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Father's / Mother's Name

Late Shri T.R.Varma / Late Smt. Shakuntala Varma

Postal address for	Dr. Poornima Varma, Women Scientist
Correspondence	Department of Physics
Present/Permanent	Dr. H. S. Gour University
	Sagar (M.P.) – 470003 – India
Date of Birth	9 / 03 / 1963
Status	UnMarried

Fellowships

- | | |
|----------------------------|----------------------|
| 1. J.R.F. [MAPCOST] | : 1988 - 1991 |
| 2. R.A. [CSIR] | : 1993 – 1998 |
| 3. S.R.A. [ISRO] | : 2003 – 2005 |
| 4. WOS-A [DST] | : 2005 – 2015 |
| 5. WOS-A [DST] | : 2018 – 2021 |

Awards

- 1. Best Paper Awards in National Science Day Seminar on 28th Feb., 2000.**
- 2. Best Paper Award in Poster Session in 89th Indian Science Congress**

Association, 3-7, Jan, 2002, Lucknow.

Academic Positions:

- 1. Principal Investigator, WOS-A, DST-New Delhi, April, 2005-May, 2008, Project Title: Study of Electromagnetic Waves in Dusty Plasma, Sanctioned Budget About Rs. 12,00,000=00.**
- 2. Principal Investigator, WOS-A, DST-New Delhi, May, 2008 – April, 2011, Project Title: Study of Kinetic Alfven Waves [KAW] in Earth's Magnetoplasma, Sanctioned Budget About Rs. 15,00,000=00.**
- 3. Principal Investigator, WOS-A, DST-New Delhi, March, 2012-April, 2015, Project Title: The Role of Low Frequency Waves around Cusp Region and Plasma-Pause Region, Sanctioned Budget About: Rs. 18,88,000=00.**
- 4. Principal Investigator, WOS-A, DST-New Delhi, April, 2018-March, 2021, continuing project entitled “Study of multi-ions plasma with ultra low frequency wave phenomena around earth's magnetosphere”. Sanctioned Budget About: Rs. 24,20,000=00.**
- 5. Co-Principal Investigator, ISRO-Bangalore, Nov. 2000-April 2003, Major Project Entitled: Auroral electrodynamics by Kinetic Alfven Waves. Sanctioned Budget About Rs. 8,00,000=00.**
- 6. Co-Principal Investigator, DST-New Delhi, Major Project, Nov. 2001-Oct. 2003, Project Title: Magnetosphere-Ionosphere Coupling-A Study by Kinetic Alfven Waves. Sanctioned Budget About Rs. 9,00,000=00.**
- 7. Co-Principal Investigator, ISRO-Bangalore, Major Project, Sep. 2008-August, 2011, Project Title: Very Low Frequency [VLF] Waves Phenomena in Magnetosphere-Ionosphere Coupling, Sanctioned Budget About: 12,00,000=00.**
- 8. Co-Principal Investigator, UGC-New Delhi, Major Project, July, 2009-June, 2012, Project Title: Description of Auroral Phenomena by EMIC Waves, Sanctioned Budget About: Rs. 10,00,000=00.**

Invited Talk

Invited Talk delivered entitled “Study of low frequency wave’s phenomena in various space regions around earth magneto-plasma” in International Conference on Space and Plasma Science (ICSPS-2015), 22-24 September, 2015 at Maihar (M.P.)-India. P-15.

Teaching Experience: Total = 13 Years

S.No.	Name of Institute	Position held	From	To	Payment	Total Experience
1	Dr.H.S.G.V.V.,Sagar	Adhoc Lecturer	1991- 92	1992-93	5,000/-pm	2 Years
2.	Dr.H.S.G.V.V.,Sagar	Adhoc Lecturer	1999	2003	5,000/-pm	5 Years
3.	Dr.H.S.G.V.V.,Sagar	Part time Lecturer	April,2003	April, 2004	According to lecture	1 Year
4.	Dr. H.S.G.V.V., Sagar	Guest Lecturer	Sep., 2016	April, 2018	25,000/- pm	2 Years
5.	Dr. H.S.G.V.V., Sagar	JRF, MAPCOST	1991	1991	1800/pm. Fellowship	3 Years
6.	Dr. H.S.G.V.V., Sagar	Guest Faculty	Sep., 2021	Continue...	50,000/- pm	1 + Years

Research Experience / Post Doctorial Experiences with Various National Fellowships:

Total = 19 Years

S.No.	Name of Institute	Position held	From	To	Payment	Total Experience
1	CSIR, New Delhi	Research Associate	1993	1998	2,500/-pm	5, Years
2.	ISRO, Bangalore	Senior Research Associate	2003	2005	10,000/-pm	2 Years
3.	WOS-A, DST, Delhi	Women Scientist	2005	2008	15,000/pm	3 Year
4.	WOS-A, DST, Delhi	Women Scientist	2008	2011	35,000/pm	3 Year
5.	WOS-A, DST, Delhi	Women Scientist	2012	2015	55,000/pm	3 Year
6.	WOS-A, DST, Delhi	Women Scientist	2018	2021	55,000/pm	3 Year

Details of Published Research Papers: Total 110

International Journals	National Journals	Symposium and Conferences	Total
A	B	C	A+B+C
38	22	50	110

Interested Research Areas

Theoretical Modulation of Plasma Approach in Space Physics

- Magnetosphere-Ionosphere Coupling
- Auroral Electrodynamics
- Earth's Magnetosphere
- Gas discharge physics
- Theoretical Approaches
- Atmospheric Physics
- Low frequency waves

[A] International Papers

1. Drift waves in the presence of inhomogeneous electric field with different distribution functions-Particle aspect analysis, P. Varma and M.S. Tiwari, Physica Scripta 44, 269, and (1991), **(SWEDEN)**.
2. Drift instability in the presence of parallel electric field and an inhomogeneous magnetic field-Particle aspect analysis, M.S. Tiwari and P. Varma, J. Plasma Phys. 46, 49 (1991), **(U.K.)**.
3. Ion and electron beam effects on drift wave instability with different distribution functions-Particle aspect analysis, P. Varma and M.S. Tiwari, Physica Scripta 45, 275 (1992), **(SWEDEN)**.
4. Drift wave instability with loss-cone distribution function-Particle aspect analysis, M.S. Tiwari and P. Varma, Planet. Space Sci, 41, 199 (1993), **(U.K.)**.
5. Charged particle motions in the presence of an electromagnetic wave, P. Varma and M.S. Tiwari, Ind. J. Phys., 60B(4), 375 (1994), India.
6. Drift kinetic Alfvén wave in the presence of inhomogeneous magnetic field, A.K. Dwivedi, A. Baronia, P. Varma and M.S. Tiwari, Ind. J. Phys., 74B (4), 307-314 (2000), India.

