

## Recent Publications from the Department

### Year 2024

1. Structural, photoluminescence and energy transfer investigations of novel Dy<sup>3+</sup>→Sm<sup>3+</sup> co-doped NaCaPO<sub>4</sub> phosphors for white-light-emitting diode applications. Mudasir Farooq, Haqnawaz Rafiq, Irfan Nazir, Seemin Rubab and \*Mir Hashim Rasool. Dalton Transactions, 2024. <https://doi.org/10.1039/D4DT01020E> (I.F: 4.0)
2. Nazir, A., Hussain, A., Singh, M. *et al.* Deep learning in medicine: advancing healthcare with intelligent solutions and the future of holography imaging in early diagnosis. *Multimed Tools Appl* (2024). <https://doi.org/10.1007/s11042-024-19694-8> (I.F: 1.6)
3. Nazir, A., Assad, A., Hussain, A. *et al.* Alzheimer's disease diagnosis using deep learning techniques: datasets, challenges, research gaps and future directions. *Int J Syst Assur Eng Manag* (2024). <https://doi.org/10.1007/s13198-024-02441-5> (I.F: 1.6)
4. Shabir Ahmad, Mandeep Singh, M. Zulfequar, Javid Ali, Asokan Kandasami, Ion Beam-Induced modification in the optical properties of the bilayer of nano-structured amorphous selenium and multi-walled carbon Nanotubes: A study by 70 MeV Ni Ions, *Materials Letters*, Volume 371, 15 September 2024,136878. <https://doi.org/10.1016/j.matlet.2024.136878> (I.F: 3.0)
5. Farooq, M., Rasool, M. H., Rafiq, H., Nazir, I., Rubab, S. (in press). Optical and photoluminescence properties of trivalent rare earth ions doped LiMgPO<sub>4</sub>. *Physica Scripta*. 99 055978. <https://doi.org/10.1088/1402-4896/ad3e3b> (I.F: 2.9)
6. Rather, M. R., Bhat, A. H., Ramkumar, T. K., Malik, M. A. (2024). Unique observations and interactions over the low-mid latitude transition region: Simultaneous study of plasma blobs, MSTIDs and plasma irregularities. *Advances in Space Research*, 73(7), 3578-3594. <https://doi.org/10.1016/j.asr.2023.09.038> (I.F: 2.6)

7. Boked, S., Maqbool, B., Misra, V. J., Bhat, N. I., Bhulla, Y. (2024). Time resolved spectroscopy of a GRS 1915 + 105 flare during its unusual low state using AstroSat. *MNRAS*, 528, 7016. DOI: <https://doi.org/10.1093/mnras/stab3899> (I.F: 4.8)
8. Rafiq, H., Farooq, M., Rubab, S. *et al.* (2024).  $SM^{3+}$ -Activated  $LiZnPO_4$  Phosphors: Synthesis, Characterization, and Their Luminescent Properties for White Light-Emitting Diode Applications. *J. Electron. Mater.*. <https://doi.org/10.1007/s11664-024-11061-5> (I.F:2.1)
9. Bhat, F. H., Anjum, G. (2024). Spin glass state in Co doped  $NdMnO_3$ . *AIP Advances*, 11(2). <https://doi.org/10.1063/8.00000xxx> (I.F: 1.6)
10. Farooq, M., Rasool, M. H., Rafiq, H., Nazir, I., Rubab, S. (2024). Synthesis, characterization and optical tuning of  $Sm^{3+}$ -doped  $NaZnPO_4$  phosphors for white LED technology. *Ceramics International*. <https://doi.org/10.1016/j.ceramint.2024.04.256> (I.F:5.2)
11. Rouoof, S. P., Nazir, N., Jehangir, S., Bhat, G. H., Sheikh, J. A., Rather, N., & Frauendorf, S. (2024). Fingerprints of the triaxial deformation from energies and  $B(E2)$  transition probabilities of  $\gamma$ -bands in transitional and deformed nuclei. *The European Physical Journal A*, 60:40. <https://doi.org/10.1140/epja/s10050-024-00040-0> (I.F: 2.5)
12. Dar, S., Bhattacharyya, S., Chakraborty, S., Jehangir, S., Bhattacharya, S., Bhat, G. H., ... Raut, R. (2024). Coexistence of low-K oblate and high-K prolate  $g_{9/2}$  proton-hole bands in  $^{115}Sb$ . *Physics Letters B*, 851, 138565. <https://doi.org/10.1016/j.physletb.2024.138565> (I.F: 4.4)
13. Ahmad, S., Singh, M., & Zulfeqar, M. (2024). Investigation of Physical Properties of Nanostructured Selenium-Based Compound Semiconductors. *International Journal of Nanoscience*. Advance online publication. <https://doi.org/10.1142/S0219581X2450008X> (I.F: 0.8)

