

Faculty Profile **(For booklet and website)**

Name: Dr. Ram Prakash



Designation: Associate Professor

Department: School of Physics

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Contact Number and Extn.: 01991-285624 (Extn.: 2523)

Qualification: M.Sc. (Physics), CSIR-NET-JRF, Ph.D.

Experience:

Teaching: 13 Years

Research: 18 years

Administration: 6 Years

Total: 17 years

Areas of Interest / Specialization:

- 1 Materials Science, Phosphors
- 2 Oxide Thin films and nanostructure, Dilute magnetic oxides.

Responsibility in University Hostels:

- Joint Warden, Kailash Hostel. (from 09-08-2017 to 23-10-2020)
- Warden, Trikuta Hostel, (from 23-10-2020 to till date)
- Associate Dean, Students Welfare (Boys) (from 19-09-2023 to till date)

Brief Bio-data:

Currently Dr. Ram Prakash is working as Assistant Professor in School of Physics, Shri Mata Vaishno Devi University, Katra (J&K) India from March 2011. Dr. Prakash completed his M.Sc. from Bundelkhand University, Jhansi (UP) India and did his Ph.D. research work at UGC-DAE Consortium for Scientific Research, Indore and submitted his Ph.D. thesis at Devi Ahilya Vishwavidyalaya (DAVV), Indore in 2008. After that he did his Postdoctoral fellowship (PDF) in department of Physics, Indian Institute of Technology, Kanpur and Changwon National University, Republic of Korea. He has published more than 50 research papers in international journals of repute. His main research interest is diluted magnetic semiconductor, oxide nanostructures and thin films. He is a life member of various professional bodies such as the Materials Research society of India (MRSI), The Indian association of Physics teachers (IAPT); Indian Physics Association (IPA); the Indian science congress association (ISCA) etc.

Research Profile

Research Projects Undertaken:

S. No.	Role	Title	Funding Agency	Current Status (Closed/ Running)
1	Principal Investigator	Synthesis and study of electronic structure of transition metal doped and undoped Eu ₂ O ₃ thin films	UGC-DAE CSR Indore	Closed
2	Principal Investigator	Probing electronic structure of phosphates	UGC-DAE CSR Indore	Running

Research Publications:

S. No.	Year	Publication
	2024	<ol style="list-style-type: none"> 1. R. Mahajan, S. Sharma, Ram Prakash; Spectroscopic study of yellowish white light emitting MgP₂O₆: Dy³⁺ phosphor; Journal of Molecular Structure 1316, 139053 (2024). 2. Pooja Khajuria, V. D. Sharma, Arti Khajuria, Ram Prakash, R. J. Choudhary; Synthesis and Spectroscopic Investigations of Sm³⁺ Activated ZrO₂ and Na₂ZrO₃ as Warm Light Phosphors; Journal of Fluorescence (2024).
1	2023	<ol style="list-style-type: none"> 3. V. D. Sharma, Pooja Khajuria, S. Kumar, Ram Prakash, R. J. Choudhary; A novel yellow whitish Dy³⁺ activated NaZr₂(PO₄)₃ phosphor: Structural, spectral and optical investigations; Optik 291, (2023) 171354. 4. V. D. Sharma, Pooja Khajuria, Ram Prakash, R. J. Choudhary; Synthesis and Luminescence Properties of High-Purity Red-Light-Emitting Eu³⁺ -Doped NaZr₂(PO₄)₃ Phosphor; Journal of Electronic Materials 52 (2023)6146–6158. 5. Pooja Khajuria, V. D. Sharma, R. Mahajan, Ram Prakash, R. J. Choudhary; Influence of Sm³⁺ ion doping on the surface and photoluminescence properties of Ba₃Zr₂O₇ phosphor; Materials Today Communications 36,(2023)106373.
2	2022	<ol style="list-style-type: none"> 6. R. Mahajan, Ram Prakash; A review report on structural and optical characterization of rare earth/transition metal doped pyrophosphate phosphors; Journal of Materials Science: Materials in Electronics, 33(34), (2022) pp 25491–25517. 7. V. D. Sharma, Pooja Khajuria, R. Mahajan, Ram Prakash, R. J. Choudhary; X-ray photoemission and optical investigation of novel Sm³⁺ activated NaZr₂(PO₄)₃ phosphor; Optik 267(2022) 169711. 8. R. Mahajan, Ram Prakash; Effect of Eu³⁺ activator on spectral investigation of red emitting MgP₂O₆ phosphate; Optik 266 (2022) 169611.
3	2021	<ol style="list-style-type: none"> 9. Pooja Khajuria, R. Mahajan, Ram Prakash; Synthesis and luminescent properties of ZrO₂ and Dy³⁺-activated ZrO₂ powders, Journal of Materials Science: Materials in Electronics, 32 (2021) 27441–27448. 10. Pooja Khajuria, R. Mahajan, Ram Prakash, R. J. Choudhary and D. M. Phase; Spectral and optical properties of Ruddlesden-Popper-type Ba₃Zr₂O₇ phosphors doped with Eu³⁺ ion, Applied Physics A: Materials Science and Processing 127, (2021) 807. 11. R. Mahajan, Ram Prakash, R. J. Choudhary and D. M. Phase; Structural, electronic and optical characterization of Eu³⁺/Dy³⁺ single and co-doped Mg₂P₂O₇ phosphors, Physica Scripta 96, (2021) 075808.

