Faculty Profile
(For booklet and website)

Name: Dr. Ram Prakash

Designation: Assistant Professor

Department: School of Physics

Email ID: ramprakash@smvdu.ac.in

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

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

Experience:

Teaching: 12 Years **Research:** 17 years **Administration:** 6 Years **Total:** 17 years

Areas of Interest / Specialization:

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

Responsibility in Held 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 Eu2O3 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
1	2013	1. 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. 2. V. D. Sharma, Pooja Khajuria, **Ram Prakash**, R. J. Choudhary; Synthesis and Luminescence Properties of High-Purity Red-Light-Emitting Eu^{3+} -Doped $NaZr_2(PO_4)_3$ Phosphor; **Journal of Electronic Materials** 52 (2023)6146–6158. 3. Pooja Khajuria, V. D. Sharma, R. Mahajan, Ram Prakash, R. J. Choudhary; Influence of Sm3+ ion doping on the surface and photoluminescence properties of $Ba_3Zr_2O_7$ phosphor; **Materials Today Communications** 36,(2023)106373.
2	2022	4. 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. 5. V. D. Sharma, Pooja Khajuria, R. Mahajan, **Ram Prakash**, R. J. Choudhary; X-ray photoemission and optical investigation of novel Sm^{3+} activated $NaZr_2(PO_4)_3$ phosphor; **Optik** 267(2022) 169711. 6. R. Mahajan, **Ram Prakash**; Effect of Eu3+ activator on spectral investigation of red emitting MgP_2O_6 phosphate; **Optik** 266 (2022) 169611.
3	2021	7. 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. 8. 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. 9. R. Mahajan, **Ram Prakash**, R. J. Choudhary and D. M. Phase; Structural, electronic and optical characterization of Eu^{3+}/Dy^{3+} single and co-doped $Mg_2P_2O_7$ phosphors, **Physica Scripta** 96, (2021) 075808. 10. 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	11. 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.

		12. **Ram Prakash** and R. Mahajan ; Structural and luminescent properties of Europium activated magnesium orthophosphate phosphor; **AIP Conference Proceedings** 2265 (2020) 030066. 13. **Ram Prakash** and S. Kumar; Optimization of deposition parameter of Cr doped Eu_2O_3 thin films; **AIP Conference Proceedings** 2220, (2020) 090004. 14. S. Kumar and **Ram Prakash** ; XPS and photoluminescence studies of Tb^{3+} doped α-Al_2O_3 phosphor, **AIP Conference Proceedings** 2220, (2020) 020019. 15. S. Kumar, P. Khajuria, R. Mahajan, Vishav Deep Sharma, Yonghoon Lee and **Ram Prakash**; Synthesis and spectral properties of Sm^{3+} doped $MgAl_2O_4$ phosphor; **AIP Conference Proceedings** 2220, (2020) 020011. 16. P. Khajuria, R. Mahajan, S. Kumar and **Ram Prakash**; Synthesis and optical properties of magnesium zirconium oxide; **AIP Conference Proceedings** 2220 (2020) 020023. 17. R. Mahajan, **Ram Prakash;** Effect of Sm^{3+} doping on optical properties of $Mg_2P_2O_7$ and $Mg_3P_2O_8$ phosphors; **Materials Chemistry and Physics,** 246 (2020) 122826. 18. R. Mahajan, **Ram Prakash;** Synthesis and effect of Dy^{3+} doping on vibrational and luminescent properties of $Mg_2Zn(PO_4)_2$; **Journal of Materials Science: Materials in Electronics** 31 (2020) 3861–3868.
4	**2019**	19. D.M. Phase, G. Panchal, R. Rawat, S. Tiwari, Ram Prakash, D. Jain, R.J. Choudhary; Anomalous magnetic properties of Fe_3O_4 nanostructures on GaAs substrate probed using X-ray magnetic circular dichroism; **Journal of Magnetism and Magnetic Materials** 282 (2019) 296-300. 20. 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**	21. **Ram Prakash**, S. Kumar, Rubby Mahajan, Pooja Khajuria, V. Kumar, R. J. Choudhary and D. M. Phase; Spectral properties of Dy^{3+} doped $ZnAl_2O_4$ phosphor; **AIP Conference Proceedings** 1953 (2018) 030040. 22. Sandeep Kumar, **Ram Prakash**, R. J. Choudhary, and D. M. Phase; Structural, morphological and electronic properties of pulsed laser grown Eu_2O_3 thin films; **AIP Conference Proceedings** 1953 (2018) 100012. 23. Rubby Mahajan, Sandeep Kumar, **Ram Prakash**, and Vinay Kumar;Synthesis and luminescent properties of Sm3+ doped zinc aluminate phosphor; **AIP Conference Proceedings** 1953, (2018) 030209. 24. Rubby Mahajan, S. Kumar, **Ram Prakash**, V. Kumar; "Synthesis and luminescent properties of Sm3+ activated lithium zinc borate phosphor" AIP Conference Proceedings 2006, (2018) 030045. 25. Sandeep Kumar, **Ram Prakash**, R. J. Choudhary and D. M. Phase; Photoemission studies on (1 1 1) textured Cr doped Eu_2O_3 thin film; **Journal of Alloy and Compounds** 738 (2018) 233-238.
6	**2017**	26. **Ram Prakash**, Sandeep Kumar and Vinay Kumar; Photoluminescence investigation of Dy^{3+} doped α-Al_2O_3phosphor; **AIP Conference Proceedings** 1832, (2017) 140016. 27. M. Manhas , V. Kumar , V. K. Singh, J. Sharma, **Ram Prakash**,V. Sharma, A.K. Bedyal, H.C. Swart; A novel orange-red emitting $Ba_2Ca(BO_3)_2$:Sm^{3+} phosphor to fill the amber gap in LEDs: Synthesis, structural and luminescence characterizations; **Current Applied Physics**, 17 (2017)1369-1375. 28. Sandeep Kumar, **Ram Prakash**, R. J. Choudhary, D. K. Shukla and D. M. Phase; Electronic structure studies of Fe doped Eu_2O_3 thin film using x-ray