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14. Nazir, N., Jehangir, S., Rouoof, S. P., Bhat, G. H., Sheikh, J. A., Rather, N., & Frauendorf, S. (2023). Microscopic aspects of  $\gamma$  softness in atomic nuclei. *Physical Review C*, 107(2), L021303. <https://doi.org/10.1103/PhysRevC.107.L021303> (I.F: 3.1)
  
15. Mukherjee, A., Bhattacharya, S., Trivedi, T., Tiwari, S., Singh, R. P., Muralithar, S., Yashraj, Katre, K., Kumar, R., Palit, R., Chakraborty, S., Jehangir, S., Nazir, N., Rouoof, S. P., Bhat, G. H., Sheikh, J. A., Rather, N., Raut, R., Ghugre, S. S., Ali, S., Rajbanshi, S., Nag, S., Tiwary, S. S., Sharma, A., Kumar, S., Yadav, S., & Jain, A. K. (2023). Evidence of transverse wobbling motion in  $^{151}\text{Eu}$ . *Physical Review C*, 107(5), 054310. <https://doi.org/10.1103/PhysRevC.107.054310> (I.F: 3.1)
  
16. Farooq, M., Nazir, I., Rafiq, H., & Rasool, M. H. (2023). Exploring Technological Innovations of Doped Rare Earth Materials. *ECS Journal of Solid State Science and Technology*, 12, 047006. [DOI 10.1149/2162-8777/accac](https://doi.org/10.1149/2162-8777/accac) (I.F: 2.09)
  
17. Farooq, M., Rafiq, H., Shah, A. ul I., & Rasool, M. H. (2023). On the Development of Phosphors for Luminescent Materials: Synthesis, Characterization, Applications and Evolution of Phosphors as White-Light-Emitting Diodes. *ECS Journal of Solid State Science and Technology*, 12, 126002. [DOI 10.1149/2162-8777/ad1062](https://doi.org/10.1149/2162-8777/ad1062) (I.F: 2.09)

## Year 2022

18. Ray, P., Pai, H., Ali, S., Mukherjee, A., Rajbanshi, S., Chakraborty, S., Bhattacharya, S., Banik, R., Nandi, S., Bhattacharyya, S., Mukherjee, G., Bhattacharya, C., Gangopadhyay, G., Samanta, S., Das, S., Chatterjee, S., Raut, R., Ghugre, S. S., Srivastava, P. C., ... Goswami, A. (2022). Three-phonon multiplets in  $^{116}\text{Sn}$ . *Nuclear Physics A*, 1018, 122375. <https://doi.org/10.1016/j.nuclphysa.2022.122375> (I.F: 1.4)
19. Jehangir, S., Nazir, N., Bhat, G. H., Sheikh, J. A., Rather, N., Chakraborty, S., & Palit, R. (2022). Extended triaxial projected shell model approach for odd-neutron nuclei. *Physical Review C*, 105(5), 054310. <https://doi.org/10.1103/PhysRevC.105.054310> (I.F: 3.1)
20. Katre, K., Rao, P. V. M., Raut, R., Sharma, A., Suryanarayana, K., Tejaswi, A., Raju, M. R., Lakshmi, D. V., Reddy, T. S., Raju, M. K., Jehangir, S., Rather, N., Bhat, G. H., Nazir, N., Sheikh, J. A., Wang, Y. P., Matta, J. T., Ayangeakaa, A. D., Garg, U., Ghugre, S. S., Trivedi, T., Naidu, B. S., Palit, R., Saha, S., Muralithar, S., & Singh, R. P. (2022). Chiral-like doublet band structure and octupole correlations in  $^{104}\text{Ag}$ . *Physical Review C*, 106(3), 034323. <https://doi.org/10.1103/PhysRevC.106.034323> (I.F: 3.1)
21. Bhattacharya, S., Trivedi, T., Mukherjee, A., Negi, D., Singh, R. P., Muralithar, S., Jehangir, S., Bhat, G. H., Nazir, N., Sheikh, J. A., Rather, N., Palit, R., Nag, S., Rajbanshi, S., Chakraborty, S., Kumar, S., Raju, M. K., Parkar, V. V., Choudhury, D., Kumar, R., Bhowmik, R. K., Pancholi, S. C., & Jain, A. K. (2022). Evidence for prolate-oblate shape coexistence in the odd-A nucleus. *Physical Review C*, 106(4), 044312. <https://doi.org/10.1103/PhysRevC.106.044312> (I.F: 3.1)