7. Kinetic Alfven wave in the inhomogeneous magnetosphere and general distribution function, A.K. Dwivedi, P.Varma and M.S.Tiwari, Planet. Space Sci., 49, 993-1003 (2001) **(U.K.)**.
8. Kinetic Alfven wave in the presence of parallel electric field in an inhomogeneous magnetosphere, A.K. Dwivedi, P.Varma and M.S.Tiwari Ind. J. Phys.-an international Journal 75B(6), 555-563 (2001).
9. Ion and electron beam effects on kinetic Alfven wave in an inhomogeneous magnetosphere, A.K.Dwivedi, P.Varma and M.S.Tiwari, Planet. Space Sci., 50, 93-99(2002) **(U.K.)**.
10. Kinetic Alfven wave with general loss-cone distribution function in the presence of ion and electron beam, A.K. Dwivedi, P.Varma and M.S.Tiwari, Indian J.Phys.-an international journal 75B(5) , 447-453(2001).
11. Effect of electron beam and temperature anisotropy on Alfven wave, J.Shrivastava, A.Baronia, P.Varma and M.S.Tiwari, Ind.J.Phys. – an international journal, 75B (2), 117(2001), India.
12. Study of kinetic Alfven wave in the magnetized dust plasma – Particle aspect analysis, R.P. Shandilya, P. Varma and M.S.Tiwari, Ind.J. Phys. - an international journal, 77B (5), 553-559, (2003).
13. Electromagnetic ion-cyclotron instability in the presence of parallel electric field with general loss-cone distribution function – particle aspect analysis, G. Ahirwar, P. Varma and M.S.Tiwari, Annales of Geophysicae 24, 1919-1930 (2006), **(France)**.
14. Study of electromagnetic ion-cyclotron wave with general loss-cone distribution function, G. Ahirwar, P.Varma and M.S.Tiwari, Ind. J. Phys. 80, 1179-1187 (2006).
15. Beam effects on electromagnetic ion-cyclotron waves with general loss-cone distribution function in an anisotropic plasma-particle aspect analysis, G. Ahirwar, P. Varma and M.S.Tiwari, Annales of Geophysicae 25, 557-568 (2007), **(France)**
16. Effect of general loss-cone distribution function on kinetic Alfven wave-kinetic approach by Nidhi Shukla, P.Varma and M.S.Tiwari, Journal of Plasma Physics **(U.K.)**, vol. 73, part 5, p.p. 1-10 (2007).
17. Effect of parallel electric field on Alfven wave in thermal magnetoplasma, P.Varma, S.P.Mishra, G.Ahirwar and M.S. Tiwari; Planet. & Space Sci., 55,174-180 (2007) **(U.K.)**.
18. Effect of general loss-cone distribution function on shear-driven electrostatic ion-cyclotron instability, Ruchi Mishra, P.Varma and M.S.Tiwari, Planet. Space Sci., (2007) doi: 10.1016/j.pss.2007.09.004. **(U.K.)**.
19. Ion and electron beam effects on kinetic Alfven wave with general loss-cone distribution function-Kinetic Approach, Nidhi Shukla, Ruchi Mishra, P.Varma and M.S.Tiwari, Plasma Phys. Control Fusion, 50, (2008) 025001 (17pp)DOI:10.1088/0741-3335/50/2/025001, **(U.K.)**.
20. Shear driven kinetic Alfven wave in the plasma-sheet- boundary- layer., B.V. Tiwari, R Mishra, P.Varma and M.S.Tiwari, Earth, Planets and Space, 60, 1-15, 2008 **(Japan)**.
21. EMIC waves around the plasma-pause region, P.Varma, G. Ahirwar and M.S. Tiwari, Planet. Space Sci. DOI:10.1016/j.pss.2008.01.007 (2008) **(U.K.)**.
22. Shear driven kinetic Alfven wave with general loss-cone distribution function in the plasmasheet- boundary layer, B.V. Tiwari, Ruchi Mishra, P. Varma and M.S.Tiwari, Earth, Moon and Planets, DOI 10.1007/s11038-008-9233-3, 2008 **(The Netherlands)**.

