

Curriculum Vitae

Dr. R. P. Prajapati

(Visiting Associate IUCAA)

Assistant Professor

Department of Pure and Applied Physics

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Personal Profile:

Name : **Dr. R. P. Prajapati**
Father's name : Shri G. L. Prajapati
Mother's name : Smt. Kamla Prajapati
Sex : Male
Date of birth : 25th June 1982
Nationality : Indian
Religion : Hindu
Marital status : Married



Academic Qualifications:

Ph.D. (Plasma Physics): School of Studies in Physics, Vikram University Ujjain M.P. (2010),
Title: "A Study of Hydromagnetic Instabilities of Gaseous Plasma"
Thesis Supervisor: Prof. R. K. Chhajlani

M.Sc. (Physics): School of Studies in Physics, Vikram University Ujjain (71.58%),
(2004). (Fifth Position in University Merit List)

B.Sc. (PCM): Madhav Science College, Vikram University Ujjain (63.7%), (2002).

Work Experience (11 Years):

- **Visiting Associates** (Aug. 2019- July 2022): Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India
- **Assistant Professor** (July 2011 Onwards): Department of Pure and Applied Physics, Guru Ghasidas Central University, Bilaspur (C.G.), India.
- **Postdoctoral Fellow** (Dec. 2010-July 2011): Institute for Plasma Research, Bhat, Gandhinagar (Gujarat), India.
- **Lecturer (Contract)** (Nov. 2007-Nov. 2010): School of Studies in Physics, Vikram University Ujjain (M. P.), India.

Research Interest Areas: (Theory & Simulations in Plasma Physics):

- **Astrophysical and Space Plasmas:** Structure formation in ISM, Star formation, Gravitational collapse, Neutrino-beam plasma interactions, Waves and Instability analysis in Dusty (Complex), Fermi degenerate Quantum and Strongly Coupled Plasmas.
- **Hydromagnetic Waves and instabilities:** Jeans (gravitational) instability, Kelvin-Helmholtz instability and Rayleigh-Taylor instability.
- **Fusion Theory:** R-T instability in Inertial Confinement Fusion, Dissipationless Regularization, MHD instabilities

Teaching Interest Areas:

- Electrodynamics & Plasma physics, Classical Mechanics, Mathematical Physics, Statistical Mechanics, Digital Computer Electronics.
- Basic Quantum Mechanics, Modern Physics, Kinematics and Oscillations, Electromagnetic Theory, Digital Electronics.

Awards/Fellowships/Honor:

- **Junior Research Fellowship** awarded by Department of Science and Technology New Delhi, from 05/03/2007 to 27/11/2007.
- **“Young Scientist in Physics”** awarded with Gold Medal in Madhya Kshetriya Vigyan Sammelan Jabalpur by MPCST Bhopal and Vigyan Bharti (M.P.), 21-22 February 2009.
- Prestigious **“Buti Young Scientist Award in Physics”** by Plasma Science Society of India (PSSI) in 24th National Symposium on Plasma Science and Technology (PLASMA-2009) NIT, Hamirpur (H.P.), 08-11 December 2009.
- **Postdoctoral Fellowship** at Institute for Plasma Research, Bhat, Gandhinagar (Gujarat), India from Dec. 2010 to July 2011.
- **DST-SERB Young Scientist Award** with project amount Rs. 11.76 lakhs from Department of Science and Technology, New Delhi in June 2013.
- **Science Academics’ Summer Research Fellowship**, Indian Academy of Sciences, March 2013.
- **BRICS Young Scientist Award-2017**, DST, New Delhi for 2nd BRICS Young Scientist Forum, Hangzhou (China), July 2017.
- **AAPPS-DPP Best Research Paper Award (Poster)**, in 2nd Asia Pacific Plasma Conference, Kanazawa, Japan, 12-17 Nov. 2018.
- Fellowship received for attending International Conference/Symposia/Workshop:
 - **Young Scientist Travel Fellowship** Scheme of DST, New Delhi:- To attend SPPT-2010 Symposium at Prague (Czech Republic) in June 2010.
 - **ICTP/IAEA Fellowship**:- To attend International Workshop at ICTP, Trieste, Italy in Nov. 2010.

- **Scholarship:-** To attend International ICPDP-2011 conference at Max-Planck Institute for Extraterrestrial Physics, Garching, Germany in May 2011.
- **ITER-ICTP-IAEA Fellowship:-** To attend International Workshop at ICTP, Trieste, Italy in Oct. 2011.
- **Financial Assistance:-** To attend 23rd International Toki Conference, at National Institute for Fusion Science, Toki City, Japan in Nov. 2013.
- **Travel Grant:-** To attend 18th International Congress on Plasma Physics, Kaohsiung, Taiwan in June 2016.
- **Travel Grant:-** To attend COMAC Workshop from 21-25, November 2016 at Chiang Mai, Thailand.
- **International Travel Grant:-** To attend 13th APPC-AIP Conference at Brisbane, Australia from 4-8, December 2016.
- **International Travel Grant:-** To attend 2nd AAPPS-DPP Conference at Kanazawa, Japan from 12-17, November 2018.
- **DST, New Delhi:** To participate in 2nd BRICS Young Scientists Forum at Hangzhou, China, July 2017.
- **AAPPS-DPP (Japan):** To deliver invited talk in APPC-2019 conference at Malaysia, Nov. 2019.