		absorption and resonant photoemission spectroscopy; **Journal of Alloy and Compounds** 711 (2017) 598-602.
7	**2016**	29. S. Kumar, V.D. Mote, **Ram Prakash**,Vinay Kumar; X-ray analysis of α-Al_2O_3 particles by Williamson-Hall methods. **Materials Focus** 5, 545-549 (2016). 30. S. Kumar, **Ram Prakash**, R.J. Choudhary, D.M. Phase; Resonant Photoemission Spectroscopic Studies of Eu_2O_3 Thin Film. **J. Appl. Phys.** 120 (2016) 125309. 31. 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. 32. **Ram Prakash,** S. Kumar, Vinay Kumar, R.J. Choudhary, D.M. Phase; Optical And X-Ray Photoelectron Spectroscopic Studies Of α-Al_2O_3 . **AIP Conference Proceedings,** 1731 (2016) 050097.
8	**2015**	33. 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. 34. S. Kumar, **Ram Prakash**, V. Kumar, G.M. Bhalerao, R. J. Choudhary and D. M. Phase; Surface and spectral studies of Eu^{3+} doped α-Al_2O_3 synthesized via solution combustion synthesis. **Advanced Powder Technology,** 26 (2015)1263-1268. 35. S. Kumar, **Ram Prakash**, R.J. Choudhary, D.M. Phase; Structural, XPS and magnetic studies of pulsed laser deposited Fe doped Eu_2O_3 thin film. **Materials Research Bulletin**, 70 (2015) 392-396. 36. 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. 37. A.K. Bedyal, Vinay Kumar, **Ram Prakash**, O.M. Ntwaeaborwa, H.C. Swart; A near-UV-converted $LiMgBO_3:Dy^{3+}$ nanophosphor: Surface and spectral investigations. **Applied Surface Science**, 329 (2015) 40–46.
9	**2013**	38. **Ram Prakash**; Growth and study of PrCoO3 thin films nanostructures deposited on various substrate; **Journal of Integrated Science and Technology,** 1 (2013)1-4. 39. 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.
10	**2011**	40. **Ram Prakash**, S. Kumar, F. Ahmed , C. G. Lee, and J. I. Song; Room temperature ferromagnetism in Ni doped In_2O_3 nanoparticles; **Thin Solid Films** 519, (2011) 8243-8246. 41. 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. 42. Study of Structural and magnetic properties of Co doped In_2O_3 nano particles. **Ram Prakash**, S. Kumar, C. G. Lee and J. I. Song, **International J of Nanoscience,** 10 (2011) 961-965.
11	**2010**	43. **Ram Prakash**, S. Kumar, C. G. Lee and J. I. Song; Low temperature Raman study of $PrCoO_3$ thin films on $LaAlO_3$(100) substrates grown by pulsed laser deposition; **. Cent. South Univ. Technol.** 17, (2010) 1144-1147. 44. S. Kumar, **Ram Prakash**, Alimuddin, H. K. Choi, B. H. Koo, J. I. Song, H. Chung, H. Jeong, C. G. Lee; Influence of Ti^{+4}doping on the hyperfine field parameters of $Mg_{0.95}Mn_{0.05}Fe_{2-2x}Ti_{2x}O_4$ ($0 \leq x \leq 0.7$); **J. Cent. South Univ. Technol.** 17, (2010) 1139-1143.