23. Study of kinetic Alfvén wave (KAW) in Plasma-sheet-boundary-layer by Nidhi Shukla., P.Varma and M.S.Tiwari, **Journal of Physics, (U.K.)**, Conference Series, 208(2010), 012033, doi: 10.1088/1742-6596/208/1/012033.
24. Effect of Dust particles on kinetic Alfvén wave in Earth's magnetoplasma by P.Varma, Nidhi Shukla, Priyanka Agarwal and M.S.Tiwari, **Journal of Physics, (U.K.)**, Conference Series, 208(2010), 012034, doi: 10.1088/1742-6596/208/1/012034.
25. Study of inertial kinetic Alfvén waves around cusp region by P.Agarwal, P.Varma and M.S.Tiwari, *Planet. Space. Sci.*, 59 (2011) 306-311. **(U.K.)**
26. Comparative study between cold plasma and hot plasma with ion beam and loss-cone distribution function by particle aspect analysis by S. Patel, P.Varma and M.S.Tiwari, *Plasma Phys. Control. Fusion*, 53 (2011) 035021 (15pp). **(U.K.&U.S.A.)**.
27. Effect of density, temperature and velocity gradient on inertial Alfvén wave in cusp region, P. Agarwal, P.Varma and M.S.Tiwari, *Planet. Space. Sci.*, 50 (2011) 1516-1523. **(U.K.)**.
28. Effect of ion beam on electromagnetic ion cyclotron instability in hot anisotropic plasma-particle aspect analysis by S. Patel, P.Varma, M.S.Tiwari, and N. Shukla, *Ann. Geophysicae*, 29, 1469-1478 (2011), doi: 10.5194/angeo-29-1469-2011.
29. Effect of multi-ions on EMIC waves with hot plasma around the polar cusp, by S.Patel, P.Varma and M.S. Tiwari, *Plasma Phys. Control. Fusion* **53** (2011) 115007 (15pp) doi:10.1088/0741-3335/53/11/115007**(U.K.&U.S.A.)**.
30. Study of dispersive Alfvén wave in auroral acceleration region in an inhomogeneous plasma, Priyanka Agarwal, P.Varma and M.S.Tiwari, *Planet. & Space Sci.*, 71, pp.101-105, (2012), **(U.K.)**.
31. Electromagnetic ion cyclotron waves in multi-ions hot anisotropic plasma in auroral acceleration region-particle aspect approach, Sonia Patel, P. Varma and M.S. Tiwari, *Earth, Moon and Planets*, DOI 10.1007/s11038-012-9400-4, 00, pp. 000-000, (2012) **(NETHERLANDS)**.
32. Study of gradient effect on kinetic Alfvén wave with inhomogeneous plasma, P.Agarwal, P.Varma and M.S.Tiwari, DOI 10.1007/s10509-013-1376-7, 00, pp. 1-9, (2013), **Astrophysics, Space Sci.**, (Netherlands).
33. Kinetic Alfvén wave in the presence of parallel electric field with general loss-cone distribution function: A kinetic approach, N.Shukla, P.Varma and M.S.Tiwari, *International J of Physical Sci.*, Vol.7(6), p.p., 893-900, Feb., (2012).
34. Study of gradient effect on inertial kinetic Alfvén wave in plasma sheet boundary layer region-Kinetic Approach, P.Agarwal, P.Varma and M. S. Tiwari, DOI 10.1007/s10509-013-1615-y, (2013), **Astrophysics, Space Sci.**, (Netherlands).
35. Density variation effect on multi-ions with kinetic Alfvén wave around cusp region – a kinetic approach. Radha Tamrakar, P.Varma and M.S. Tiwari, *Astrophysics and Space Science* (2018), DOI 10.1007/s 10509-017-3224-7, **(UK/USA)**.
36. Effects of H_e^+ and O^+ ions on kinetic Alfvén waves: application to PSBL region. Radha Tamrakar, P.Varma and M.S. Tiwari, *Astrophysics and Space Science* (2018), DOI 10.1007/s 10509-018-3443-6, **(UK/USA)**.

37. Inertial Alfvén waves in auroral acceleration region with H He and O ions plasma, Radha Tamrakar, P.Varma and M.S. Tiwari, Astrophysics and Space Science (2019) 364:102 ; <https://doi.org/10.1007/s10509-019-3593-1>
38. Study of multi-ions plasma in various space regions and wave phenomena around earth's magnetosphere by P. Varma, Journal of Coastal Zone Management ISSN: 2473-3350, Vol.23 No.3, 2020. USA.

[B] National Papers

39. Drift wave in the presence of an AC electric field with different distribution functions – Particle aspect analysis, P.Varma and M.S.Tiwari, Ind. J. Pure & Appl. Phys. 31, 616 (1993) India.
40. Effect of AC electric field on drift wave around ion cyclotron frequency, P.Varma and M.S. Tiwari, Ind. J. Pure & Appl. Phys. 36, 434(1998), India.
41. Magnetosphere- ionosphere coupling – A study by drift kinetic Alfvén wave, P.Varma, A.Baronia and M.S. Tiwari, Proceeding of **International Workshop** on coordinated study of very low frequency (VLF) phenomena- Global Approach, B.U. Bhopal – 1999 , Narosa Publishing House, New Delhi (India).
42. Kinetic Alfvén wave in inhomogeneous anisotropic dusty magnetosphere with inhomogeneous electric field – particle aspect analysis by R.P.Shandilya, P.Varma and M.S.Tiwari , Ind. J. Radio & Space Phys. , Vol. 30 (Feb. 04) , 13-24, 2004.
43. Generation of kinetic Alfvén wave by velocity shear in the plasma sheet boundary layer during substorm, B.V. Tiwari, Ruchi Mishra, P.Varma and M.S.Tiwari, Ind. J. Pure & Appl. Phys. 44.,917-926,(2006).
44. Kinetic model of Alfvén wave in dusty plasma, Nidhi Shukla, Ruchi Mishra. P.Varma and M.S.Tiwari, Ind. J. Pure & Appl. Phys. 44, 834-844, (2006).
45. Transverse acceleration of ions in cusp: Electrostatic ion-cyclotron instability with general loss-cone distribution as a possible source, Ruchi. Mishra, P. Varma and M. S. Tiwari, Ind. J. Pure & Appl. Phys., Vol. 46, Issue 7, pp 471, July, (2008).
46. Study of kinetic Alfvén wave in inertial regime, Nidhi Shukla, P.Varma and M.S.Tiwari, Ind. J. Pure & Appl. Phys., Vol. 47, May 2009, pp. 350-355.
47. Dispersion relation and growth rate of wave for different distribution functions, P.Varma & M.S.Tiwari, Ind. J. Pure & Appl. Phys., 30, Jan. 1992, pp. 1-4.
48. The time development of drift wave instability with loss-cone distribution function-particle aspect analysis, P.Varma, Madhya Bharti Journal, 36A-40B, ISSN. 0792/7473 .1996, Natural Science and Physical Science.
49. Study of electromagnetic ion-cyclotron waves with general loss-cone distribution and multi-ions plasma-Particle aspect analysis, G.Ahirwar, P.Varma and M.S.Tiwari, Ind. J.Pure& App. Phys,Vol. 48, Issue 05, 334, May, 2010.
50. Effect of electron and ion temperature ratio on Kinetic Alfvén wave with homogeneous plasma by kinetic approach by P.Agarwal, P.Varma and M.S.Tiwari, Ind. J.Pure& App. Phys, Vol. 49, Issue 02, 91, Feb., 2011.
51. Beam effect on EMIC waves in presence of parallel electric field with different plasma densities by particle aspect approach, G.Ahirwar, P.Varma and M.S.Tiwari, Ind. J.Pure& App. Phys, Issue 06, Vol. 49, 385, June., 2011.

