Curriculum Vitae

Personal Details

Family name, first name: Yadav, Nitin

Date of birth: Jan 1, 1989

Gender: Female

Kids: 1 (3 Yrs.)

Researcher unique identifier: 0000-0002-8976-516X (ORCID)

Date of birth: Jan 1, 1989

Citizenship: Indian

Marital status: Married

E-mail: nitnyadv@gmail.com

Mobile: +49-1639400459

Education Qualification

- Doctor of Philosophy (**PhD, 2015**), Centre for Energy Studies, Indian Institute of Technology (IIT) Delhi, Delhi.
  Title: "Nonlinear Alfvénic Localized Structures and Turbulence in Magnetized Plasmas"
  Supervisor: Prof. R. P. Sharma
- Masters in Technology (**M. Tech. Energy Studies, 2011**) from Centre for Energy Studies, IIT Delhi, Delhi with **9.7 C.G.P.A.** on 10 point scale (Ranked first in class).
  Title: "Laser-Matter Interaction: Resonance Absorption and Surface Plasmon-Polariton Excitation"
  Supervisor: Prof. R. P. Sharma
- Masters in Science (**M. Sc. Physics, 2009**) from Panjab University Chandigarh. Specialization: Experimental Techniques in nuclear and particle physics (secured 82%).
  Title: "Inverse Compton scattering"
  Supervisor: Prof. A. K. Bhati
- Bachelors in Science (**B. Sc. Physics, 2007**) from University of Bikaner, Rajasthan, India with distinction (secured 80%).

Current position

01/04/2017 – present: postdoctoral researcher in the 'Sun and Heliosphere' department of the Max Planck Institute for Solar System Research, Gottingen, Germany.

Previous positions

15/01/2015 – 31/03/2017: Research Associate in IIT, Delhi, in a project sponsored by 'Department of Science and Technology (DST), India' entitled "Waves and Instabilities and their Role in Energetics in Geospace".

01/08/2014-14/01/2015: Senior research fellow in plasma simulation group, Centre for Energy Studies, Indian Institute of Technology, Delhi, India in a project funded by the 'Indian Space Research Organisation (ISRO), India' entitled "Waves and Instabilities in Space Plasmas".

01/07/2011 – 31/07/2014: Senior research fellow in plasma simulation group, Centre for Energy Studies, Indian Institute of Technology, Delhi, India funded by Council of Scientific and Industrial Research, India.

01/07/2009 – 30/06/2011: Junior research fellow in plasma simulation group, Centre for Energy Studies, Indian Institute of Technology, Delhi, India funded by Council of Scientific and Industrial Research, India.

Competitive Exams and Achievements

- Secured first rank in M. Tech. Energy Studies in IIT Delhi 2011 (C.G.P.A.-9.7/10).
- Cleared 'Graduate Aptitude Test (GATE)', 2009, conducted by IITs with GATE percentile 97% (National level test for admission in IITs for pursuing M. Tech. and PhD program).
- Qualified 'National Eligibility Test (NET)', 2008, conducted by Council of Scientific and Industrial Research (CSIR), India to determine eligibility for lectureship and for the award of Junior Research Fellowship (JRF) for pursuing research.

Awards and recognition

- Five years Postdoctoral Fellowship awarded by University Grant Commission (UGC), India (rejected by the candidate) in 2017.
- Travel grant awarded by Indian National Science Academy for attending '18th International Congress on Plasma Physics' in 2016.
- Travel grant awarded by Council of Scientific and Industrial Research, India for attending '50th Culham Plasma Physics Summer School' in 2013.
- Senior Research fellowship by Council of Scientific and Industrial Research, India (2011-2014).
- Junior Research fellowship by Council of Scientific and Industrial Research, India (2009-2011).

Language skills

English: **C1**, Hindi: **C2**, Punjabi: **C2**, German: **A1**

(Based on the Common European Framework of Reference for Languages (CEFR))

Research Interests

- Wave analysis and Plasma instabilities
- Solar wind Turbulence and particle acceleration
- Role of waves, vortices and instabilities in coronal heating
- Magnetic reconnection

Programming Skills

FORTRAN, C, IDL, Mathematica, MATLAB, VAPOR (3D visualization).