Research Projects Ongoing/Completed: (Total Grants Rs. 50.25 Lakhs)

- ✓ **DST-SERB, New Delhi** sponsored research project under Fast Track Young Scientist Scheme entitled “*Linear and nonlinear instabilities in dusty and quantum plasmas*” [SR/FTP/PS-191/2011] (Rs. 11.67 Lakhs) 2013-2016. (Status: Completed)
- ✓ **UGC, New Delhi** sponsored research project entitled “*Hydromagnetic Instabilities in Strongly Coupled Complex Plasmas*” [F.No.-43-514/2014(SR)] (Rs. 15.00 Lakhs) 2015-2018. (Status: Completed)
- ✓ **ISRO, Bengaluru** sponsored research project under RESPOND Programme entitled “*Low Frequency Waves and Fluid Instabilities in Dusty Space Plasmas*” [No. ISRO/RES/2/427/19-20] (Rs. 23.58 Lakhs) 2019-2022. (Status: Ongoing)

Academic Achievements:

- **Member, Advisory Panel**, Physica Scripta, Institute of Physics (IOP), UK (IF-2.154).
- **Councilor**, in Executive Council of Plasma Science Society of India (PSSI) [2014-16].
- **Member, Board of Studies** in Physics, Guru Ghasidas Central University, Bilaspur (2014-2017).
- **Chaired Technical Session on “Astro/Plasma”** in 14th APPC Conference-2019 at Institute of Physics, Kuching, (Malaysia) from 18-22 Nov. 2019.
- **Chaired Technical Session** in 12th International Conference on Plasma Science and Applications (ICPSA-2019), University of Lucknow, Lucknow, 11-14, Nov 2019.
- Referee for Peer Review process of international reputed journals:

- **The Astrophysical Journal** (IOP, UK)
- **Physics of Plasmas** (American Institute of Physics, USA)
- **Plasma Physics and Controlled Fusion** (IOP, UK)
- **Astrophysics & Space Science** (Springer, Netherlands)
- **IEEE Trans. Plasma Science**, (USA)
- **Physica Scripta** (Institute of Physics, UK)
- **Pramana- J. Physics** (Indian Academy of Sciences & Springer)
- **J. Plasma Physics**, (Cambridge Press), Cambridge
- **European J. Phys. D** (Springer link)
- **Euro Physics Letters** (IOP, London)
- **Z. Naturforsch A** (De-Gruyter, Germany)
- **J. Astrophysics & Astronomy** (Indian Academy of Sciences) and many more.

Abroad Visits:

- **Czech Technical University, Prague (Czech Republic)** in June 2010 to attend 24th International Symposium on Plasma Physics and Technology (SPPT-2010).
- **ICTP, Trieste (Italy)**, in November 2010 to attend Joint ICTP/IAEA International Workshop on Dense Magnetized Plasma and Plasma Diagnostics.
- **Max-Planck Institute for Extraterrestrial Physics, Garching (Germany)**, in May 2011 to attend International Conference on Physics of Dusty Plasma (ICPDP-2011).
- **National Institute for Fusion Science, Toki City, Gifu (Japan)**, in Nov. 2013 to attend 23rd International Toki Conference on “Large Scale Simulation in Fusion Science and Plasma”.
- **Kaohsiung, (Taiwan)**, 27 June-01 July 2016 to attend 18th International Congress on Plasma Physics (ICPP-2016).
- **Chiang Mai (Thailand)**, 21-25, November 2016 to attend COMAC Workshop N-body and Hydrodynamic Simulations of Galaxies and Large-Scale Structure”.
- **Brisbane (Australia)**, 4-8, December 2016, to attend 13th Joint APPC-AIP Conference.
- **Hangzhou, China**, 11-15 July 2017, to participate in 2nd BRICS Young Scientist Forum.
- **Chiang Mai (Thailand)**, 29 Jan-03 Feb 2018, 4th ASEAN School on Plasma and Nuclear Fusion (ASPNF-2018).
- **Kanazawa (Japan)**, 12-17 Nov. 2018, 2nd Asia Pacific Plasma Conference (AAPPS-DPP-2018).
- **Kuching (Malaysia)**, 17-21 Nov. 2019, 14th Asia Pacific Physics Conference (APPC-2019).

Skill Development/Orientation/Refresher Courses Attended:

- **12th Orientation Programme**, Academic Staff College, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 10-11-2014 to 06-12-2014.

- Interdisciplinary Refresher Course on “**Methodology in Social Science and Pure & Applied Sciences**” UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 09-11-2015 to 09-12-2015.
- Interdisciplinary Refresher Course on “**Instrumentation and Experimental Techniques in Physical Sciences**” UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 09-12-2019 to 21-12-2019.

List of Research Paper Publications:

Google Citations: 333
h-index: 11
i10-index: 14
RG Score: 25.89

A Publications in International Journals: (37)

2008:

1. Self-gravitational instability of rotating anisotropic heat conducting plasma, **R. P. Prajapati**, A. K. Parihar and R. K. Chhajlani, *Physics of Plasmas* **15**, 012107 (2008). [**AIP (USA), IF – 1.941**].
2. Self-gravitating rotating anisotropic pressure plasma in presence of Hall current and electrical resistivity with generalized polytropic laws, **R. P. Prajapati**, G. D. Soni and R. K. Chhajlani, *Physics of Plasmas* **15**, 062108 (2008) [**AIP (USA), IF – 1.941**].