52. Effect of parallel electric field on EMIC waves with hot anisotropic plasma, Soniya Patel, P. Varma and M.S. Tiwari, *Ind. J. Phys.*, Vol. 86, pp. 535-543, (2012) doi 10.1007/s12648-012-0079-1.
53. Beam effects on electrostatic ion-cyclotron (EIC) wave with multi-component plasma around cusp region, B.D. Raikwar, P. Varma and M.S. Tiwari, *Journal of Madhya Bharti (Science)*, ISSN/ISBN, p. 57-66 (2015).
54. Effect of temperature anisotropy on EIC waves with multi-component plasma around PSBL region-Particle aspect analysis, B.D. Raikwar, P. Varma & M.S. Tiwari, *Proceeding Publications, 5th PSSI-PLASMA SCHOLARS COLLOQUIUM (PSC-2016)*, ISBN-87881, 27-28, Aug., 2016, organized by Ravenshaw University Bhubaneswar, Orissa and Plasma Science Society of India.
55. Effects of temperature anisotropy on Electrostatic ion-cyclotron (EIC) wave in multi component plasma around Polar Cusp Region-Particle aspect approach by B.D. Raikwar, P. Varma and M.S. Tiwari, *Ind. J. Phys.*, DOI 10.1007/s12648-017-1006-2, 91(9):979–990, (September 2017)
56. Effect of general loss-cone distribution function on EIC waves in multi-component plasma-Particle aspect approach, B. D. Raikwar, P. Varma & M.S. Tiwari, *Ind. J. of Radio & Space Phys.*, Vol. 48, September 2017, pp 71-82.
57. Kinetic Alfvén wave with density variation and loss-cone distribution function of multi-ions in PSBL region, Radha Tamrakar, P. Varma and M.S. Tiwari, *2nd International Conference on Condensed Matter Physics (ICC-2017)*, Govt. Engineering College, Bikaner, 24-25, Nov., 2017, *AIP Conf. Proc.*, 1953, 060008-4; <https://doi.org/10.1063/1.5032739>.
58. Comparative study between bi-Maxwellian & general distribution function on kinetic Alfvén waves with multi-component plasma, R. Tamrakar, P. Varma & M.S. Tiwari, *Proceeding Publications, 5th PSSI-PLASMA SCHOLARS COLLOQUIUM (PSC-2016)*, ISBN-87881, 27-28, Aug., 2016, organized by Ravenshaw University Bhubaneswar, Orissa and Plasma Science Society of India.
59. Effect of general loss-cone distribution function on kinetic Alfvén wave in multi-ions plasma by kinetic approach, Radha Tamrakar, P. Varma and M.S. Tiwari, *Ind. J. Phys.* DOI:10.1007/s12648-018-1294-1 (2018).
60. Electrostatic Ion-Cyclotron wave Study by particle aspect approach with ion beam velocity and multi-ions plasma in plasma sheet boundary layer region around earth's magnetosphere by B. D. Raikwar, R. Tamrakar, P. Varma & M. S. Tiwari published in *UTKARSH*, ISSN 2395-356X, 2021.

[C] Papers of Symposium and Conferences

61. Generation of drift waves at the plasmopause. P. Verma and M.S. Tiwari, presented in national conference on “Recent Trends in Space Physics” organized by Dept. of Phys., Govt. P.G. College Sehore, (M.P.), Feb. 13-14 (1995), India.
62. Drift wave instability in the presence of AC electric field ion and electron beam in the presence of loss cone distribution function by A. Barounia, P. Varma and M.S. Tiwari, presented in 83rd Indian Science Congress held at Patiala, Jan. 2-8, 1986.