		12. R. Mahajan, Ram Prakash , S. Kumar, R. J. Choudhary and D. M. Phase; Surface and luminescent properties of Mg ₃ (PO ₄) ₂ : Dy ³⁺ phosphors, Optik 225 (2021) 165717.
3	2020	13. Pooja Khajuria, R. Mahajan, S. Kumar, Ram Prakash , R. J. Choudhary and D. M. Phase; Surface and spectral investigation of Sm ³⁺ doped MgO-ZrO ₂ phosphor, Optik 216, (2020)164909. 14. Ram Prakash and R. Mahajan ; Structural and luminescent properties of Europium activated magnesium orthophosphate phosphor; AIP Conference Proceedings 2265 (2020) 030066. 15. Ram Prakash and S. Kumar; Optimization of deposition parameter of Cr doped Eu ₂ O ₃ thin films; AIP Conference Proceedings 2220, (2020) 090004. 16. S. Kumar and Ram Prakash ; XPS and photoluminescence studies of Tb ³⁺ doped α-Al ₂ O ₃ phosphor, AIP Conference Proceedings 2220, (2020) 020019. 17. S. Kumar, P. Khajuria, R. Mahajan, Vishav Deep Sharma, Yonghoon Lee and Ram Prakash ; Synthesis and spectral properties of Sm ³⁺ doped MgAl ₂ O ₄ phosphor; AIP Conference Proceedings 2220, (2020) 020011. 18. P. Khajuria, R. Mahajan, S. Kumar and Ram Prakash ; Synthesis and optical properties of magnesium zirconium oxide; AIP Conference Proceedings 2220 (2020) 020023. 19. R. Mahajan, Ram Prakash ; Effect of Sm ³⁺ doping on optical properties of Mg ₂ P ₂ O ₇ and Mg ₃ P ₂ O ₈ phosphors; Materials Chemistry and Physics , 246 (2020) 122826. 20. R. Mahajan, Ram Prakash ; Synthesis and effect of Dy ³⁺ doping on vibrational and luminescent properties of Mg ₂ Zn(PO ₄) ₂ ; Journal of Materials Science: Materials in Electronics 31 (2020) 3861–3868.
4	2019	21. D.M. Phase, G. Panchal, R. Rawat, S. Tiwari, Ram Prakash, D. Jain, R.J. Choudhary; Anomalous magnetic properties of Fe ₃ O ₄ nanostructures on GaAs substrate probed using X-ray magnetic circular dichroism; Journal of Magnetism and Magnetic Materials 282 (2019) 296-300. 22. Rubby Mahajan, S. Kumar, Ram Prakash , V. Kumar, R. J. Choudhary and D. M. Phase; X-ray photoemission and spectral investigations of Dy ³⁺ activated magnesium pyrophosphate phosphors; Journal of Alloy and Compounds 777 (2019) 562-571.
5	2018	23. Ram Prakash , S. Kumar, Rubby Mahajan, Pooja Khajuria, V. Kumar, R. J. Choudhary and D. M. Phase; Spectral properties of Dy ³⁺ doped ZnAl ₂ O ₄ phosphor; AIP Conference Proceedings 1953 (2018) 030040. 24. Sandeep Kumar, Ram Prakash , R. J. Choudhary, and D. M. Phase; Structural, morphological and electronic properties of pulsed laser grown Eu ₂ O ₃ thin films; AIP Conference Proceedings 1953 (2018) 100012. 25. Rubby Mahajan, Sandeep Kumar, Ram Prakash , and Vinay Kumar; Synthesis and luminescent properties of Sm ³⁺ doped zinc aluminate phosphor; AIP Conference Proceedings 1953, (2018) 030209. 26. Rubby Mahajan, S. Kumar, Ram Prakash , V. Kumar; “Synthesis and luminescent properties of Sm ³⁺ activated lithium zinc borate phosphor” AIP Conference Proceedings 2006, (2018) 030045. 27. Sandeep Kumar, Ram Prakash , R. J. Choudhary and D. M. Phase; Photoemission studies on (1 1 1) textured Cr doped Eu ₂ O ₃ thin film; Journal of Alloy and Compounds 738 (2018) 233-238.
6	2017	28. Ram Prakash , Sandeep Kumar and Vinay Kumar; Photoluminescence investigation of Dy ³⁺ doped α-Al ₂ O ₃ phosphor; AIP Conference Proceedings

