

FACULTY PROFILE

Name : Dr. Mahesh Ram
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Joined on : 01-07-22
Educational Qualification : PhD
Awards/Fellowships/Scholarship :
a) CSIR-UGC: JRF and LS (December-2019).
b) GATE (2019).
Teaching Experience : PGT Physics, KV Laitkor Peak, 8th Nov 2021- 28th Feb 2022

Research Experience :
Junior Research Fellow in Kurseong College, DST-SERB project.
Duration : From 1st July 2019 -23rd March 2021.
Project Title : Optoelectronic and thermoelectric properties of transition metal dichalcogenides for green energy devices.

Research Interest :
Condensed Matter Physics, Computational Materials Science, Spintronics, Thermoelectric Materials, Superconductivity, Thin Films.

Publications :

1. **M. Ram**, A. Saxena, A.E. Aly and A. Shankar, *Study of half metallicity, structural and mechanical properties in inverse Heusler alloy $Mn_2ZnSi_{(1-x)}Ge_x$ and a superlattice*, RSC Adv., 9, 36680-36689 (2019).
2. **M. Ram**, A. Saxena, N.Limbu, H. Joshi and A. Shankar, *Mechanical stability and origin of half-metallicity of new M_2NiZ ($M= Sc, Ti, \text{ and } V$; $Z= Tl \text{ and } Pb$) Heusler alloys*, J. Appl. Phys., 128, 053901 (2020).
3. **M. Ram**, A. Saxena, A.E. Aly and A. Shankar, *Half-metallicity in new Heusler alloys Mn_2ScZ ($Z= Si, Ge, Sn$)*, RSC Adv., 10, 7661-7670 (2020).

4. N. Limbu, **M. Ram**, H. Joshi, A. Saxena, S. Bin Omran, R. Khenata and A. Shankar, *Enhanced electronic and thermoelectric properties of p-type doped filled skutterudites RFe_4Sb_{12} ($R=Pr, Nd$)*, J. Appl. Phys.128, 145104 (2020).
5. H. Joshi, **M. Ram**, N. Limbu, D.P. Rai, B. Thapa, K. Labar, A. Lareef, R.K. Thapa and A. Shankar, *Modulation of Optical Absorption in $m-Fe_{1-x}Ru_xS_2$ and Exploring Stability in New $m-RuS_2$* , Sci. Rep. 11, 1 (2021).
6. D. Kalita, N. Limbu, **M. Ram**, R. Kalita, A. Saxena, *Study of lattice dynamic, electronic and mechanical properties of half-Heusler $RuCrP$ alloy*, Mater. Today Commun., 29, 102799 (2021)
7. K. Labar, A.Shankar, **M. Ram**, A. Laref, R. Sharma, *Novel half-metallicity in Y-type equiatomic quaternary Heusler alloys $XFeCrAl$ ($X = Rh, Pd$ and Pt)*, J. Phys. Chem. Solids 156, 110119 (2021).
8. D. Kalita, **M. Ram**, N. Limbu, A. Saxena, *Investigation of Mechanical, Thermodynamical, Dynamical and Electronic properties of $RuYAs$ ($Y= Cr$ and Fe) alloys*, J. Condens. Matter Phys., 34, 085501 (2021).
9. N. Limbu, **M. Ram**, H. Joshi, A. Saxena and A. Shankar, *Electronic and thermoelectric properties of Nd-doped Ce-filled skutterudites*, Phys. Chem. Chem. Phys., 24, 4533-4546 (2022).
10. H. Joshi, A. Shankar, N. Limbu, **M. Ram**, A. Laref, P.K. Patra, O.B. Ismailova, L. Zuala, S. Chatterjee, D.P. Rai, *Pressure-Induce Enhanced Optical Absorption in Sulvanite Compound Cu_3TaX_4 ($X = S, Se,$ and Te): An ab Initio Study*, ACS Omega 2022, 7, 23, 19070-19079 (2022).
11. D. Kalita, **M. Ram**, N. Limbu, R. Kalita, A. Saxena, *Prediction of some physical properties in new half Heusler alloy $NbAgSi$* , J. Solid State Chem., 310, 122999 (2022).
12. **M. Ram**, A. Saxena, and A. Shankar, *Design of half-metal compensated antiferromagnets in Cu and Zn based full inverse Heusler alloys from 5-4 Rule*, AIP Conf. Proc., 2265, 030348 (2020).
13. S.Swer, A. Syimiong, **M. Ram**, A.K. Jha and A. Saxena, *Einstein coefficients and oscillator strengths for low lying state of CO molecules*, AIP Conf. Proc., 1951, 030005 (2018).
14. **M. Ram**, A. Saxena and A. Shankar, *Pressure dependent study of electronic and magnetic properties of Mn_2ZnSi full Heusler alloy*, Transient, VII (2018).
15. **M. Ram**, N. Limbu, A. Saxena, and A. Shankar, *Effect of magnetic degrees of freedom on the ground state configuration of Ni_2ScGe Heusler alloy*, Transient VIII (2021).

Abstracts & Presentation in National/ International Seminar/Symposium :

1. **M. Ram**, A. Saxena, and A. Shankar, *Design of half-metal compensated antiferromagnets in Cu and Zn based full inverse Heusler alloys from 5-4 Rule*, 64th DAE Solid State Phys. Symp., BARC, Mumbai - IIT Jodhpur, Dec. 18-22 (2019).
2. **M. Ram**, A.K. Jha, A. Syiemiong, S. Swer and A. Saxena, *A first principle study of electronic and magnetic properties of full Heusler alloys*, Condensed Matter Days, Dept. of Phys. Tezpur Univ., Tezpur, Aug. 29-31 (2017).
3. **M. Ram**, A. Saxena, and A. Shankar, *New 5-4 rule in full inverse Heusler alloys following Slater-Pauling rule of 18 and design of half-metal compensated ferrimagnetic system*, Correlative Advancement on Analytical and Applied Physics, St. Joseph Coll., Darjeeling, Oct. 21-22 (2019).
4. **M. Ram**, N. Limbu, A. Saxena, H. Joshi and A. Shankar, *Structural dependence of half-metallicity in Ni based Heusler alloys*, International Web Conference on Recent Advances in Science, Don Bosco Coll., Tura, July 30-31 (2020).
5. **M. Ram**, A. Saxena, H. Joshi and A. Shankar, *Dynamical properties of new half-metallic Mn_2ScZ ($Z=Si, Ge$ and Sn) Heusler alloys*, International e-Conference on Recent Advances in Physics and Materials Science, Dept. of Phys. Kurseong Coll., Kurseong, July 9-10, (2020).
6. **M. Ram**, A. Saxena, and A. Shankar, *Heusler alloy Cu_2MnAl : GGA + U study*, Trends in Science and Technology, Salesian Coll. Siliguri, Feb. 27-28, (2019).