63. Effect of AC electric field on drift wave, P.Varma and M.S.Tiwari, presented in XI PSSI National Symposium on Plasma Science and Technology, Plasma –96 held at Barkatullah University, Bhopal, 28-31 Oct. 1996.
64. Charged particle trajectories in electromagnetic waves by P.Varma and M.S.Tiwari, presented in National Seminar on Photonics Instrumentation, Department of Physics, Dr. H.S. Gour Vishwavidyalaya, Sagar (M.P.) March 25-27 1996.
65. Effect of loss-cone distribution function in an inhomogeneous plasma., P.Varma presented in National Science Day Seminar on Role of Science in Sustainable Development, 28 Feb. **2000**, Dr. H.S.Gour Vishwavidyalaya , Sagar and Awarded as **BEST PAPER AWARD.**
66. Effect of parallel electric field on auroral currents by kinetic Alfvén wave by P. Varma , A.K.Dwivedi and M.S.Tiwari, presented in the ‘Eighty Ninth Session of The Indian Science Congress’ P.28 , Lucknow on 3-7 January **2002** and Awarded as **BEST PAPER IN POSTER SESSION .**
67. Field – aligned Current by Alfvén Waves in Auroral Plasma, J. Shrivastava, P. Varma and M.S.Tiwari, Presented in 89th Session of Indian Science Congress held at Lucknow, P.27, Jan. 3-7, 2002.
68. Effect of Parallel Electric Field on Auroral Currents by Kinetic Alfvén Wave, P. Varma, A.K.Dwivedi and M.S.Tiwari, Presented in 89th Session of Indian Science Congress held at Lucknow, P.28, Jan. 3-7, 2002.
69. Study on field-aligned current by kinetic Alfvén wave, R.P.Shandilya, A.K. Dwivedi, P.Varma and M.S. Tiwari, Presented in XII National Space Science Symposium (NSSS-2002), Barkatullah University, Bhopal Feb.25-28, 2002.
70. Electrostatic and electromagnetic waves with dusty magnetoplasma by P.Varma and M.S.Tiwari presented in Indian Science Congress Association held at Chandigarh , 3-7 Jan. 2004.
71. Effect of Dust on kinetic Alfvén wave in the presence of ion and electron beam by Nidhi Shukla, R.P.Shandilya, P.Varma and M.S.Tiwari presented in Indian Science Congress Association held at Chandigarh, 3-7 Jan. 2004.
72. Study of kinetic Alfvén wave due to large parallel electric field in dusty plasma, by P.Varma and M.S.Tiwari, P.51, No.73, Presented in 93rd, Indian Science Congress held at Hyderabad, Jan. 3-7, 2006.
73. Effect of parallel electric field on shear driven kinetic Alfvén wave at the plasma sheet boundary layer during substorm, Ruchi Mishra, B.V. Tiwari, P.Varma and M.S.Tiwari, presented at 21st National Symposium on Plasma Science and Technology, Malaviya National Institute of Technology Jaipur, Dec.19-22, 2006.
74. Kinetic Alfvén wave in the presence of general loss cone distribution function, Nidhi Shukla, P.Varma and M.S.Tiwari, presented at 21st National Symposium on Plasma Science and Technology, Malaviya National Institute of Technology Jaipur, Dec.19-22, 2006.
75. Study of electromagnetic ion cyclotron waves around the plasmapause region, G.Ahirwar, P.Varma and M.S.Tiwari, Presented in “94th Indian Science Congress Association” Earth System Science Division, p.18, held at Annamalai University, Chidambaram, Jan. 3-7(2007).

76. The study of solar energy in computer technology by Karuna Sharma, P.Varma and V.Jain, National Seminar on Non-conventional renewable energy sources held in Sagar during 22–23 January, 2007, Vol. 1 / NSNRES-07 / Sagar, p. 35-36 .
77. The study of shear driven kinetic Alfven wave in the plasma sheet boundary layer by V.B.Tiwari, R.Mishra, P.Varma and M.S.Tiwari, National Science Day Celebration on Emerging areas in science and technology held in Sagar during 27–28 February, 2007, p. 37.
78. The effect of loss-cone distribution function on EMIC waves by G.Ahirwar, P.Varma and M.S.Tiwari, National Science Day Celebration on Emerging areas in science and technology held in Sagar during 27–28 February, 2007, p. 38.
79. The study of parallel electric field on kinetic Alfven wave, by N.Shukla, P.Varma and M.S.Tiwari, National Science Day Celebration on Emerging areas in science and technology held in Sagar during 27–28 February, 2007, p. 39.
80. Effect of thermal anisotropy on EMIC waves with general loss-cone distribution function- particle aspect approach, G.Ahirwar, P.Varma and M.S.Tiwari, PS3-P-43, Presented in 22nd National Symposium on Plasma Science & Technology, PLASMA-2007, organized by Institute for Plasma Research, Gandhinagar, Gujarat, during 6-10 Dec. 2007.
81. Effect of general loss-cone distribution function on shear driven kinetic Alfven wave, Ruchi Mishra, B.V. Tiwari, P.Varma and M.S.Tiwari, PS3-P47, Presented in 22nd National Symposium on Plasma Science & Technology, PLASMA-2007, organized by Institute for Plasma Research, Gandhinagar, Gujarat, during 6-10 Dec. 2007.
82. Beam effect on kinetic Alfven wave with general loss-cone distribution function- Kinetic approach, Nidhi Shukla, P. Varma and M.S.Tiwari, PS3-P-60, Presented in 22nd National Symposium on Plasma Science & Technology, PLASMA-2007, organized by Institute for Plasma Research, Gandhinagar, Gujarat, during 6-10 Dec. 2007.
83. Parallel electric field effects on kinetic Alfven waves in plasma sheet boundary layer by Nidhi Shukla, Ruchi Mishra , P. Varma and M.S.Tiwari, Presented in 15th National Space Science Symposium,(NSSS-08), Radio Astronomy Centre, NCRA-TIFR, Udhagmandalam(Ooty), PS2-P-071, Feb. 26-29, (2008).
84. Effect of general loss-cone distribution function on electromagnetic ion cyclotron waves with multi component plasma in auroral acceleration region by G. Ahirwar, P. Varma and M.S.Tiwari, Presented in 15th National Space Science Symposium, (NSSS-08), Radio Astronomy Centre, NCRA-TIFR, Udhagmandalam(Ooty), PS2-P-156, Feb. 26-29, (2008).
85. Study of kinetic Alfven wave (KAW) in Plasma-sheet-boundary-layer by Nidhi Shukla., P.Varma and M.S.Tiwari, B-01-p31, presented in Buti Competition Award in 23rd National Symposium on Plasma Science & Technology, PLASMA-2008, organized by Bhabha Atomic Research Centre, (BARC) Trombay, Mumbai and Plasma Science Society of India during 10-13 Dec. 2008, and awarded to Dr. Nidhi Shukla as ***Buti Foundation Award - 2008.***
86. Effect of Dust particles on kinetic Alfven wave in Earth's magnetoplasma by P.Varma, Nidhi Shukla, Priyanka Agarwal and M.S.Tiwari, SA-P-30-p 170, presented in Poster Session in 23rd National Symposium on Plasma Science & Technology, PLASMA-2008, organized by Bhabha Atomic Research Centre, (BARC) Trombay, Mumbai and Plasma Science Society of India during 10-13 Dec. 2008.

