomical Society*, 496, L80–L84 (2020). <https://doi.org/10.1093/mnrasl/slaa082>
137. Susarla Raghuram and **Anil Bhardwaj**, CO⁺ First-negative band emission: A tracer for CO in the Martian upper atmosphere, *Astronomy and Astrophysics*, 639, A60, pp.1-6 (2020). <https://doi.org/10.1051/0004-6361/202038147>
138. Harish, S. Vijayan, N. Mangold, and **Anil Bhardwaj**, Water-ice exposing scarps within the northern midlatitude craters on Mars, *Geophysical Research Letters*, 47, pp1-8 (2020). <https://doi.org/10.1029/2020GL089057>

139. P. R. Shreedevi, R. K. Choudhary, Smitha V. Thampi, Sneha Yadav, T. K. Pant, Yiqun Yu, Ryan McGranaghan, Evan G. Thomas, **Anil Bhardwaj** and A. K. Sinha, Geomagnetic storm induced plasma density enhancements in the southern polar ionospheric region: A comparative study using St. Patricks day storms of 2013 and 2015, *Space Weather*, Article ID: 16826820 (2020). <https://doi.org/10.1029/2019SW002383>
140. Vrinda Mukundan, Smitha V. Thampi, **Anil Bhardwaj**, and C. Krishnaprasad, Model calculation of ionization efficiency in the Martian dayside ionosphere using MAVEN observations, *Monthly Notices of the Royal Astronomical Society*, 497, 2239–2249 (2020). <https://doi.org/10.1093/mnras/staa2123>
141. C. Krishnaprasad, Smitha V. Thampi, **Anil Bhardwaj**, Christina O. Lee, K. Kishore Kumar, and Tarun K. Pant, Recurrent Solar Energetic Particle Flux Enhancements Observed near Earth and Mars, *Astrophysical Journal*, accepted, (2020).

Refereed Conference Proceedings in Journals:

142. **A. Bhardwaj**, X-ray Emissions from the Jovian System, *Bulletin of Astronomical Society of India*, 31, 159-166 (2003).
143. **A. Bhardwaj**, S. A. Haider, and R. P. Singhal, Consequences of Cometary Aurora on the Carbon Chemistry at Comet P/Halley, *Advances in Space Research*, 16(2), 31-36 (1995).
144. **A. Bhardwaj** and M. Michael, Photoelectron Excitation of Io's Atmosphere, *Advances in Space Research*, 20(2), 301-304 (1997).
145. S.A. Haider and **A. Bhardwaj**, Chemistry of the Ions ≤ 40 AMU in the Inner Coma of Comet Halley, *Advances in Space Research*, 20(2), 291-294 (1997).
146. **A. Bhardwaj**, Ring current H Atom Precipitation on the Outer Planets, *Advances in Space Research*, 20(2), 233-237 (1997).
147. **A. Bhardwaj** and S.A. Haider, Modeling of Metastable Carbon Atoms in Comets: Implications for ROSETTA, *Advances in Space Research*, 23(7), 1325-1328 (1999).
148. M. Michael and **A. Bhardwaj**, Precipitation of Energetic Electrons in the Atmosphere of Io: Production of UV Emissions, *Advances in Space Research*, 26(10), 1519-1524 (2000).
149. **A. Bhardwaj**, G.R. Gladstone, and P. Zarka, An Overview of Io Flux Tube Footprints in Jupiter's Auroral Ionosphere, *Advances in Space Research*, 27, No.11, 1915-1922 (2001).
150. **A. Bhardwaj** and S.A. Haider, Chemistry of O(¹D) Atoms in the Inner Coma: Implications for Cometary Missions, *Advances in Space Research*, 29, No.5, 745-750 (2002).

Chapter in Books:

1. **Anil Bhardwaj** and Carey M. Lisse, "X-rays in the Solar System", in *Encyclopedia of the Solar System, 2nd Edition*, Edited by L. A. McFadden, P. R. Weissman, and T. V. Johnson, pp.637-658, Academic Press (2007).
2. **Anil Bhardwaj**, "Planetary X-rays: Relationship with Solar X-rays and Solar Wind", in *Solar Influences on the Heliosphere and Earth's Environment: Recent Progress and prospects*, Eds. N. Gopalswamy and A. Bhattacharyaa, *ILWS Workshop 2006 Goa*, Quest Publications, pp.140-144 (2006).
3. **A. Bhardwaj**, "Non-Stationary Plasma Process on Comets and its Implications", in *Recent Advances in Plasma Science and Technology*, Eds. R.P. Singh, et al., Allied Publishers Ltd., New Delhi, pp.131-134 (1996).
4. **Anil Bhardwaj**, "Atmospheres of the Outer Planets", in Chapter 1: Evolution and Composition of Planetary Atmospheres, in *Modeling of Planetary Atmospheres*, Eds. S. A. Haider, V. Sheel, and S. Lal, Mcmillan India, New Delhi, pp.61-82 (2009).
5. **Anil Bhardwaj**, "The Planetary X-ray Emission", in *Heliophysical Processes*, Book Series: *Astrophysics and Space Science Proceedings*, Edited by N. Gopalswamy, S. S. Hasan, and A. Ambastha, Springer-Verlag, Berlin Heidelberg, 271-288 (2010).
6. **Anil Bhardwaj**, Carey M. Lisse, and Konrad Dennerl, "X-rays in the Solar System", Chapter 48 in *Encyclopedia of the Solar System, 3rd Edition*, Edited by Tilman Spohn, Doris Breuer, and Torrence Johnson, pp. 1019–1045 Elsevier Press (2014). DOI:10.1016/B978-0-12-415845-0.00048-7 {**THIS BOOK IS WINNER OF THE 2015 PROSE AWARD IN COSMOLOGY & ASTRONOMY**}