2009:

3. Kelvin-Helmholtz and Rayleigh-Taylor instability of two superposed magnetized incompressible fluids with suspended dust particles, **R. P. Prajapati**, G.D. Soni, R.K. Sanghvi and R. K. Chhajlani, *Z. Naturforsch A* **64a**, 455 (2009). [**Verlag (Germany), IF-1.432**].

2010:

4. Self-gravitational instability of rotating viscous Hall plasma with arbitrary radiative heat-loss functions and electron inertia, **R. P. Prajapati**, R. K. Pensia, S. Kaothekar and R. K. Chhajlani, *Astrophysics & Space Science* **327**, 139 (2010). [**Springer (Netherlands), IF-1.681**].
5. Effect of dust temperature on radiative condensation instability of self-gravitating magnetized dusty plasma, **R. P. Prajapati** and R. K. Chhajlani, *Physica Scripta* **81**, 045501 (2010). [**The Royal Swedish Academy of Sciences (UK), IF-2.151**].
6. Kelvin-Helmholtz instability of magnetized plasmas with surface tension and dust particles, **R. P. Prajapati** and R. K. Chhajlani, *J. Physics Conf. Ser.* **208**, 012078 (2010), [**IOP (UK)**].
7. Kelvin-Helmholtz instability of anisotropic pressure plasma using generalized polytropic laws, **R. P. Prajapati**, R. K. Chhajlani and A. K. Parihar, *J. Phys. Conf. Ser.* **208**, 012077 (2010). [**IOP (UK)**].
8. Rayleigh-Taylor instability of two superposed magnetized fluids with suspended dust particles, P. K. Sharma, **R. P. Prajapati** and R. K. Chhajlani, *Thermal Science* **14**, 11 (2010). [**Vinica Institute of Nuclear Science (Serbia), IF-1.45**].
9. Effect of surface tension and rotation on Rayleigh-Taylor instability of two superposed fluids with suspended dust particles, P. K. Sharma, **R. P. Prajapati** and R. K. Chhajlani, *Acta Physica Polonica A* **118**, 576 (2010), [**Polish Physical Society (Poland), IF – 0.857**].

10. Effect of Hall current on Jeans instability of magnetized quantum viscous plasma, **R. P. Prajapati** and R. K. Chhajlani, *Physica Scripta* **82**, 055003 (2010). [The Royal Swedish Academy of Sciences (UK), **IF-2.151**].
 11. Kelvin-Helmholtz and Rayleigh Taylor instability of two superposed fluids with suspended dust particles flowing through porous media, **R. P. Prajapati** and R. K. Chhajlani, *Journal of Porous Media* **13**, 765 (2010). [Begell House (USA), **IF-1.49**].
 12. Effect of pressure anisotropy and flow velocity on Kelvin-Helmholtz instability of anisotropic magnetized plasma using generalized polytrope laws, **R. P. Prajapati** and R. K. Chhajlani, *Physics of Plasmas* **17**, 112108 (2010). [AIP (USA), **IF – 1.941**].
- 2011:**
13. Effect of magnetic field on Jeans instability of quantum dusty plasma: Application in White Dwarf Star **R. P. Prajapati** and R. K. Chhajlani, *Acta Technica* **56**, T414-T424 (2011). [Institute of Thermomechanics AS CR (Czech Republic), **IF –0.97**]
 14. Effect of polarization force on the Jeans instability of self-gravitating dusty plasma, **R. P. Prajapati**, *Physics Letters A* **375**, 2624 (2011). [Elsevier Publication, **IF-2.087**].
- 2012:**
15. Jeans instability of self-gravitating magnetized strongly coupled plasma, **R. P. Prajapati**, P. K. Sharma, R. K. Sanghvi and R. K. Chhajlani, *J. Phys. Conf. Ser.* **365**, 012040 (2012). [Institute of Physics (UK)].
- 2013:**
16. Effect of magnetic field and radiative condensation on Jeans instability of self-gravitating dusty plasma with polarization force, **R. P. Prajapati**, *Physics Letters A* **377**, 291 (2013). [Elsevier Publication, **IF-2.087**]
 17. Self-gravitational instability in magnetized finitely conducting strongly coupled viscoelastic fluid, **R. P. Prajapati**, and R. K. Chhajlani, *Astrophys. & Space Sci.* **344**, 371 (2013). [Springer (Netherlands), **IF-1.681**].
- 2014:**
18. Effect of quantum corrections on the Jeans instability of self-gravitating viscoelastic dusty fluid, **R. P. Prajapati** and R. K. Chhajlani, *Astrophys. & Space Sci.* **350**, 637 (2014). [Springer (Netherlands), **IF-1.681**].
 19. Hydromagnetic instability in compressible fluid in porous media, S. Argal, A. Tiwari, **R. P. Prajapati** and P. K. Sharma, *J. of Physics: Conf. Ser.* **534**, 012057 (2014). [IOP (UK)].
 20. Low frequency waves and gravitational instability in homogeneous magnetized gyrotropic quantum plasma, **R. P. Prajapati**, *Physics of Plasmas* **21**, 112101 (2014). [AIP (USA), **IF – 1.941**].
- 2015:**
21. Jeans instability of rotating viscoelastic fluid in the presence of magnetic field, P. K. Sharma, S. Argal, A. Tiwari and **R. P. Prajapati**, *Z. Naturforsch A*, **70**, 39 (2015). [De Gruyter (Germany), **IF – 1.432**].
 22. Radiative condensation instability in gravitating strongly coupled dusty plasma with polarization force, **R. P. Prajapati** and S. Bhakta, *Astrophys. Space Sci.*, **357**, 101 (2015). [Springer (Netherlands), **IF-1.681**].