		<p>1832, (2017) 140016.</p> <p>29. M. Manhas , V. Kumar , V. K. Singh, J. Sharma, Ram Prakash, V. Sharma, A.K. Bedyal, H.C. Swart; A novel orange-red emitting Ba₂Ca(BO₃)₂:Sm³⁺ phosphor to fill the amber gap in LEDs: Synthesis, structural and luminescence characterizations; Current Applied Physics, 17 (2017)1369-1375.</p> <p>30. Sandeep Kumar, Ram Prakash, R. J. Choudhary, D. K. Shukla and D. M. Phase; Electronic structure studies of Fe doped Eu₂O₃ thin film using x-ray absorption and resonant photoemission spectroscopy; Journal of Alloy and Compounds 711 (2017) 598-602.</p>
7	2016	<p>31. S. Kumar, V.D. Mote, Ram Prakash, Vinay Kumar; X-ray analysis of α-Al₂O₃ particles by Williamson-Hall methods. Materials Focus 5, 545-549 (2016).</p> <p>32. S. Kumar, Ram Prakash, R.J. Choudhary, D.M. Phase; Resonant Photoemission Spectroscopic Studies of Eu₂O₃ Thin Film. J. Appl. Phys. 120 (2016) 125309.</p> <p>33. V. K. Singh, Y. Dwivedi, J. Sharma, Ram Prakash, A. K. Pathak; A Special Issue on Advanced Functional Materials: A Modern Perspective. Materials Focus 5 (2016) 183-186.</p> <p>34. Ram Prakash, S. Kumar, Vinay Kumar, R.J. Choudhary, D.M. Phase; Optical And X-Ray Photoelectron Spectroscopic Studies Of α-Al₂O₃. AIP Conference Proceedings, 1731 (2016) 050097.</p>
8	2015	<p>35. S. Kumar, Ram Prakash, V. K. Singh; Synthesis, Characterization, and Applications of Europium Oxide: A review. Reviews in Advanced Sciences and Engineering (RASE), 4 (2015) 247-257.</p> <p>36. S. Kumar, Ram Prakash, V. Kumar, G.M. Bhalerao, R. J. Choudhary and D. M. Phase; Surface and spectral studies of Eu³⁺ doped α-Al₂O₃ synthesized via solution combustion synthesis. Advanced Powder Technology, 26 (2015)1263-1268.</p> <p>37. S. Kumar, Ram Prakash, R.J. Choudhary, D.M. Phase; Structural, XPS and magnetic studies of pulsed laser deposited Fe doped Eu₂O₃ thin film. Materials Research Bulletin, 70 (2015) 392-396.</p> <p>38. S. Kumar, Ram Prakash, and V. Kumar; A novel yellowish white Dy³⁺ activated α-Al₂O₃ phosphor: Photoluminescence and optical studies. Functional Materials Letters, 8 (2015) 1550061.</p> <p>39. A.K. Bedyal, Vinay Kumar, Ram Prakash, O.M. Ntwaeaborwa, H.C. Swart; A near-UV-converted LiMgBO₃:Dy³⁺ nanophosphor: Surface and spectral investigations. Applied Surface Science, 329 (2015) 40–46.</p>
9	2013	<p>40. Ram Prakash; Growth and study of PrCoO₃ thin films nanostructures deposited on various substrate; Journal of Integrated Science and Technology, 1 (2013)1-4.</p> <p>41. V.K. Singh, B.B.S. Jaswal, V. Kumar, Ram Prakash, and P. Rai; Application of He-Ne laser to study the variation of refractive index of liquid solutions with the concentration; J Integr. Sci. and Technol., 1(2013)13-18.</p>
10	2011	<p>42. Ram Prakash, S. Kumar, F. Ahmed , C. G. Lee, and J. I. Song; Room temperature ferromagnetism in Ni doped In₂O₃ nanoparticles; Thin Solid Films 519, (2011) 8243-8246.</p> <p>43. Faheem Ahmed, Shalendra Kumar, Nishat Arshi, M.S.Anwar, Ram Prakash; Growth and characterization of ZnO nanorods by microwave-assisted route: green chemistry approach; Adv. Mat. Lett., 2(3), (2011) 183-187.</p> <p>44. Study of Structural and magnetic properties of Co doped In₂O₃ nano particles. Ram Prakash, S. Kumar, C. G. Lee and J. I. Song, International J of Nanoscience, 10 (2011) 961-965.</p>