Books Edited/Published:

1. *Editor-in-chief, Advances in Geosciences*, Volume 3 (Planetary Science), World Scientific Publication, Singapore, 2006.
2. *Editor-in-chief, Advances in Geosciences*, Volume 7 (Planetary Science), World Scientific Publication, Singapore, 2007.
3. *Editor-in-chief, Advances in Geosciences*, Volume 15 (Planetary Science), World Scientific Publication, Singapore, 2009.
4. *Editor-in-chief, Advances in Geosciences*, Volume 19 (Planetary Science), World Scientific Publication, Singapore, 2010.
5. *Editor-in-chief, Advances in Geosciences*, Volume 25 (Planetary Science), World Scientific Publication, Singapore, 2011.
6. *Editor-in-chief, Advances in Geosciences*, Volume 30 (Planetary Science), in press, World Scientific Publication, Singapore, 2012.

Guest Editor – Special Issue of Journals:

1. Guest Editor, Special Issue on AOGS 2005 “Highlights in Planetary Science”, *Planetary and Space Sciences*, vol. 55 (No.9), June 2007.
2. Guest Editor, Special Issue on “Advances in Planetary Science: AOGS 2007”, *Planetary and Space Sciences*, vol. 56 (No. 13), November 2008.
3. Guest Editor, Special Issue on “Lunar Science and Exploration”, *Advances in Space Research*, vol. 54 (No. 10), November 2014.

Preface of Special issue of Journals:

1. Therese Encrenaz, **Anil Bhardwaj**, Wing Huen Ip, AOGS05: Highlights in Planetary Science, *Planetary and Space Science*, 55, 999 (2007).
2. **Anil Bhardwaj**, Paul Hartogh, Yasumasa Kasaba, and C.Y. Robert Wu, Advances in Planetary Sciences: AOGS 2007, *Planetary and Space Science*, 56, 1675 (2008).
3. **Anil Bhardwaj**, Lunar Science and Exploration, *Advances in Space Research*, 54, no.10, 1973 (2014).

arXiv Publications:

1. G. Branduardi-Raymont, S. Sciortino, K. Dennerl, M. Güdel, M. Holmstrom, D. Koutroumpa, A. Maggio, G. Micela, I. Pillitteri, J. Sanz-Forcada, A. Read, **A. Bhardwaj**, Y. Ezoë, R. Gladstone, **The Hot and Energetic Universe: Solar system and exoplanets**, [arXiv:1306.2332](http://arxiv.org/abs/1306.2332) [astro-ph.HE] (2013) <http://arxiv.org/abs/1306.2332>
2. Kirpal Nandra, Didier Barret, Xavier Barcons, Andy Fabian, Jan-Willem den Herder, Luigi Piro, Mike Watson, Christophe Adami, James Aird, Jose Manuel Afonso, Dave Alexander, Costanza Argiroffi, Lorenzo Amati, Monique Arnaud, Jean-Luc Atteia, Marc Audard, Carles Badenes, Jean Ballet, Lucia Ballo, Aya Bamba, **Anil Bhardwaj**, Elia Stefano Battistelli, Werner Becker, Michaël De Becker, Ehud Behar, Stefano Bianchi, Veronica Biffi, Laura Bîrzan, Fabrizio Bocchino, Slavko Bogdanov, Laurence Boirin, Thomas Boller (DE), Stefano Borgani (IT), Katharina Borm (DE), Nicolas Bouché (FR), Hervé Bourdin (IT), Richard Bower (UK), Valentina Braito (IT), et al. (202 additional authors not shown), **The Hot and Energetic Universe: A White Paper presenting the science theme motivating the Athena+ mission**, [arXiv:1306.2307](http://arxiv.org/abs/1306.2307) [astro-ph.HE], (2013) <http://arxiv.org/abs/1306.2307>
3. Bradford Snios, William R. Dunn, Carey M. Lisse, Graziella Branduardi-Raymont, Konrad Denner, **Anil Bhardwaj**, G. Randall Gladstone, Susan Nulsen, Dennis Bodewits, Caitriona M. Jackman, Julián D. Alvarado-Gómez, Emma J. Bunce, Michael R. Combi, Thomas E. Cravens, Renata S. Cumbee, Jeremy J. Drake, Ronald F. Elsner, Denis Grodent, Jae Sub

Hong, Vasili Kharchenko, Ralph P. Kraft, Joan P. Marler, Sofia P. Moschou, Patrick D. Mullen, Scott J. Wolk, Zhonghua Yao, X-rays Studies of the Solar System, arXiv:1903.02574v1 [astro-ph.HE] 6 Mar 2019 <https://arxiv.org/abs/1903.02574>

Scientific Report:

1. **A. Bhardwaj**, Airglow on the Outer Planets.
Scientific Report of Space Physics laboratory, VSCC, SPL-SR-01-97 (1997).