23. Influence of dust charge fluctuation and polarization force on radiative condensation instability of magnetized gravitating dusty plasma, **R. P. Prajapati** and S. Bhakta, *Physics Letters A* **379**, 2723 (2015). [Elsevier Publication, **IF-2.087**]

2016:

24. Rayleigh-Taylor instability in non-uniform magnetized rotating strongly coupled viscoelastic fluid, **R. P. Prajapati**, *Physics of Plasmas* **23**, 022106 (2016). [AIP (USA), **IF-1.941**].
25. Rayleigh-Taylor instability in dusty magnetized fluids with surface tension flowing through porous medium, P. K. Sharma, A. Tiwari, **R. P. Prajapati** and R. K. Chhajlani, *Thermal Science* **20**, 119 (2016). [Vinica Institute of Nuclear Science (Serbia), **IF-1.45**].
26. Effect of Fermi Pressure and Bohm Potential on Jeans Instability of Quantum Dusty Plasma in Presence of Polarization Force, Prerana Sharma, Shweta Jain, **R.P. Prajapati** and R. K. Chhajlani, *IEEE Trans. Plasma Science* **44**, 862 (2016). [IEEE **IF-1.325**]
27. Jeans instability in collisional strongly coupled dusty plasma with radiative condensation and polarization force, **R. P. Prajapati**, S. Bhakta and R. K. Chhajlani, *Physics of Plasmas* **23**, 053703 (2016). [AIP (USA), **IF – 1.941**].
28. Jeans instability of partially ionized self-gravitating viscous plasma with Hall effect FLR corrections and porosity, S. Kaothekar, G. D. Soni, **R. P. Prajapati** and R. K. Chhajlani, *Astrophys. Space Sci.*, **361**, 204 (2016). [Springer (Netherlands), **IF-1.681**].
29. Quantum effects on the Rayleigh-Taylor instability of stratified plasma in the presence of suspended particles, G. A. Hoshoudy and **R. P. Prajapati**, *Pramana J-Physics* **87**, 99 (2016) [Springer, **Impact factor – 1.185**].
30. Effect of different dust flow velocities on combined Kelvin-Helmholtz and Rayleigh-Taylor instabilities in magnetized incompressible dusty fluids, Bivash Dolai, **R. P. Prajapati**, and R. K. Chhajlani, *Physics of Plasmas* **23**, 113704 (2016). [AIP (USA), **IF – 1.941**].

2017:

31. Gravitational instability of rotating anisotropic pressure quantum plasma, S. Argal, **R. P. Prajapati** and P. K. Sharma, *J. Plasma Physics*, **83**, 905830203 (2017). [Cambridge University Press, (UK), **IF-2.312**]
32. Small amplitude waves and linear firehose and mirror instabilities in rotating polytropic quantum plasma, S. Bhakta and **R. P. Prajapati**, *Physics of Plasmas* **24**, 082113 (2017). [AIP, **IF – 1.941**].
33. Rayleigh-Taylor instability and internal waves in strongly coupled quantum plasma, Bivash Dolai and **R. P. Prajapati**, *Physics of Plasmas* **24**, 112101 (2017). [AIP, **IF – 1.941**].
34. Influence of neutrino beam on the Jeans instability in a magnetized quantum plasma, **R. P. Prajapati**, *Physics of Plasmas* **24**, 122902 (2017). [AIP, **IF – 1.941**].

2018:

35. Effects of Hall current and electrical resistivity on the stability of gravitating anisotropic quantum plasma, S. Bhakta and **R. P. Prajapati**, *Physics of Plasmas* **25**, 022101 (2018). [AIP (USA), **IF – 1.941**].

36. The rotating Rayleigh-Taylor instability in a strongly coupled dusty plasma, Bivash Dolai and **R. P. Prajapati**, *Physics of Plasmas* **25**, 083708 (2018). [AIP (USA), **IF – 1.941**].

2019:

37. Effects of radiation pressure and polarization force on Jeans instability in magnetized strongly coupled dusty plasma, S. Bhakta, R. K. Chhajlani and **R. P. Prajapati** *Physica Scripta* **94**, 045603 (2019). [The Royal Swedish Academy of Sciences (UK), **IF-2.151**].

B Publications in Proceedings: (03)

1. Jeans instability in quantum magnetized dusty plasma: Formation of compact stars, **R. P. Prajapati** and R. K. Chhajlani, *Proceedings of EIPT*, pp. 270 (2011). [Excel Publishers, New Delhi]
2. Influence of polarization force on Jeans instability of magnetized dusty plasma, **R. P. Prajapati** and R. K. Chhajlani, *AIP Conference Proceedings*, **1397**, pp. 229-230 (2011) [American Institute of Physics (USA)].
3. Gravitational instability of dusty plasma with radiative process, **R. P. Prajapati** and R. K. Chhajlani, *AIP Conference Proceedings*, **1397**, pp. 267-268 (2011) [American Institute of Physics (USA)].