		45. 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 $Mn_{1+x}Fe_{2-2x}Ti_xO_4$ ($0 \leq x \leq 0.5$) ferrites **Cent. South Univ. Technol.** 17, (2010) 1133-1138. 46. Mössbauer spectra of $MnFe_{2-2x}Al_{2x}O_4$($0.0 \leq x \leq 0.4$) 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. 47. **Ram Prakash**, S. Kumar, C. G. Lee, S. K. Sharma, M. Knobel, J. I. Song; Study of Raman spectrum of Fe doped CeO_2 thin films grown by pulsed laser deposition; **Advanced Mat. Research** 123-125, (2010) 375-378.
12	**2009**	48. 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 MoO_2 thin films by x-ray magnetic circular dichroism characterizations; **Appl. Phys. Lett**., 94 (2009) 062501.
13	**2008**	49. **Ram Prakash**, R. J. Choudhary, and D. M. Phase; Electronic structure of Fe (0-5 at. %) doped MoO_2 thin films studied by resonant photoemission spectroscopy; **J. Phys.: Cond. Mat.** 20, (2008) 335225. 50. **Ram Prakash**, D. M. Phase and R. J. Choudhary and Ravi Kumar; Structural, electrical and magnetic properties of $Mo_{1-x}Fe_xO_2$ (x=0-0.05) thin films grown by pulsed laser ablation; **J. Appl. Phys.** 103**,** (2008) 043712. 51. 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. 52. 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. 53. **Ram Prakash**, R.J. Choudhary, S. Tiwari, D.M. Phase and R. Kumar; Effect of 200 MeV Ag^{15+} ion irradiation on structural and electrical transport properties of Fe_3O_4 thin films; **Nucl. Instrum. Meth. B** 266, (2008) 1242-1246. 54. **Ram Prakash**, R. J. Choudhary, D. M. Phase and R. Kumar; Growth and properties of pulsed laser deposited Fe doped $MoO_{2+\delta}$ thin films; AIP Conf. Proc., 1003 (2008) 25-27. 55. 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 Fe_3O_4 on Si (111) Substrate; **J. Korean Phys. Soci.** 53 (2008)3694-3698.
14	**2007**	56. **Ram Prakash**, R. J. Choudhary, L. S. Sharath Chandra, N Lakshmi, and D. M. Phase;Electrical and magnetic transport properties of Fe_3O_4 thin films on GaAs (100) substrate ; **J. Phys.: Cond. Mat.,** 19 (2007) 486212. 57. S. Tiwari, Ram Prakash, R. J. Choudhary, and D. M. Phase; Oriented growth of Fe_3O_4 thin film on crystalline and amorphous substrates by pulsed laser deposition; **J. Phys. D: Appl. Phys.**, 40 (2007) 4943-4947. 58. S. Tiwari, R. J. Choudhary, **Ram Prakash**, and D. M. Phase; Growth and properties of pulsed laser deposited thin films of Fe_3O_4 on Si substrate of different orientation; **J. Phys.: Cond. Mat.,** 19 (2007) 176002**.** 59. 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. 60. 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.
15	**2006**	61. Raman study across the Verwey transition of epitaxial Fe_3O_4 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. 62. **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.

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 $MoO_{2+\delta}$ 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_3O_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 4th 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_3O_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 3rd 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. Raghvendra 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