11	2010	<p>45. Ram Prakash, S. Kumar, C. G. Lee and J. I. Song; Low temperature Raman study of PrCoO₃ thin films on LaAlO₃(100) substrates grown by pulsed laser deposition; . Cent. South Univ. Technol. 17, (2010) 1144-1147.</p> <p>46. S. Kumar, Ram Prakash, Alimuddin, H. K. Choi, B. H. Koo, J. I. Song, H. Chung, H. Jeong, C. G. Lee; Influence of Ti⁴⁺doping on the hyperfine field parameters of Mg_{0.95}Mn_{0.05}Fe_{2-2x}Ti_{2x}O₄ (0≤x≤0.7); J. Cent. South Univ. Technol. 17, (2010) 1139-1143.</p> <p>47. S. Kumar, K. M. Batoo, Ram Prakash, H. K. Choi, B. H. Koo, J I Song, H. Chung, H. Jeong, C. G. Lee; Impedance spectroscopy studies on Mn_{1+x}Fe_{2-2x}Ti_xO₄ (0 ≤ x ≤ 0.5) ferrites Cent. South Univ. Technol. 17, (2010) 1133-1138.</p> <p>48. Mössbauer spectra of MnFe_{2-2x}Al_{2x}O₄(0.0≤ x ≤ 0.4) ferrite. K. M. Batoo, S. Kumar, Ram Prakash, Alimuddin, J I Song, H. Chung, H. Jeong, B. H. Koo, C. G. Lee, J. Cent. South Univ. Technol. 17, (2010) 1129-1132.</p> <p>49. Ram Prakash, S. Kumar, C. G. Lee, S. K. Sharma, M. Knobel, J. I. Song; Study of Raman spectrum of Fe doped CeO₂ thin films grown by pulsed laser deposition; Advanced Mat. Research 123-125, (2010) 375-378.</p>
12	2009	<p>50. P. Thakur, J. C. Cezar, N. B. Brookes, R. J. Choudhary, Ram Prakash, D. M. Phase, K. H. Chae and R. Kumar; Direct observation of oxygen induced room temperature ferromagnetism in MoO₂ thin films by x-ray magnetic circular dichroism characterizations; Appl. Phys. Lett., 94 (2009) 062501.</p>
13	2008	<p>51. Ram Prakash, R. J. Choudhary, and D. M. Phase; Electronic structure of Fe (0-5 at. %) doped MoO₂ thin films studied by resonant photoemission spectroscopy; J. Phys.: Cond. Mat. 20, (2008) 335225.</p> <p>52. Ram Prakash, D. M. Phase and R. J. Choudhary and Ravi Kumar; Structural, electrical and magnetic properties of Mo_{1-x}Fe_xO₂ (x=0-0.05) thin films grown by pulsed laser ablation; J. Appl. Phys. 103, (2008) 043712.</p> <p>53. Y.S. Katharria, Sandeep Kumar, R.J. Choudhary, Ram Prakash, F. Singh, N.P. Lalla, D.M. Phase and D. Kanjilal; Pulsed laser deposition of SiC thin films at medium substrate temperatures; Thin Solid Films 516, (2008) 6083-6087.</p> <p>54. R. Dubey, A. Gupta, D. M. Phase, Ram Prakash; Excimer laser irradiation effect on soft magnetic properties of sputtered iron nitride thin films. Journal of Nanoscience and Nanotechnology, 8 (2008) 4092-4095.</p> <p>55. Ram Prakash, R.J. Choudhary, S. Tiwari, D.M. Phase and R. Kumar; Effect of 200 MeV Ag¹⁵⁺ ion irradiation on structural and electrical transport properties of Fe₃O₄ thin films; Nucl. Instrum. Meth. B 266, (2008) 1242-1246.</p> <p>56. Ram Prakash, R. J. Choudhary, D. M. Phase and R. Kumar; Growth and properties of pulsed laser deposited Fe doped MoO_{2+δ} thin films; AIP Conf. Proc., 1003 (2008) 25-27.</p> <p>57. P. Thakur, W. K. Choi, K. H. Chae, J.-Y. Kim, R. J. Choudhary, S. Tiwari, Ram Prakash, D. M. Phase and Ravi Kumar; X-ray Absorption Spectroscopic Studies of Pulsed-Laser-Deposited Thin Films of Fe₃O₄ on Si (111) Substrate; J. Korean Phys. Soci. 53 (2008)3694-3698.</p>
14	2007	<p>58. Ram Prakash, R. J. Choudhary, L. S. Sharath Chandra, N Lakshmi, and D. M. Phase;Electrical and magnetic transport properties of Fe₃O₄ thin films on GaAs (100) substrate ; J. Phys.: Cond. Mat., 19 (2007) 486212.</p> <p>59. S. Tiwari, Ram Prakash, R. J. Choudhary, and D. M. Phase; Oriented growth of Fe₃O₄ thin film on crystalline and amorphous substrates by pulsed laser deposition; J. Phys. D: Appl. Phys., 40 (2007) 4943-4947.</p> <p>60. S. Tiwari, R. J. Choudhary, Ram Prakash, and D. M. Phase; Growth and</p>