Papers presented in Conferences/Symposia:

Invited Talks: (08)

1. “MHD instabilities and their role in plasma confinement” in *2nd BRICS Young Scientist Forum*, **Hangzhou, China**, 11-15, July 2017.
2. Hydromagnetic instabilities in strongly coupled dusty (complex) plasmas, *International Conference on Space & Plasma Science (ICSPS-2015)*, Govt. Vivekanand PG College, **Maihar (M.P.)**, 22-24, September 2015.
3. Dust in MHD instabilities and Fusion, *4th ASEAN School on Plasma and Nuclear Fusion (ASPNF-2018)*, Chiang Mai University, **Chiang Mai (Thailand)**, 29 Jan-03 Feb 2018.
4. “Nuclear Fusion: A Future Source of Unlimited Energy”, *BRICS YSF Alumni Conclave*, **NIAS, Bengaluru**, 2-4 December 2018.
5. “Waves, instabilities and structure formations in dusty (complex) plasma: Some astrophysical applications”, *PLASMA-2018 conference*, **Delhi University**, 4-7 December 2018.
6. Magnetohydrodynamic fluid theory for analysis of wave propagation, *Skill Development Training programme on Basic Laboratory Skill and Safety Management in Physical Sciences*”, 12-13, March 2019 **GGV, Bilaspur**.
7. Firehose and mirror instabilities in degenerate quantum plasmas, *12th International Conference on Plasma Science and Applications (ICPSA-2019)*, **University of Lucknow, Lucknow**, 11-14, Nov 2019.

8. Waves and instabilities in dusty space plasmas, *14th Asia Pacific Physics Conference (APPC-2019)*, **AAPPS and Institute of Physics Malaysia**, 17-21 November (2019).

Papers presented in conferences/Symposia [11 Oral presentations]:

I. International (17):

1. Effect of magnetic field on Jeans instability of quantum dusty plasma: application in white dwarf star, **R. P. Prajapati** and R. K. Chhajlani, *24th International Symposium on Plasma Physics and Technology (SPPT-2010)*, Czech Technical University, **Prague 6, Czech Republic**, 14-17 June 2010. **(Oral)**
2. Hydromagnetic instabilities in magnetized plasmas, **R. P. Prajapati**, *Joint ICTP/IAEA workshop on dense magnetized plasma and plasma diagnostics*, The Abdus Salam International Center for Theoretical Physics (**ICTP, Trieste, Italy**), 15-26 Nov. 2010. **(Oral)**
3. Influence of polarization force on Jeans instability of self-gravitating magnetized dusty plasma, **R. P. Prajapati** and R. K. Chhajlani, *6th International Conference on Physics of Dusty Plasma (ICPDP-2011)*, **Garmisch-Parterkichen, Germany**, 16-20 May 2011.
4. Hydrodynamic stability of Conservative Regularized Couette Flow, **R. P. Prajapati**, R. Ganesh, A. Sen and C. Thyagaraja, *International Conference on Complex Processes in Plasmas and Nonlinear Dynamical Systems (ICCPNDS-2012)*, **Institute for Plasma Research, Bhat, Gandhinagar (Gujarat), India**, 6-9 Nov. 2012.
5. Non-ideal effects in self-gravitating uniformly rotating magnetized viscoelastic fluids, **R. P. Prajapati** and R. K. Chhajlani, *23rd International Toki Conference on Large Scale Simulation and Fusion Science (ITC-23)*, **National Institute for Fusion Science, Gifu, Japan**, 18-21 Nov. 2013.
6. Effects of rotation and Hall current on the Jeans instability of magnetized finitely conducting viscoelastic fluid, **R. P. Prajapati** and R. K. Chhajlani, *7th International Conference on the Physics of Dusty Plasmas (ICPDP-2014)*, **New Delhi**, March 3-7, 2014.
7. Radiative-Condensation Instability In Gravitating Strongly Coupled Dusty Plasma With Polarization Force, **R. P. Prajapati**, S. Bhakta and R. K. Chhajlani, *29th National Symposium on Plasma Science and Technology & International Conference on Plasma Science and Technology (PLASMA 2014)*, M. G. University **Kottayam, Kerala**, 8-11 December 2014.
8. Radiative condensation instability in gravitating strongly coupled complex plasma with polarization force, **R. P. Prajapati**, S. Bhakta and R. K. Chhajlani, *International Conference on Emerging Interfaces of Plasma Science and Technology (EIPT-2015)*, S. S. in Physics, Vikram University, **Ujjain (M.P.)**, 9-10 March, 2015. **(Oral)**
9. Radiative condensation instability in partially ionized dusty plasma with dust-neutral collisions and polarization force, *International Conference on Space & Plasma Science (ICSPS-2015)*, Govt. Vivekanand PG College, **Maihar (M.P.)**, 22-24, September 2015.