87. Shear Driven Electrostatic Ion-Cyclotron Instability in Auroral Acceleration Region by Ruchi Mishra, P.Varma, M.S.Tiwari and Vinay Mishra, presented as poster in 96th Indian Science Congress, Jan 3-7, 2009 Shilong, Meghalaya, **28**, p. 17.
88. Mathematical Model of Kinetic Alfvén Wave by Kinetic Approach by Priyanka Agarwal, N. Shukla, P.Varma and M.S.Tiwari presented as poster in 96th Indian Science Congress, Jan 3-7, 2009 Shilong, Meghalaya, **86**, p. 58.
89. Effect of Parallel Electric Field on Shear Driven Kinetic Alfvén Wave During Substorm by P.Varma, B.V.Tiwari and M.S.Tiwari presented as oral in 96th Indian Science Congress, Jan 3-7, 2009 Shilong, Meghalaya, **93**, p. 62.
90. Inertial Alfvén Wave in Auroral Region by Nidhi Shukla, P.Varma and M.S.Tiwari presented as poster in 96th Indian Science Congress, Jan 3-7, 2009 Shilong, Meghalaya, **94**, p. 63.
91. Study of Kinetic Alfvén Wave by Kinetic Approach in inhomogeneous Plasma by P.Agarwal, Nidhi Shukla, P.Varma and M.S.Tiwari presented as poster in 24th National Symposium on Plasma Science & Technology-PLASMA-2009, organized by National Institute of Technology, Hamirpur, H.P., 8-11, Dec. 2009, **BP-S-15**, p. **37**.
92. Study of EMIC waves with linear Dispersion Relation in Current Free Plasma by Particle Aspect Approach by Soniya Patel, Nidhi Shukla, P.Varma and M.S.Tiwari presented as poster in 24th National Symposium on Plasma Science & Technology-PLASMA-2009, organized by National Institute of Technology, Hamirpur, H.P., 8-11, Dec. 2009, **BP-S-16**, p. **37**.
93. Study of Kinetic Alfvén Wave with parallel Electric Field by, Nidhi Shukla, P.Varma and M.S.Tiwari presented as poster in 24th National Symposium on Plasma Science & Technology-PLASMA-2009, organized by National Institute of Technology, Hamirpur, H.P., 8-11, Dec. 2009, **SA-S-19**, p.**173**.
94. Study of Kinetic General Loss-Cone Distribution Function on Electromagnetic Ion-Cyclotron Waves with Multi Component Plasma by G.Ahirwar, P.Varma and M.S.Tiwari presented as poster in 24th National Symposium on Plasma Science & Technology-PLASMA-2009, organized by National Institute of Technology, Hamirpur, H.P., 8-11, Dec. 2009, **SA-S-20**, p. **174**.
95. Study of dusty kinetic Alfvén wave with parallel electric field around earth's environment, presented by P.Varma in Mahila Vigyan Sammelan, 18-19, Dec., 2010 organized by Mata Gujari College, Jabalpur (M.P.).
96. Study of gradient effect on kinetic Alfvén wave by kinetic approach around earth's magnetosphere presented by P.Agarwal, P.Varma and M.S.Tiwari, as poster in National Conference on Advance in Atmospheric Remote Sensing, Weather Prediction & Climate Change, ARWPCC-2011, organized by Deptt. of Physics S. V. University, Tirupati, under UGC-CAS program with National Atmospheric Research Laboratory, Gadanki, 10-11, , March. 2011, K014(a), pp 133.
97. Study of ion beam effect on EMIC waves with general loss-cone distribution function around earth's magnetoplasma –Particle aspect approach, presented by S.Patel, P.Varma and M.S.Tiwari as poster in National Conference on Advance in Atmospheric Remote Sensing, Weather Prediction & Climate Change, ARWPCC-2011, organized by Deptt. of Physics S. V. University, Tirupati, under UGC-CAS program with National Atmospheric Research Laboratory, Gadanki, 10-11, , March. 2011, K014(b), pp 134.

