

Dr. Abinash Prusty

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Research: Developing new materials (through various synthesizing techniques) for advanced technological applications and investigating their structural, magnetic and electronic properties through various methods and characterizations (like XRD, Raman, VSM-SQUID, PPMS, XPS etc.)

Job Assignment: (Characterization and analysis of minerals and materials by using Powder X-ray Diffractometer, HR-TEM and TG-DSC).

- Associated with Powder XRD and TG-DSC characterization and analysis techniques.
- Associated with TEM Sample preparation and characterization and analysis techniques.

Webpage: <https://www.immt.res.in/central-characterization-people>

Google scholar: <https://scholar.google.com/citations?user=gi-CymsAAAAJ&hl=en&oi=ao>

Research Publication:

- **Abinash Prusty**, Sudipta Mahana, Andrei Hloskovsky, D. Topwal, U Manju*, “Gd induced modifications in the magnetocaloric properties of Dysprosium Manganites”, **J. Alloys Compd.**, 883, (2021),160862, <https://doi.org/10.1016/j.jallcom.2021.160862>.
- Rahul Mitra , **Abinash Prusty**, and Unnikrishnan Manju*, “Ferroelectric perovskites as electro-optic switching devices, modulators and optical memory” **Perovskite Metal Oxides**, 617-643, <https://doi.org/10.1016/B978-0-323-99529-0.00022-9>.
- **Abinash Prusty**, Sudipta Mahana, Sheetal Bhatta, Andrei Gloskovskii, D. Topwal, U Manju*, “Giant magnetocaloric effect in Fe-doped rare earth orthochromite $\text{GdCr}_{0.5}\text{Fe}_{0.5}\text{O}_3$ ”, **J. Mater. Chem. C**, 13, (2025), 1429, [DOI: 10.1039/d4tc03873h](https://doi.org/10.1039/d4tc03873h).
- Rahul Mitra, **Abinash Prusty**, Andrei Hloskovsky, D. Topwal, U Manju*, “Interplay of Jahn–Teller Distortion and Ionic Substitution: Probing Multifunctional Properties in Alkaline-Earth Hole Doped DyMnO_3 Multiferroics”, **Phys. Status Solidi (A) Appl. Mater. Sci**, 2025, [DOI: 10.1002/pssa.202500366](https://doi.org/10.1002/pssa.202500366). (equal contribution).

- **Abinash Prusty**, Soumya Ranjan Nayak, Kartik Senapati, D. Topwal U. Manju*, “Giant Magnetocaloric Effect in Cr and Fe substituted Frustrated Magnet Gadolinium Gallium Garnet, $\text{Gd}_3\text{Ga}_5\text{O}_{12}$, for Magnetic Cooling at Cryogenic Temperatures. (Under review)
- **Abinash Prusty**, Rahul Mitra, Kartik Senapati, D. Topwal, U. Manju*, “Tuning $3d - 4f$ interaction induced giant magnetocaloric effect in higher order RCrO_4 Oxides (R=Gd, Dy, and Ho)”. (Under review)

Conferences / Seminars Presentation

- Presented a poster titled “**Magnetic Refrigerant Materials for cooling Application at Cryogenic Temperatures,**” at VSSUT, Burla, organised by Orissa Physical Society(OPS) on **NSRPTA-2020 (Best Poster Presentation award).**
- Presented a poster titled “**Developing Magnetic Refrigerant Materials for Eco- Friendly Cooling Applications**” at CSIR-IMMT, Bhubaneswar on the 76th Foundation day celebration of CSIR.
- An oral Presentation was given titled “**Magnetocaloric materials for Eco-friendly Cooling Applications**” at CSIR-IMMT, Bhubaneswar on the 77th Foundation day celebration of CSIR.
- Presented a poster titled “**Beneficial substitution of Gd in DyMnO_3 for Magnetic Refrigeration Applications at Cryogenic Temperatures**” at CSIR-IMMT, Bhubaneswar on the Celebration of National Science Day-2021 (**4th Position**)
- Presented a poster titled “**Effect of alkaline-earth hole doping on morphological, thermal, and electronic properties of $\text{Dy}_{0.6}\text{A}_{0.4}\text{MnO}_3$ (A= Ca, Sr, and Ba) multiferroics**”, in the **International conference** on Advanced materials and mechanical characterization (**ICAMMC-2021**) organized by SRM University.