10. Influence of rotation on Rayleigh-Taylor instability of magnetized strongly coupled viscoelastic fluid, *International Conf. on High Power Coherent Radiation Generation & its Interaction with Matter*, SATI, **Vidisha (M.P.)**, 12-14 Feb. 2016. (Oral)
11. Influence of Rotation on Rayleigh-Taylor Instability in Non-uniform Magnetized Strongly Coupled plasma, *18th International Congress on Plasma Physics (ICPP-2016)*, **Kaohsiung, Taiwan**, June 27-July 01, 2016.
12. Jeans Instability in Radiative Collisional Dusty Plasma with Polarization Force, *13th Joint APPC-AIP Conference, Brisbane, Australia*, December 4-8, 2016.
13. Rayleigh-Taylor Instability in non-uniform magnetized rotating strongly coupled viscoelastic fluid, *13th Joint APPC-AIP Conference, Brisbane, Australia*, December 4-8, 2016.
14. Small amplitude waves and linear firehose and mirror instabilities in rotating polytropic quantum plasmas, *International Symposium on Nonlinear Waves in Fluids and Plasmas*, **IIT, Delhi**, 28-02-2017 to 01-03-2017.
15. Neutrino-beam-plasma interactions in gravitating dense quantum plasma, *2nd Asia Pacific Plasma Conference (AAPPS-DPP-2018)*, **Kanazawa (Japan)**, 12-17 Nov. 2018.
16. Small amplitude waves and linear firehose and mirror instabilities in polytropic quantum plasma, *2nd Asia Pacific Plasma Conference (AAPPS-DPP-2018)*, **Kanazawa (Japan)**, 12-17 Nov. 2018.
17. Rayleigh-Taylor instability and internal waves in Strongly coupled quantum plasma, *14th Asia Pacific Physics Conference (APPC-2019)*, **AAPPS and Institute of Physics Malaysia**, 17-21 November (2019).

II. National (17):

1. Self-gravitational instability of rotating anisotropic heat-conducting plasma, **R. P. Prajapati**, A. K. Parihar, P. K. Sharma and R. K. Chhajlani, *PLASMA-2006*, MNIT Jaipur, India, 19-22 Dec. 2006.
2. Jeans instability of self-gravitating dusty plasma in the low frequency range, R. K. Chhajlani, **R.P.Prajapati**, S. Kaothekar, P. K. Sharma and R. K. Pensia, *Bhartiya Vigyan Sammelan*, Bhopal, India, 23-25 Nov. 2007.
3. Effect of rotation on Kelvin-Helmholtz instability of two superposed streaming magnetized fluids with suspended dust particles, **R. P. Prajapati** and R. K. Chhajlani, *PLASMA-2007*, Ahmedabad, India, 6-10 Dec. 2007.
4. Kelvin-Helmholtz instability of compressible fluids with generalized polytrope laws using three-dimensional configurations, **R. P. Prajapati**, *Silver Jubilee All India Young Scientist Conference, MPCST*, Bhopal, India, 23-25 Nov. 2007.

5. Kelvin-Helmholtz instability of anisotropic pressure plasma with oblique magnetic field using generalized polytrope laws, **R. P. Prajapati** and R. K. Chhajlani, *Fourth M.P. Science Congress-2007, Govt. Holkar Science College, Indore, 26-27 Dec. 2007.*
6. Kelvin-Helmholtz instability of magnetized plasmas with surface tension and dust particles, **R. P. Prajapati** and R. K. Chhajlani, *PLASMA-2008, BARC Mumbai, India, 10-13 Dec. 2008.*
7. Kelvin-Helmholtz instability of anisotropic pressure plasma using generalized polytrope laws with three-dimensional configurations, **R. P. Prajapati**, *Madhya Kshetriya Vigyan Sammelan, Govt. M. Home Science & Science College Jabalpur, M.P. India, 21-22 Feb. 2009* **(Oral)** **(Won Young Scientists Award in Physics with Gold Medal)**.
8. Effects of pressure anisotropy on the Kelvin-Helmholtz instability of collisionless plasma using generalized polytrope laws, **R. P. Prajapati**, *24th M.P. Young Scientist Congress, M.P. Council of Science & Technology Bhopal, M.P. India, 28 Feb-01 March 2009.* **(Oral)**
9. Effect of dust particles and flow velocity on Kelvin-Helmholtz instability of magnetized plasmas, **R. P. Prajapati**, *97th ISCA Young Scientists Award Programme-2009-10, University of Kerla, Thiruvananthapuram, Kerala India, 27th October 2009.* **(Oral)**
10. Effects of radiative pressure and heat-loss functions on Jeans instability of magnetized self-gravitating dusty plasma, **R. P. Prajapati** and R. K. Chhajlani, *PLASMA-09, NIT, Hamirpur (H.P.), 8-11 December 2009.*
11. Effect of flow velocity and pressure anisotropy on Kelvin-Helmholtz instability of anisotropic plasma using polytrope laws, **R. P. Prajapati** and R. K. Chhajlani, *PLASMA-09, NIT, Hamirpur (H.P.), 8-11 December 2009* **(Won Buti Young Scientists Award)**. **(Oral)**
12. Condensation of astrophysical quantum dusty plasma; Formation of white dwarf star and modified Jeans instability, **R. P. Prajapati**, *Silver Jubilee M. P. Young Scientist Congress, MPCST Bhopal (M.P.), 22 & 23 February 2010.* **(Oral)**
13. Kelvin-Helmholtz instability of magnetized plasmas with suspended dust particles and different flow velocities flowing through porous medium, **R. P. Prajapati** and R. K. Chhajlani, *NSRAP-2011, Govt. Holkar Science College Indore (M.P.), 15 Feb 2011.*
14. Jeans instability in quantum dusty magnetized plasma: Formation of compact stars, **R. P. Prajapati**, *EIPT-2011, S. S. in Physics, Vikram University Ujjain (M.P.), 28-30 March 2011.* **(Oral)**
15. Hydromagnetic instabilities in plasmas, R. K. Chhajlani and **R. P. Prajapati**, *PLASMA-2011, BIT, Patna (Bihar), 20-23 Dec. 2011.* **(Oral)**
16. Neutrino-Beam-Plasma interactions in quantum magnetoplasma, **R. P. Prajapati**, *PLASMA-2017, IPR Gandhinagar (Gujarat), India, 7-10 Nov. 2017.*
17. Jeans instability of dusty plasma with dust charge gradient force, **R. P. Prajapati**, B. Dolai and R. K. Chhajlani, *PLASMA-2018, Delhi University, 4-7 December 2018.*