99. Effect of parallel electric field with multi-component plasma on EIC waves: A study using particle aspect analysis by B.D.raikwar, P,Varma and M.S.Tiwari, **International Conference** on Emerging Interfaces of Plasma Science and Technology, March 9-10,2015, organized by Vikram University,Ujjain.
100. Effect of electron beam on EIC waves with multi-component plasma around auroral acceleration region by B.D.raikwar, P,Varma and M.S.Tiwari, **International Conference** on Space and plasma Science (ICSPS-2015), 22-24 Sep., 2015, organized by Govt. P.G.College, Maihar (M.P.)-India. P. 23.
101. Luminous glow of charged particles in Space (Aurora) by R.Tamrakar, P.Varma and M.S.Tiwari, presented as Poster in National Symposium on Horizons of Light in Molecules, Materials and daily life, 18-19 Dec., 2015 organised by Dr. H.S.Gour University, Sagar (M.P.).
102. Mathematical model for study of Kinetic Alfven Wave with temperature anisotropy and effect of density variation of ions in cusp region by R.Tamrakar, P.Varma and M.S.Tiwari, presented as Poster in **International Conference** on Interface of Physical, Chemical and Biology Sciences, IPCBS-17, 11-13, Jan., 2017, organized by Dr. H.S.Gour University, Sagar (M.P.), PP28, p.53.
103. Effect of Ion beam on EIC waves with multi-ions plasma around PSBL region B.D.Raikwar, P.Varma and M.S.Tiwari, presented as Poster in **International Conference** on Interface of Physical, Chemical and Biology Sciences, IPCBS-17, 11-13, Jan., 2017, organized by Dr. H.S.Gour University, Sagar (M.P.), PP35, p.56.
104. Transfer of energy by wave particle interaction around cusp region by P. Varma as invited talk in National Conference on Energy for Sustainable Development, March 23-24, 2017 by Dr. H.S.Gour University, Sagar (M.P.).
105. Study of Electrostatic Ion-Cyclotron wave with ion beam velocity and multi-ions plasma in plasma sheet boundary layer region around earth's magnetosphere by B. D. Raikwar, P.Varma*& M.S.Tiwari, presented 3-7, *January*, 106th INDIAN SCIENCE CONGRESS, JALANDHAR, 2019, Ph.001 *Section XIII: Physical Sciences*.
106. Description of kinetic Alfven waves with multi-ions plasma using Maxwellian distribution function-Kinetic Approach by Radha Tamrakar, P. Varma* and M. S. Tiwari, presented 3-7, *January*, 106th INDIAN SCIENCE CONGRESS, JALANDHAR, 2019, Ph.064 *Section XIII: Physical Sciences*.
107. Propagation of Inertial Alfven Waves in Multi-ions plasma around auroral acceleration region by Radha Tamrakar, P. Varma* and M. S. Tiwari, presented in 7th **International Conference on “Wallop of Globalization in Engg.Medi-Sci.Agri.Pharm.Tec.Research” 27-28 Feb., 2019**. SVN University, Sagar p.12.
108. International Webinar on “Satellite applications in Geophysics” Organized as Convener in the Department of Physics, Dr. H. S. Gour University, Sagar M.P. on 22th July, 2020. DOI: 10.13140/RG.2.2.10061.05607
109. Webinar on “Effect of solar activity on human life of the earth” Organized as Convener in the Department of Physics, Dr. H. S. Gour University, Sagar M.P. on 18th Sep., 2020. DOI: 10.13140/RG.2.2.10105.08803.
110. Webinar on “The role of Youth to develop Science and Technology in India” Participated as Invited Speaker, organized by RNTU, Bhopal on 12th August, 2021 DOI: DOI: 10.13140/RG.2.2.20100.24962.

Reviewer of National & International Journals

Planetary and Space Science, (Elsevier, U.K.) European Journal of Physics, (France), Astrophysics and Space Science, (Springer, Netherland), Indian Journal of Pure and Applied Physics, [Physical Review & Research International](#), Indian Journal of Physics, India.

International Citation of the Research Work (231 by Research Gate)

Research work citation received regularly since 2004 in Springer, Elsevier and Annales Geophysicae Publication houses noticed by cite alert on internet. e.g. Duan et al., Planetary & Space Sci., 53,11,1167-1173 (2005), (U.K.). Paper entitled “Kinetic Alfvén wave driven by the density inhomogeneity in the presence of loss-cone distribution function- particle aspect analysis” by S.P.Duan, Z.Y.Li and Z.X.Liu. Presently available on internet through Research Gate and Cite Alert.

Guidance Experience

Co- Supervised many projects of M.Sc. students on Plasma Physics during the session 2003-2018. 11 Major projects completed as PI/Co-PI, Various P. G. student project guided as Co-PI.

Ph. D. Guided

1. Electromagnetic ion cyclotron instability in earth's magnetoplasma, Ph.D. awarded to **Soniya Patel**, 11th, June, 2012. **Awarded – 2012.**

The Ph. D. work has been guided continues with collaboration of Supervisor/Scientist Mentor, Prof. M. S. Tiwari for R. P. Shandilya, (2002), S. P. Mishra,(2003), G. Ahirwar (2007), B.V.Tiwari (2007), Priyanka Agarwal (2011) and Bhagwandas Raikwar. (2012-2018) and these Ph.D.was awarded in 2002 - 2018.

M.Sc. Project Guidance

1. Electromagnetic waves in plasma by Ku Rachana Saini, May, 2005.
2. Dielectric constant of cold magnetized plasma by Ku Neha Namdeo, May, 2005.
3. Electromagnetic waves in plasma by Subja Kushwaha, May, 2005.
4. Study of Alfvén waves in Earth's magnetoplasma by Sanjay Kumar Pandey, August, 2009.
5. Study of various regions around earth's magnetosphere by Anil Kumar Nayak, May, 2016.
6. Study of Radiosonde in weather prediction by Subham, May, 2016.
7. GPS as an object tracker by Seati Singhai, May, 2016.
8. Study of Electromagnetic waves in Space (AW, KAW, EMIC, Magnetosonic) by Arun Kumar Singh, May, 2016

Course designed

1. Ph.D. Course Syllabus "Advance Plasma Physics" - 2010
2. M.Sc. IV Semester Plasma Physics - 2010
3. An elective paper of "Atmospheric Physics" for out-side student of IIIrd Sem-2009

These entire syllabuses are successfully run in the department of physics.

Administrative Assignments:

1. Member of Selection Committee in ISRO, DST and UGC projects as CO-Principal Investigator of the project as 2001, 2005, 2009 and 2011.
2. National Team Manager for Women Team in Athletics 2002-2003.
3. National Youth Festival Organizer 2005.
4. Referee of the International Journals e.g., European Journal of Physics, France, 2009 and CSIR journal, IJPAP, India.
5. Participated as Career counsellor and delivered a lecture on “Career opportunity for graduate student” in work shop “Scope of Science and Career Opportunity for Graduate Science student” at Nobel College on 7-8, May, 2011.

Life Membership

1. Life member of Indian Science Congress Association, Calcutta. --- L 10449
2. Life member of Plasma Science Society of India, Ahmedabad. --- LM-554

Conferences Organized

National Science Day 2003, Feb., 28, 2003, Dr.H.S.Gour University, Sagar (M.P.), National Science Day Celebration-2007 (NSD-07), 27-28 Feb., 2007, Organized by Dr.H.S.Gour University, Sagar (M.P.).

Computational skills

- ❖ Windows and Linux operating system
- ❖ Programming ability in C, C++, Basic, Matlab
- ❖ Microsoft office, Mathematica, Matlab, Origin

Language: Fluent in English, Hindi and Sindhi.