Proceedings of Conferences:

1. **A. Bhardwaj**, G. R. Gladstone, R. F. Elsner, J. H. Waite, Jr., D. Grodent, T. E. Cravens, R. R. Howell, A. E. Metzger, N. Ostgaard, A. N. Maurellis, R. E. Johnson, M. C. Weisskopf, T. Majeed, P. G. Ford, A. F. Tennant, J. T. Clarke, W. S. Lewis, K. C. Hurley, F. J. Crary, E. D. Feigelson, G. P. Garmire, D. T. Young, M. K. Dougherty, S. A. Espinosa, J.-M. Jahn, Soft X-Ray Emissions from Planets, Moons, and Comets, *ESA Special Publication 514*, 215-226 (2002).
2. **Anil Bhardwaj** and R. Sridharan, Planetary Sciences in India – Recent Developments, *Proceedings of IAA Asia-Pacific Regional conference on “Advances in Planetary Exploration”* (2005).
3. **A. Bhardwaj** and M. Michael, Io-Jupiter System: A Unique Case of Moon-Planet Interaction, *ESA Special Publication 514*, 115-121 (2002).
4. G. Branduardi-Raymont, **A. Bhardwaj**, R. Elsner, G. Gladstone G. Ramsay, P. Rodriguez, R. Soria, J. H. Waite, T.E. Cravens, X-ray Exploration of the Giant Planets, their Magnetospheres and the Solar Connection: From XMM-Newton to XEUS, *ESA Special Publication ESA SP-588*, pp.393-396 (2005).
5. Tirtha Pratim Das , Prasanna Mahavarkar, Gogulapati Supriya, Satheesh Thampi, P. Sreelatha, P. Pradeepkumar, Neha Naik, S V Mohankumar and **Anil Bhardwaj**, “Accurate Estimation of the Total Pressure using a Mass Spectrometer below the X-ray limit”, Proc. International Conference on Innovative Science and Engineering Technology (ICISSET 2011), ISBN 978-81-906377-5-6, Vol. 1, p 76 (2011).
6. **Anil Bhardwaj**, Stas Barabash, M. B. Dhanya, Martin Wieser, Futaana Yoshifumi, Mats Holmström, R. Sridharan, Peter Wurz, Audrey Schaufelberger, and Asamura Kazushi, Studying the Lunar–Solar Wind Interaction with the SARA Experiment aboard the Indian Lunar Mission Chandrayaan-1, in *SOLAR WIND TWELVE: American Institute of Physics*, Volume 1216, 518 (2010).
7. **Anil Bhardwaj**, X-Ray Emission from the Solar System Bodies: Connection with Solar X-Rays and Solar Wind, in *SOLAR WIND TWELVE: American Institute of Physics*, Volume 1216, 526 (2010).

8. Tirtha Pratim Das, Gogulapati Supriya, Prasanna Mahavarkar, Neha Naik, P. Sreelatha, P. Pradeepkumar, S V Mohankumar, **Anil Bhardwaj** and R. Sridharan; “Study on the Water Vapor Desorption Rate from Space-Borne Mass Spectrometers under Simulated Deep Space Vacuum”; Proc. International Conference on Innovative Science and Engineering Technology (ICISSET 2011), ISBN 978-81-906377-5-6, Vol. 1, p 430 (2011).

General/Popular Articles:

1. **Anil Bhardwaj**, et al, “Novel aspects of solar wind interaction with Moon as revealed by the SARA experiment on the Chandrayaan-1 mission”, *Signatures* (Newsletter of the Indian Society of Remote Sensing-Ahmedabad Chapter), vol. 23, No. 4, pp. 87-92, Nov–Dec 2011.
2. **Anil Bhardwaj**, “Discovery of mini-magnetosphere on Moon by SARA onboard Chandrayaan-1”, *PLANEX Newsletter*, vol. 2, issue 2, pp.9-10, April 2012.
3. **Anil Bhardwaj**, MENCA aboard Mars Orbiter Mission, *PLANEX Newsletter*, Jan. 2014.
4. Quality Assurance of Payloads of Mars Orbiter Mission, **Mars Exospheric Neutral Composition Analyser (MENCA)**, *DSRQ e-Newsletter*, Directorate of Systems Reliability and Quality, ISRO HQ, Bangalore, Jan-Feb, 2014.
5. **Anil Bhardwaj**, and MENCA team, “MENCA”, *Signatures* (Newsletter of the Indian Society of Remote Sensing-Ahmedabad Chapter), vol. 23, No. 4, pp. 87-92, Nov–Dec 2014.
6. **Anil Bhardwaj**, et al., MENCA onboard the Indian Mars Orbiter Mission, *Physics Education*, Vol. 31, no. 3, July-Sept, 2015.