**Year 2021**

22. Misra, V. J., Maqbool, B., Mall, G. (2021). Broadband spectral and timing properties of MAXI J1348–630 using AstroSat and NICER observations. *MNRAS*, 505, 713. <https://doi.org/10.1093/mnras/stab1213> (I.F: 4.8)
23. Jehangir, S., Bhat, G. H., Rather, N., Sheikh, J. A., & Palit, R. (2021). Systematic study of near-yrast band structures in odd-mass  $^{125-137}\text{Pr}$  and  $^{127-139}\text{Pm}$  isotopes. *Physical Review C*, 104(4), 044322. <https://doi.org/10.1103/PhysRevC.104.044322> (I.F: 3.1)
24. Rasool, M. H., Ahmad, M. A., Ahmad, S. (2021). Signature of Intermittency during Emission of Target Associated Particles in Heavy Ion Collisions at SPS Energies. *Journal of Mathematics and Computational Science*, 11. <https://doi.org/10.28919/jmcs/5364> (I.F: 2.5)
25. Bhat, F. H., Anjum, G., Kumar, R., Malik, M. A., Choudhary, R. J., Shukla, D. K. (2021). XAS and XPS analysis of double magnetic transition, canonical spin glass behavior and magnetoresistance in  $\text{LaMn}_{1-x}\text{Co}_x\text{O}_3$  ( $0.1 \leq x \leq 0.5$ ) system. *Ceramics International*, 47(5), 6753-6763. <https://doi.org/10.1016/j.ceramint.2020.11.018> (I.F: 5.2)
26. Bhat, F. H., Khan, G. A., Kataria, G., Kumar, R., Sahadev, D., Malik, M. A. (2021). Study of canonical spin glass behavior in Co doped  $\text{LaMnO}_3$ . *AIP Advances*, 11, 025122. <https://doi.org/10.1063/9.0000142> (I.F: 1.697)
27. Sharma, R., Raut, S., Muralithar, S., Singh, R. P., Bhattacharjee, S. S., Das, S., Samanta, S., Ghugre, S. S., Palit, R., Jehangir, S., Rather, N., Bhat, G. H., Sheikh, J. A., Tiwary, S. S., Neelam, Rao, P. V. M., Garg, U., & Dhiman, S. K. (2021). Evidence of antimagnetic rotational motion in  $^{103}\text{Pd}$ . *Physical Review C*, 103,024324. <https://doi.org/10.1103/PhysRevC.103.024324> (I.F: 3.1)

## Year 2020

28. Jehangir, S., Bhat, G. H., Sheikh, J. A., Frauendorf, S., Li, W., Palit, R., & Rather, N. (2020). Triaxial projected shell model study of  $\gamma$  -bands in atomic nuclei. *European Physics Journal A*, 57(1), 308 <https://doi.org/10.1140/epja/s10050-020-00285-2> (I.F: 2.5)
29. Mudambi, S. P., Maqbool, B., Misra, R., Hebbar, S., Yadav, J. S., Gudennavar, S. B., & Bubbly, S. G. (2020). Unveiling the temporal properties of MAXI J1820+070 using ASTROSAT. *The Astrophysics Journal Letters*, 889(7). <https://doi.org/10.3847/2041-8213/ab6e4f> (I.F: 7.9)
30. Jehangir, S., Maqbool, I., Bhat, G. H., Sheikh, J. A., Palit, R., & Rather, N. (2020). High-spin doublet band structures in odd-odd 194–200Tl isotopes. *European Physics Journal A*. <https://doi.org/10.1140/epja/i2019-12859-1> (I.F: 2.5)
31. Anjum, G., Bhat, F. H. (2019). Study of magneto capacitance effect, exchange bias, XMCD and XAS in La<sub>0.8</sub>Bi<sub>0.2</sub>Fe<sub>0.7</sub>Mn<sub>0.3</sub>O<sub>3</sub>/LaNiO<sub>3</sub>/LaAlO<sub>3</sub> multiferroic thin film. *Journal of Physics: Condensed Matter*, 31(34), 345001. <https://doi.org/10.1088/1361-648X/ab229c> (I.F: 2.745)

## Year 2019

32. Fluctuations in produced charged particle multiplicities in relativistic nuclear collisions for simulated events. M. Ayaz Ahmad, Jalal Hasan Baker, **Mir Hashim Rasool**, Shafiq Ahmad, R. Dobra, D. Pasculescu and Charles Roberto Telles *IOP Conf. Series: Journal of Physics: Conf. Series 1258 (2019)* [doi:10.1088/1742-6596/1258/1/012010](https://doi.org/10.1088/1742-6596/1258/1/012010)

## Year 2017

33. Some Observations on Levy Stability and Intermittency in Nucleus-Nucleus Interactions at SPS Energies.  
**Mir Hashim Rasool** and Shafiq Ahmad.  
*Chinese Journal of Physics* 55, 260 (2017)  
<https://doi.org/10.1016/j.cjph.2017.02.006>