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List of Publications

1. **Harsh Kumar**, Anar Singh, Jose Luis Martinez, Jose Antonio Alonso, and Saurabh Tripathi, Unexplored signatures of magnetoelastic and isosymmetric metal-insulator phase transition in a rare-earth nickelate via mode crystallography, *Physical Review B* **106(21)**, 214103 (2022).
2. **Harsh Kumar**, and Saurabh Tripathi, Similarities and differences in the ordering at short and long ranges in a NaNbO_3 based Pb-free smart system: A key to functional properties, *Journal of Physics D: Applied Physics*, **57(33)**, 335502 (2024).
3. **Harsh Kumar**, Anuvrat Tripathi, and Saurabh Tripathi, Unambiguous evidence of Isosymmetric phase transition in Rare earth orthoferrites (RFeO_3) driven by interaction of R cation with O anions in first and second coordination shells, *Journal of Physics D: Applied Physics*, **58(8)**, 085303 (2024).
4. **Harsh Kumar**, Sanjit Ghose, Rudolph Erasmus, and Saurabh Tripathi, Multi-scale structural analysis of polymorphic phase boundaries in doped antiferroelectric sodium niobate, *Physical Review B* **111(5)**, 054108 (2025).
5. **Harsh Kumar**, Sanjit Ghose, Rudolph Erasmus, and Saurabh Tripathi, Nucleation and growth of polar clusters with in-phase tilts into a long-range ferroelectric matrix in a sodium niobate based complex relaxor, *Physical Review B* **111(22)**, 224115 (2025).
6. Anuvrat Tripathi, Digvijay Nath Dubey, **Harsh Kumar**, and Saurabh Tripathi, Stabilising ferroelectricity in alkaline-earth-metal-based perovskites (ABO_3) via A -($\text{Ca}^{2+}/\text{Sr}^{2+}/\text{Ba}^{2+}$) and B -site (Ti^{4+}) cationic radius ratio (R_A/R_B), *Journal of Applied Crystallography* **55**, 1446 (2022).

Conferences/Schools

1. Presented a Poster at “IUMRS-ICA 2024” organised by UGC-DAE(Indore), during 3/12/2024-6/12/2024.
Paper title: Exploring structures at various length scales(long/medium/short) in a lead-free smart material.
Authors: **Harsh Kumar**, Sanjit Ghose, Rudolph Erasmus, and Saurabh Tripathi
2. Presented a Poster at Advanced Material Research Grand Meeting(MRM2023/IUMRS-ICA2023) in Kyoto, Japan, 11-16 December 2023
Paper title: Structure-property relationship in a Sodium Niobate based lead free smart material.
Authors: **Harsh Kumar** and Saurabh Tripathi
3. Delivered an oral presentation at American Physical Society March Meet 2023
Paper title: Unexplored signatures of magnetoelastic and isosymmetric metal-insulator phase transition in a rare-earth nickelate via mode crystallography.
Authors: **Harsh Kumar**, Anar Singh, Jose Luis Martinez, Jose Antonio Alonso, and Saurabh Tripathi
4. Presented a Poster at International symposium on “Advanced Microscopy and its Application in Materials Science” organized by IIT(MADRAS) during November 8-10, 2022.
5. Attended 19th USPEX workshop on crystal structure prediction with USPEX code, 11-13 November 2020.