		<p>properties of pulsed laser deposited thin films of Fe₃O₄ on Si substrate of different orientation; J. Phys.: Cond. Mat., 19 (2007) 176002.</p> <p>61. P. Bhatt, Ram Prakash, S. M. Chaudhari, V. R. Reddy, D. M. Phase; Investigation of Ti Layer Thickness Dependent Structural, Magnetic, and Photoemission Study of Nanometer Range Ti/Ni Multilayer Structures; J. Nanosci. Nanotechnol., 7 (2007) 2081-2086.</p> <p>62. Y. S. Katharria, Sandeep Kumar, Ram Prakash, R. J. Choudhary, F. Singh, D. M. Phase, D. Kanjilal; Characterizations of pulsed laser deposited SiC thin films. J. Non Cryst. Solids, 353, (2007) 4660-4665.</p>
15	2006	<p>63. Raman study across the Verwey transition of epitaxial Fe₃O₄ thin films on MgO (100) substrate grown by pulsed laser deposition. D. M. Phase, S. Tiwari, Ram Prakash, A. Dubey, V. G. Sathe and R. J. Choudhary, J. Appl. Phys., 100 (2006) 123703.</p> <p>64. Ram Prakash, S. Amirthapandian, D.M. Phase, S.K. Deshpande, R. Kesavamoorthy, K.G.M. Nair; Study of ion beam induced mixing in nano-layered Si/C multilayer structures; Nucl. Instrum. Meth. B 244, (2006) 283-288.</p>

Books Publications:

S. No.	Year	Publication

Conference Publications:

S. No.	Year	Conference	Publication
1	2015	National conference on Advanced Functional materials and their application (AFMA-2015)	1. Pulsed laser growth of Fe doped Europium oxide thin films. S. Kumar, Ram Prakash , R.J. Choudhary, D.M. Phase; Proceeding of the national conference on Advanced Functional materials and their application (AFMA- 2015)" ISBN No. 978-81-7233-976-0 Published by Scientific Publishers India.
2	2013	International conference on Technological Innovations through Modern Engineering Science (TIMES-2013)	2. "Study of variation of refractive index with concentration of NaCl aqueous solution using Newton's Ring method and its applications" Ram Prakash , S. Kumar, and V.K. Singh, Proceeding of international conference on Technological Innovations through Modern Engineering Science (TIMES-2013) Page 49-50 "ISBN 978-93-81771-22-8"
3	2007	International conference on magnetic materials (ICMM-07), Kolkata (India), 2007.	3. Growth and properties of pulsed laser deposited Fe doped MoO _{2+δ} thin films; Ram Prakash, R. J. Choudhary, D. M. Phase and Ravi Kumar; Proceedings ICMM-07, Kolkata (India).

4	2007	DAE Solid State Physics Symposium: Dec.2007, Mysore, India.	4. "Shift heavy ion irradiation induced structural modification of epitaxial Fe ₃ O ₄ /NiO bilayer structures grown by pulsed laser ablation" Ram Prakash , R. J. Choudhary, V. R. Reddy, Ajay Gupta and D. M. Phase; Proceedings DAE Solid State Physics Symposium: Dec.2007, Mysore, India.
5	2007	DAE-BRNS 4 th National Symposium on Pulsed Laser deposition of Thin Films and Nanostructured materials (PLD-2007) Rajkot, Gujarat during, October 3 - 5, 2007.	5. "Synthesis and characterization of PrCoO ₃ thin films grown by pulsed laser deposition" Ram Prakash , R. J. Chaudhary, D. M. Phase; PLD-2007-PSP1.16.
6	2006	DAE Solid State Physics Symposium: Dec.2006, Bhopal, India.	6. "Design and performance of a multi-target magnetron sputtering system" D. M. Phase, Ram Prakash and R. J. Choudhary. Proceedings DAE Solid State Physics Symposium: Dec.2006, Bhopal, India. 7. "Epitaxial growth characterization of Fe ₃ O ₄ thin films on MgO (100) substrate" Ram Prakash , D. M. Phase, R. J. Choudhary, V. R. Reddy and Ajay Gupta. Proceedings DAE Solid State Physics Symposium: Dec.2006, Bhopal, India.
7	2005	DAE Solid State Physics Symposium: Dec.2005, Mumbai, India.	8. "Effect of particulates on structure and properties of magnetite thin films" Shailja Tiwari, Aditi Dubey, Ram Prakash , Vasant Sathe, V. R. Reddy and D.M. Phase. Proceedings DAE Solid State Physics Symposium: Dec.2005, Mumbai, India.
		DAE-BRNS 3 rd National Symposium on Pulsed Laser deposition of Thin Films and Nanostructured materials (PLD-2005) Tirupati, (Andhra Pradesh), during, November 7-8, 2005.	9. "Deposition of silicon nitride films by DC discharge aided pulsed laser deposition" Ram Prakash , D. M. Phase; PLD symposium-2005-P10. 10. "Effect of laser fluence on structure and properties of pulsed Nd/YAG laser deposited iron oxide thin films" Shailja Twari, Ram Prakash, Atul Twari, U.P. deshpande, T. Shripathi, D. M. Phase; PLD symposium-2005-P13.
8	2004	49th DAE- Solid State Physics Symposium Dec-2004, Amritsar, Punjab.	11. "Effect of chemical modification imparted to substrate on Magneto Optic Kerr Effect in Ni film on Si." Ram Prakash , D. M. Phase, Dileep Kumar, V. Raghendra Reddy, V. Ganesan; Proceedings 49th DAE-Symposium 2004.

Research Supervised:

S. No.	Year	Role	Research Topic	Status
1	2019	Supervisor	Growth and Characterization of Transition Metal Doped Europium Oxide Thin Films	Degree Awarded
2	2021	Supervisor	Synthesis and spectral studies of rare earth doped alkali / alkaline metal phosphates	Degree Awarded
3	2023	Supervisor	Synthesis, Structural and Spectral Studies of Some Rare Earth Doped Metal Zirconates	Degree Awarded