List of Conferences/Symposia/Workshops attended:

A. International [18]:

Outside India:

1. 24th International Symposium on Plasma Physics and Technology (SPPT-2010), Czech Technical University, Prague, Czech Republic from 14-17 June 2010.
2. Joint ICTP/IAEA workshop on Dense Magnetized Plasma and Plasma Diagnostics, The Abdus Salam ICTP, Trieste (Italy) from 15-26 November 2010.
3. 6th International Conference on Physics of Dusty Plasma (ICPDP-2011) at Garmisch-Partenkirchen organized by Max Planck Institute for Extraterrestrial Physics, Garching Germany) from 16-20 May 2011.
4. 23rd International Toki Conference on Large Scale Simulations in Fusion Science and Plasma (ITC-23), National Institute for Fusion Science, Gifu, Japan, 18-21 Nov. 2013.
5. 18th International Congress on Plasma Physics (ICPP-2016), Kaohsiung, Taiwan, June 27-July 01, 2016.
6. COMAC Workshop, Chiang Mai, Thailand, 21-25, November 2016.
7. 13th Joint APPC-AIP Conference at Brisbane, Australia 4-8, December 2016.
8. 2nd BRICS Young Scientist Forum, Hangzhou, China, 11-15, July 2017.
9. 4th ASEAN School on Plasma and Nuclear Fusion (ASPNF-2018), Chiang Mai University, Chiang Mai (Thailand), 29 Jan-03 Feb 2018.
10. 2nd Asia Pacific Plasma Conference (AAPPS-DPP-2018), Kanazawa (Japan), 12-17 Nov. 2018.
11. 14th Asia Pacific Physics Conference (APPC-2019), AAPPS and Institute of Physics Malaysia, 17-21 November (2019).

Within India:

12. International Conference on Complex Processes in Plasmas and Nonlinear Dynamical Systems (ICCPNDS-2012), Institute for Plasma Research, Bhat, Gandhinagar (Gujarat), India, 6-9 Nov. 2012.
13. International Symposium on Nonlinear Waves in Fluids and Plasmas, IIT, Delhi, 28-02-2017 to 01-03-2017.
14. 7th International Conference on the Physics of Dusty Plasmas (ICPDP-2014), New Delhi, March 3-7, 2014.

15. 29th National Symposium on Plasma Science and Technology & International Conference on Plasma Science and Technology (PLASMA 2014), M. G. University Kottayam, Kerala, 8-11 December 2014.
16. International Conference on Emerging Interfaces of Plasma Science and Technology (EIPT-2015), S. S. in Physics, Vikram University, Ujjain (MP.), 9-10 March, 2015.
17. International Conference on Space and Plasma Science (ICSPS-2015), Govt. Vivekanand PG College, Maihar (M.P.), 22-24, September 2015.
18. 12th International Conference on Plasma Science and Applications (ICPSA-2019), University of Lucknow, Lucknow, 11-14, Nov 2019.

B. National [13]:

1. 21st National Symposium on Plasma Science & Technology, MNIT Jaipur, 19-22 Dec. 2006.
2. National workshop on Fundamentals and Application of Plasma, SATI, Vidisha, 19-24 Feb. 2007.
3. Silver Jubilee All India Young Scientist Conference, MPCST, Bhopal., 23-25 Nov. 2007.
4. 22nd National Symposium on Plasma Science & Technology, Ahmedabad, 6-10 Dec. 2007.
5. 23rd National Symposium on Plasma Science & Technology, BARC Mumbai, 10-13 Dec. 2008.
6. Madhya Kshetriya Vigyan Sammelan, Govt. M. Home Science & Science College Jabalpur, M.P., 21-22 Feb. 2009.
7. 24th M.P. Young Scientist Congress, M.P. Council of Science & Technology Bhopal, M.P., 28 Feb-01 March 2009.
8. 97th ISCA Young Scientists Award Programme-2009-10, University of Kerala, Thiruvananthapuram, Kerala, 27th October 2009.
9. 24th National Symposium on Plasma Science & Technology, NIT Hamirpur (H.P.), 8-11 Dec. 2009.
10. Silver Jubilee M. P. Young Scientist Congress, MPCST Bhopal, M.P., 22-23 Feb. 2010.
11. National Symposium of Recent Advances in Physics, Holker Science College Indore, M.P., 15 Feb 2011.
12. Emerging Interfaces of Physics and Technology (EIPT-2011), S. S. in Physics, Vikram University Ujjain-456010 (M.P.), India, 28-30 March 2011.
13. 26th National Symposium on Plasma Science & Technology, BIT, Patna (Bihar), 20-23 Dec. 2011.