Academic record (from matriculation onwards)

S.No	Exam.	Year	Institution	% of Marks	Div.	Subject	Remarks
1.	H.S.S	1980	M.P.Board Bhopal	66.12%	I st	Phys., Chem., Maths, Hindi, Engl.	Disttn. In English
2.	B.Sc.	1984	Dr.H.S.G.V.V. Sagar (M.P.)	55.56%	II nd	Phys., Chem., Maths, Hindi, Engl.	
3.	M.Sc.	1986	Dr.H.S.G.V.V. Sagar (M.P.)	60.50%	I st	Physics (Elect. + Plasma)	
4.	Ph.D.	1992	Dr.H.S.G.V.V. Sagar (M.P.)	Drift instability in laboratory and Space Plasma		Space Plasma Physics	National and International Publications

Other Scientific / Academic Activities

- Fourth SERC School in Plasma Physics on "Radio Frequency Heating and Current Drive" May 17 - June 3, 1994, at Saha Institute of Nuclear Physics, Calcutta.
- "Sansar kahan ja raha hai, Bhoutiki ke kshetra mai" Radio talk delivered in Sankalan Program by Sagar Radio Station, Dec. 12,1995 at 6.20 p.m.
- Regular participation in Examination duties assigned by the University.
- Media News: Many National news papers published our research progress regularly.

Completed and Ongoing Projects:

S.No.	Title of the Project	Duration	Status	Total cost of the Project & Fellowship	Financial Assistance by
1.	Current acceleration and study on plasma instability	Oct.,1988 to Oct., 1991	J. R. F.	Rs 5,00,000/- @1,800/- pm	MAPCOST Bhopal
2.	Micropulsation in PC 4,5 range and drift instability	March 1993 to Feb, 1998	R. A.	Rs. 5,00,000/- @3,000/pm	CSIR New Delhi
3.	Auroral electrodynamics by kinetic Alfven wave	Nov. 2000 to April 2003	Co-Principal Investigator	Rs. 10,00,000/- About	ISRO Bangalore
4.	Auroral electrodynamics by kinetic Alfven wave	April 2003 to March 2005	S. R. A.	Rs. 10,50,000/- @10,000/- pm	ISRO Bangalore
5.	Magnetosphere – Ionosphere coupling-A Study by kinetic Alfven wave	Nov. 2001 to Oct. 2003	Co-Principal Investigator	Rs. 10,70,000/- About	DST New Delhi
6.	Study of electromagnetic waves in dusty plasma	April 2005 to May 2008	Principal Investigator WOS-A Scheme	Rs. 12,00,000/- @15,000/- pm	DST New Delhi
7.	Study Kinetic Alfven waves [KAW] in earth's magnetoplasma	May 2008 to April 2011	Principal Investigator WOS-A Scheme	Rs. 15,00,000/- @20,000/- pm	DST New Delhi
8.	Very low frequency (VLF) waves phenomena in magnetosphere ionosphere coupling	Sep.,2008 to August, 2011	Co-Principal Investigator	Rs. 12,00,000/- About	ISRO Bangalore
9.	Description of auroral phenomena by EMIC waves	July, 2009 to June, 2012	Co-Principal Investigator	Rs. 10,00,000/- About	UGC New Delhi
10.	The role of low frequency waves around cusp region and plasma pause	June, 2012 to May 2015	Principal Investigator WOS-A Scheme	Rs. 18,88,000/- @55,000/- pm	DST New Delhi

	region				
11.	Study of multi-ions plasma with ultra low frequency wave phenomena around earth's magnetosphere	April, 28 2018 to Continuing...	Principal Investigator WOS-A Scheme	Rs. 24,88,000/- @55,000/- pm	DST New Delhi

Virtual platform academic activities:

Online International and National Webinars and Quiz

1. Multidisciplinary National Webinar on “Impact of Covid-19 on family” at 23rd June, 2020 organized by Department of home science, Mahila kala mahavidhyalaya, Beed.
2. International Webinar series on Astronomy and Astrophysics entitled “The exciting story of Exoplanets” organized by Department of Applied Physics Karunya Institute of Technology and Science, Coimbatore on 8th July 2020.
3. National Webinar on “Cyber Security: Issues and Challenges” organized by Govt. P. G. College, Damod, M.P., 17th June, 2020.
4. National level Webinar and Panel discussions on “Understanding API & CAS Process for working Academic Library Professionals” by B.M.N. College of home science and S.N.D.T. Women University on 27th June, 2020.
5. International Webinar on “ Role of Sports Activities on Health and Changing Lifestyle : Pandemic 2020” organized by Govt. Auto. Girl’s P.G.College of Excellence, Sagar M.P. on 14th July, 2020.
6. Online Webinar on “Research publications and citations:Perspective of a high cited researcher” organized by Department of Physics, Mizoram University on 16th June, 2020.

7. International Webinar series on Astronomy and Astrophysics entitled “Are we alone in the Universe” organized by Department of Applied Physics Karunya Institute of Technology and Science, Coimbatore on 24th July 2020.
8. Online Webinar on “Research Ethics, Copyright and Plagiarism” organized by Department of Physics, Mizoram University on 20th July, 2020.
9. International Webinar on “**Satellite applications in Geophysics**” Organized as Convener in the Department of Physics, Dr. H. S. Gour University, Sagar M.P. on 22th July, 2020.
DOI: 10.13140/RG.2.2.10061.05607
10. Online Quiz on “Health and Sports” organized by Govt. Auto. Girl’s P.G.College of Excellence, Sagar M.P. on 28th to 30th June, 2020.
11. Webinar on “**Effect of solar activity on human life of the earth**” Organized as Convener in the Department of Physics, Dr. H. S. Gour University, Sagar M.P. on 18th Sep., 2020
DOI: 10.13140/RG.2.2.10105.08803.
12. Webinar on “**The role of Youth to develop Science and Technology in India**”
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