Schools, Workshops and Presentations

- Attended workshop on 'Introductory School on Parallel Programming for HPC' at International Centre for Theoretical Physics (ICTP), Trieste, Italy from October 3-14, 2016.
- Presented **talk** on "Role of Waves and Instabilities in Space Plasmas" at Max Planck Institute for Solar System Research, Gottingen, Germany on 29th September, 2016.
- Participated in the international conference entitled '18th International Congress on Plasma Physics (ICPP 2016)' held from June 27 – July 1, 2016 in Kaohsiung, Taiwan and delivered a **talk** on "Turbulence and Particle Acceleration in Auroral Ionosphere".
- Participated in international school entitled 'Introduction to Space Weather Concepts and Tools' organized by Community Coordinated Modeling Centre (CCMC)/NASA held in conjunction with 'Science for Space Weather' workshop in Goa, India during January 23-29, 2016 and delivered a **talk** on "Turbulence and Particle Acceleration in Auroral Ionosphere".
- Presented **poster** entitled "Role of Magnetized Turbulence in Fusion Energy" in Open House, 2015 at Centre for Energy Studies, IIT Delhi.
- Presented **poster** entitled "Role of 3D-Kinetic Alfvén Waves in Space Plasma Turbulence" on Research Scholars Day at IIT Delhi in April, 2014.
- Participated in a school 'Tokamaks & Magnetized Plasma Fusion' organized by DST from Feb 25 - March 15, 2013 at Institute for Plasma Research, Gandhinagar, Gujarat, India and presented **poster** entitled "Nonlinear Interaction of 3D Kinetic Alfvén Waves and Ion Acoustic Waves in Solar Wind Plasmas".
- Participated in '50th Culham Plasma Physics Summer School', and presented a poster on "Role of Magnetized Turbulence in Fusion Plasmas" at Culham Center for Fusion Energy, Oxfordshire, UK from July 15-26, 2013.

Public outreach

- Active participant in various annual events conducted by the IIT Delhi such as *Tryst* which aims at popularizing science and technology among the general public.
- Volunteered in Open House, IIT Delhi for continuous five years which introduces school children and the general public to innovative research and product development projects.

Teaching experience

- Assisted M. Tech (Energy Studies) and M. Tech (Energy and Environment Management) students in Energy Laboratories at IIT, Delhi as a part of teaching assistantship during PhD.
- Assisted PhD supervisor in teaching of courses such as *Plasma Physics*, *Advanced Fusion Energy* etc.
- Assisted in editing project reports and in various other academic activities like conducting seminars, exam invigilation, academic results preparation etc.
- Formal teaching (July, 2016- November, 2016) to undergraduate students at University of Delhi.

Publications in peer reviewed journals

1. Das, B. K., Sharma, R. P., and **Yadav, N.** (2013): Nonlinear interaction of slow Alfvén wave with ion acoustic wave and applications to space plasma. J. Plasma Phys. **79** 833-836.
2. **Yadav, N.** and Sharma, R. P. (2013): Nonlinear interaction of obliquely propagating Alfvén waves and kinetic Alfvén waves in solar wind plasmas. J. Plasma Phys. **79** 927-931.
3. Sharma, R. P., **Yadav, N.,** and Kumari, A. (2013): Coherent structures and turbulent spectrum in solar wind plasmas. Phys. Plasmas. **20** 1-4.
4. **Yadav, N.** and Sharma, R. P. (2014): Nonlinear interaction of 3D kinetic Alfvén waves and ion acoustic waves in solar wind plasmas. Solar Phys. **289** 1803-1814.
5. Sharma, R. P., **Yadav, N.,** and Pathak, N. (2014): Role of 3D dispersive Alfvén waves in coronal heating. Astrophys. Space Sci. **351** 75-80.
6. Sharma, R. P., **Yadav, N.,** and Pathak, N. (2014): Density cavity formation through nonlinear interaction of 3D Inertial Alfvén wave and ion acoustic wave. J. Geophys. Res. **119** 10561-10568.
7. Sharma, R. P., Kumari, A., and **Yadav, N.** (2014): Inertial Alfvén wave localization and turbulent spectrum. J. Geophys. Res. **119** 7709-7715.
8. Sharma, P., **Yadav, N.,** and Sharma, R. P. (2014): Nonlinear interaction of 3D kinetic Alfvén wave and fast magnetosonic wave. J. Geophys. Res. **119** 6569-6576.
9. Kumari, A., **Yadav, N.,** and Sharma, R. P. (2014): Effect of linear waves on kinetic Alfvén wave localization and turbulent spectrum. Astrophys. Space Sci. **352** 201-206.
10. Kumari, A., Sharma, R. P., and **Yadav, N.** (2014): Inertial Alfvén wave induced turbulent spectra in aurora. Astrophys. Space Sci. **351** 81-86.
11. Das, B. K., **Yadav, N.,** and Sharma, R. P. (2014): Numerical Simulation to study the nonlinear coupling of fast magnetosonic wave with ion acoustic wave in solar wind plasmas. Phys. Scr. **90** 1-5.
12. Sharma, P., Sharma, R. P., and **Yadav, N.** (2014): Localization of 3D inertial Alfvén wave and generation of turbulence. Astrophys. Space Sci. **110** 1-8.
13. Rinawa, M. L., Sharma, R. P., Modi, K. V., and **Yadav, N.** (2014): The nonlinear evolution of kinetic Alfvén with the ion acoustic wave and turbulent spectrum in the magnetopause region. J. Geophys. Res. **120** 1238-1247.