14. 32nd National Symposium on Plasma Science & Technology, IPR, Gandhinagar (Gujarat), 7-10 Nov. 2017.
15. BRICS YSF Alumni Conclave, National Institute of Advanced Studies (NIAS), Bangalore, 2-4 December 2018.
16. 33rd National Symposium on Plasma Science & Technology (PLASMA-2018), Delhi University, New Delhi, 4-7 Dec. 2018.

Membership & Academic Responsibilities:

- Life Membership of Plasma Science Society of India (PSSI) (**LM-819**).
- Life Membership of Indian Society of Particle Accelerator (ISPA) (**LM-392**)
- American Geophysical Union, US (**Membership No. 49965**)
- **Asstt. Centre Superintendent** for conducting Annual Examination-2012-13 in Jagrani UG College Baradwar, GGV, Bilaspur.
- **Coordinator**, University Science Club, GGV, Bilaspur.
- **Member** Local Organizing Committee, National EIPT-2011 Conference held at S. S. in Physics, Vikram University Ujjain-456010 M.P., India, 28-30 March 2011.
- **Member** in organizing committee of Guru Ghasidas Jayanti programme in GGV Bilaspur.
- **Event Coordinator**, National Science Day Celebration-2012 programme event- popular lecture and inauguration of science club.
- **Member** in School level and Department level Anti-raging & Discipline Committee 2013-14, 2014-15, 2016-2017, 2017-2018.
- **Presiding Officer/Polling Officer**, Students' Council Election, GGV, Bilaspur 2013-14 and 2014-2015.
- **Examiner** (paper setter), Barkatullah University, Bhopal (M.P.) and Bilaspur University, Bilaspur (C.G.).
- **Member**, Advisory Committee, International Conference on "High Power Coherent Radiation Generation & its Interaction with Matter, SATI, Vidisha, Feb. 12-14 (2016).
- **Assistant Center Superintendent**, Semester Examinations (2016-17, 2017-18, 2018-19), Guru Ghasidas Vishwavidyalaya, Bilaspur C.G and VET Examination 2018-19.
- **Center Superintendent**, Even Semester Examinations (2016-17), Guru Ghasidas Vishwavidyalaya, Bilaspur C.G.
- **Member** in the Scientific Programme Committee of International Conference on Plasma Science and Applications (ICPSA-2019), 11-14 November (2019).

Ph.D. Supervision & M.Sc. Project Guided:

Ph. D.: 02

- **Surajit Bhakta**: Thesis Title- “Low frequency waves and linear gravitational instability in dusty and quantum plasmas”. (Thesis Submitted on 10-06-2019).
- **Bivash Dolai**: Thesis Title: “Hydromagnetic fluid instabilities in weakly and strongly coupled dusty plasmas”. (Ongoing)

M.Sc. Project Dissertation: 22

Year	Student Name	Title of the Project
2012	Surajit Bhakta	Study of Hydrodynamic Wave Propagation in Plasma
	Rahul Mukherjee	Study of Dusty Plasma and Analysis of Dust Acoustic Wave
2013	Sisir Kr. Garai	Magnetohydrodynamic (MHD) Wave Propagation in Dense Quantum Plasma
	Santanu Jana	Low Frequency Hydromagnetic Wave Propagation in Plasma
2014	Anupriya Nyayban	Study of Properties of Strongly Coupled Plasma
	Debudutta Chakrabarty	Jeans Instability and Gravitational Collapse
	Bipllab Ballav	Fundamentals of Dusty Plasma and Dust Acoustic Wave (DAW) Propagation
2015	Dibyendu Thakur	Wave propagation in classical and quantum plasmas
	Barun Parui	Properties of Strongly coupled dusty plasma
	Ayon Ganguly	Study of Rayleigh-Taylor instability in strongly coupled and quantum plasma
2016	Tohid Rana	The inhibition of Rayleigh-Taylor instability by rotation
	Ajay Kumar Sao	Analysis of Rayleigh-Taylor instability in strongly coupled plasma
2017	Amit Tiwari	Self-gravitational instability in pressure anisotropy plasma
	B. Yashwant Kumar	Coulomb fission of a dusty plasma in terms of pinching instability
	Archana Rao	Jeans instability in a magnetodusty plasma
2018	Shivangi Gupta	Theoretical and simulation studies of Rayleigh-Taylor instability
	Ranjan Kumar Sahu	Study of wave propagation in quantum degenerate plasma
	Shubham K. Pati	Coulomb fission of a dusty plasma
2019	Utkalika Palai	Inertial confinement fusion and Rayleigh-Taylor instability in magnetized plasma
	Kaivlya Gupta	Theoretical study of Jeans instability and role of Jeans instability in white dwarf
	Aakash Chaterjee	Effect of viscosity in neutrino magnetohydrodynamic plasma

	Brhmanand Giri	Effect of polarization force and charge gradient force on dust acoustic waves.
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References:

1. **Dr. R. K. Chhajlani**, (Retired Professor), School of Studies in Physics, Vikram University Ujjain-456010, M. P., India, E-mail: chhajlanirk@yahoo.com
2. **Prof. R. Ganesh**, Institute for Plasma Research, Bhat, Gandhinagar-382428, India, E-mail: ganesh@ipr.res.in.
3. **Prof. Avinash Khare**, Dept. of Physics & Astrophysics, Delhi University, New Delhi E-mail: ak0005@uah.edu

Place: Bilaspur (C.G.)



(Dr. R. P. PRAJAPATI)