



Name: GOVERDHAN REDDY TURPU Ph.D. (Physics) Postdoc (IU, USA); Postdoc (IIP, Natal, Brazil); Research Prof (South Korea)

Designation: Associate Professor

Research Areas: Experimental Condensed Matter Physics, Strongly Correlated Systems, Materials Science

Research Highlights:

- 1) Multiferroics:** Investigation of type II Multiferroicity in FeVO_4 and MnWO_4 materials where the ferroelectricity is driven by magnetic interactions. A detailed understanding on the structural phase transitions in FeVO_4 due to transition element doping is being done by Mr. Ganesh Bera, ph.d. student in my group. The results recently appeared in [Journal Applied Physics \(2017\) as Featured Article and on the Cover page of the Journal](#). In continuation, the effect of these structural phase transitions was studied through the magnetic and dielectric studies along with temperature dependent XRD measurements at [Indus 2, Synchrotron Facility](#). These results appeared in [Phys.Rev. B. \(2019\)](#).
- 2) Topological Insulators:** Investigation of surface states and their modification due to magnetic and non magnetic ion doping into several topological insulators like BiTe and SnTe along with plans to develop new topological insulators with materials engineering. Single crystal growth, peeling of single crystal layers with thin flakes for device fabrication through lithographic techniques is being implemented by us successfully. Some of the results appeared in [Scientific Reports \(2019\)](#), [PCCP \(2019\)](#), [J.App.Phy \(2021\)](#) recently.
- 3) Graphene Oxide Composite:** Synthesis of graphene oxide and its semiconducting / functional inorganic oxide composites for practical applications is being done by our group mainly focussing toward photocatalysis and super capacitor applications. Some of our recent reports appeared in [J.Phy.Chem.C \(ACS\) \(2018\)](#), [J.Alloys and Comp. \(2020\)](#) and [App.Surf. Sci. \(2019\)](#)

Cover page of Journal Applied Physics journal

RESEARCH PROJECTS:

- 1) Funding Agency: University Grants Commission, India (# 43-407/2014 (SR))
Title of The Project: "Fabrication and Characterization of Reduced Graphene Oxide Field Effect Transistors (RGO-FET) for sensor applications"
Total Grant : 10.02 Lakhs Duration : 2015-2018
- 2) Funding Agency: UGC DAE CSR, Indore, India (# CSR-IC/CRS-87/2014-15/594) Title of The Project: "Study of Lattice Dynamics in Fe doped VO_2 through Mossbauer Spectroscopy"
Total Grant : 12.82 Lakhs Duration: 2015-2020
- 3) Funding Agency: UGC DAE CSR, Mumbai, India (# UDCSR/MUM/CD/CRS-M-263/2017/55) Title of The Project: "Neutron Diffraction studies into structural changes and magnetic interactions in $\text{Fe}_{1-x}\text{M}_x\text{VO}_4$ (M = Cr, In and Al) solid solutions"
Total Grant : 12.65 Lakhs Duration: 2017-2020
- 4) 5) Funding Agency: UGC DAE CSR, Indore, India (# CSR-IC-ISUM-52/CRS-335/2020-21/793) Title of The Project: "Exploring Structure Property Relationship in Polar Magnet $\text{Fe}_{2-x}\text{A}_x\text{Mo}_{3-y}\text{W}_y\text{O}_8$ to Tune the Magnetoelectric Coupling"
Total Grant: ~10 Lakhs Duration: 2020-23
- 6) Funding Agency: DST – SERB, New Delhi (# CRG/2021/006934)
Title of The Project: "Exploring Multiferroicity in Hollandite type Mn - based Oxide Materials through Experimental and Theoretical Studies"
Total Grant: 43.28 Lakhs Duration: 2022-25

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Triclinic-monoclinic-orthorhombic (T-M-O) structural transitions in phase diagram of FeVO_4 - CrVO_4 solid solutions

Ganesh Bera, V. R. Reddy, P. Rambabu, P. Mal, Pradip Das, N. Mohapatra, C. Padmaja and G. R. Turpu