14. Pathak, N., Das, B. K., **Yadav, N.,** and Sharma, R. P. (2015): Numerical simulation to study the nonlinear interaction between slow magnetosonic wave and ion acoustic wave in solar wind plasmas. Solar Physics. **290** 1827-1833.

15. Kumari, A., Sharma, R. P., and **Yadav, N.** (2015): Study of localized structures of kinetic Alfvén wave and generation of turbulence. Phys. Plasmas. **22** 1-7.

16. Sharma, P., **Yadav, N.,** and Sharma, R. P. (2015): Study of nonlinear 3-D evolution of kinetic Alfvén wave and fluctuation spectra. Astrophys. Space Sci. **360** 1-7.

17. Kumari, A., Sharma, R. P., and **Yadav, N.** (2015): Effect of background density fluctuations on the localized structures of inertial Alfvén wave and turbulent spectrum. Phys. Plasmas. **22** 1-7.

18. Rai, R., Sharma, S., **Yadav, N.,** and Sharma, R. P. (2015): Effect of magnetic islands on the localization of kinetic Alfvén wave. Phys. Plasmas. **22** 1-6.

19. Sharma, P., **Yadav, N.,** and Sharma, R. P. (2016): Nonlinear evolution of 3D Inertial Alfvén Wave and its implication in particle Acceleration. Solar Physics. **291** 931-939.

20. Nandal, P., **Yadav, N.,** and Sharma, R. P. (2016): Localization and implication of oblique whistler wave in the magnetopause region. Phys. Plasmas. **23** 1-7.

21. Sharma, P., **Yadav, N.,** and Sharma, R. P. (2016): Nonlinear interaction of kinetic Alfvén waves and ion acoustic waves in coronal loops. Phys. Plasmas. **23** 1-6.

22. Nandal, P., **Yadav, N.,** and Sharma, R. P. (2016): Potential role of kinetic Alfvén waves and whistler waves in solar wind plasmas. Astrophys. Space Sci. **239** 1-6.

23. Pathak, N., **Yadav, N.**, Uma, R., Sharma, R. P. (2016): Role of nonlinear localized structures and turbulence in magnetized plasma. Astrophys. Space Sci. **287** 1-7.

24. Nandal, P., Sharma, S., **Yadav, N.**, and Sharma, R. P. (2016): Formation of coherent structures and impact on turbulence scaling in solar wind plasma. Solar Physics. **291** 3765-3775.

25. Sharma, R. P., Nandal, P., **Yadav, N.**, and Uma, R. (2016): Nonlinear effects associated with oblique whistler waves in space plasmas. Phys. Plasmas. **23** 1-7.

26. Rai, R., Sharma, S., **Yadav, N.,** and Sharma, R. P. (2017): Nonlinear effects associated with kinetic Alfvén wave in magnetic islands. Phys. Plasmas. **24** 1-7.

27. Sharma, R. P., Nandal, P., **Yadav, N.**, and Sharma, S. (2017): Nonlinear evolution of oblique whistler waves in radiation belts. Astrophys. Space Sci. **32** 1-7.

28. Sharma, R. P., Sharma, P., and **Yadav, N.** (2017): Self-modulation of slow magnetosonic waves and turbulence generation in solar coronal loops. Phys. Plasmas. **24** 1-5.

29. Pathak, N., **Yadav, N.**, Sharma, S., Sharma, P., and Sharma, R. P. (2017): Localization of whistler wave and turbulent spectra in the magnetotail region. J. Geophys. Res. **122** 1751–1762.

30. **Yadav, N.,** Rai, R., Sharma, P., and Sharma, R. P. (2017): Nonlinear propagation of kinetic Alfvén wave and turbulent spectrum in reconnection region of magnetotail. Phys Plasmas. **24** 1-7.

31. Pathak, N., **Yadav, N.,** and Sharma, R. P., (2017): Nonlinear evolution of 3D whistler waves in space plasmas. Phys Plasmas. **24** 1-8.

32. Sharma, R. P., Pathak, N., **Yadav, N.,** and Sharma, P. (2017): Nonlinear propagation of whistler wave and turbulent spectrum in reconnection region of magnetopause. Phys Plasmas. **24** 1-8.