Bio-Data

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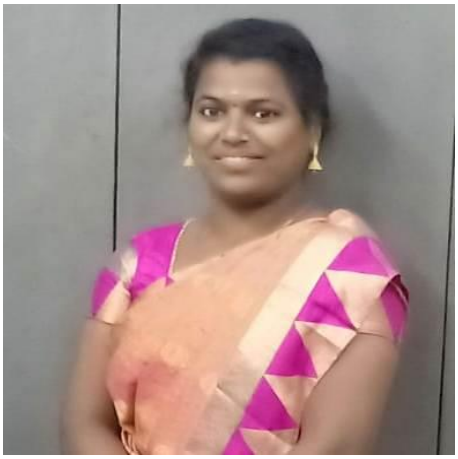

OBJECTIVE

Being a firm believer of actions rather than words, I always try my level best to prove it and accomplish the task given to me with honesty.

ACADEMIC OUALIFICATION

Degree/ Course	Institution	University / Board	Month & Year of Passing	CGPA / % of Marks
Ph.D	University of Madras	University of Madras	August 2020	-
M.Phil Physics	University of Madras	University of Madras	August 2014	81.6%
M.Sc Physics	Government Arts & Science College, Tiruvannamalai.	Thiruvalluvar University Vellore.	April 2013	76.5%
B.Sc Physics	Government Arts & Science College, Tiruvannamalai.	Thiruvalluvar University Vellore.	June 2011	77.2%
12th	St. Antony Girls Higher Secondary School, Pavithram.	State Board of Tamilnadu	April 2008	65%
10th	Municipal Girls Higher Secondary School, Tiruvannamalai.	State Board of Tamilnadu	April 2006	78.2%

FIELD OF INTEREST

MAGNETIC MATERIALS FOR SPINTRONICS APPLICATIONS AND OXIDES MATERIALS

PROJECT IN M.Sc.

Crystal Growth: "Synthesis, Growth, Optical and Electrical Properties of Thiourea Mono Succinate (TMS) NLO Crystal"

PROJECT IN M.Phil

"Growth and Characterization of $Fe_{50}Co_{50}$ Soft Magnetic Thin Film at Different Substrate Temperature".

Ph.D THESIS TITLE

"Structural, Optical, Electrical and Magnetic Studies of Heusler Alloy Based Nanomaterials"

ACHEIVEMENTS

- Synthesis and Structural Studies of Fe_2CoSn Heusler Alloy Nanoparticles for Spintronics Applications **V. Asvini,** G. Saravanan, R. K. Kalaiezhily and K. Ravichandran, National conference on preparation and characterization of crystalline materials (NCPCCM 2016) 4^{th}-5^{th} Aug. 2016, India-**Best Poster Presentation**

RESEARCH AREAS OF INTEREST

- Spintronics
- Heusler alloy Systems
- Nanostructures
- Spin systems
- Magnetic Resonance
- High-Pressure Physics: Magnetism
- Strongly correlated electron systems
- Topological orders
- One-dimensional systems
- Defect structures and properties

RESEARCH EXPERIENCE

Graduate Research Assistant **Sep 2013- present**

Dr. K. Ravichandran, Department of Nuclear Physics, University of Madras

- Synthesis of $Fe_{50}Co_{50}$ and Fe_2CoSi Heusler alloy soft magnetic thin film deposition on Si (111) wafer at various substrate temperature and different film thickness using UHV DC magnetic sputtering technique

- Synthesis of $CeFe_2X$ (X=Ag, Pb, Sn) Heusler phase, $Co@SiO_2$ Core/Shell nanoparticles using precipitation method and Ag doped CeO_2 nanoparticles using combustion method.
- Electrical and magnetic characterization of $CeFe_2Ag$ and $CeFe_2Pb$ Heusler phase nanoparticles using VSM and Impedance analyzer.
- Structural and morphological studies of $Fe_{50}Co_{50}$ and Fe_2CoSi Heusler alloy soft magnetic thin film using XRD, FESEM, AFM, VSM and Magnetoresistance were studied.
- The structural, Morphological and magnetic studies of Co_2FeSn and Fe_2CoSn Heusler alloy nanoparticles using co-precipitation method.
- We are prepared $(Pb_{(1-x)}Fe_{(x)}CoO_3)$ and $(Sr_{1-x}Fe_xCoO_3)$ for (x = 0, 0.1, 0.25, 0.5, 0.95 and 1) various concentration by Combustion Technique. To studied for structural, morphological, Optical, magnetic and electrical studies by XRD, HRSEM, UV-Visible spectrum, VSM and P-E Hysteresis loop.
- Structural, morphological and magnetic studies of Mn_2YAl (Y = Fe, Co) Heusler alloy based nanoparticles were synthesized using XRD, HRSEM and VSM.
- Structural, Morphological, Optical and magnetic studies of SbAs Nanorod were synthesized by solvothermal method and Sr_2CoSn Heusler alloy Nanoparicles by XRD, HRSEM, UV-Visible spectrum and VSM.
- We are prepared (Cr_2YAl) (Y= Fe, Co, and Ni) Heusler alloy nanoparticles by ball milling method and we take as-prepared sample further at various annealing temperature.
- A facile synthesis method of BiSb nanoparticles for thermo-electric applications, features of the BiSb nanoparticles and characterization techniques such as XRD, HRSEM with EDX, resistance measurement, P-E hysteresis loop, UV-visible spectrum, and electrical studies.
- The Bi_2Se_3 nanoparticles were synthesized by the solvothermal method. The structural and morphological characterization has been done using XRD, HRSEM and Raman while electrical studies at room temperature were analyzed using impedance spectroscopy and cyclic voltmeter.
- We are prepared $Ni_XAg_YMn_{1-X-Y}O_2$ and $Ni_XCu_YMn_{1-X-Y}O_2$ for (x, y = 0, 0.1, 0.2 and 0.5) various concentration by combustion technique.

Masters Degree Research Work **Nov 2012- April 2013**

- Good Optical TMS (Thiourea mono-Succinate) single crystal grown using the slow solvent evaporation technique.
- Structural studies performed using XRD and optical studies were done using FTIR spectroscopy.
- Electrical Characterization studies were done using Impedance spectroscopy for dielectric constants and dielectric loss of the crystal as a function of frequency.
- Variations of photo current and dark current as a function of applied voltage were measured.

PUBLICATIONS

1. Enhanced magnetic studies of $Fe_{50}Co_{50}$ thin film on Si (111) substrate by modified sputtering technique,

V. Asvini, G Saravanan, R. K. Kalaiezhily, M. Manivel Raja and K. Ravichandran, ***Mater. Res. Express***, 4 (2017), 116407.

2. Effect of substrate temperature on structural, morphological, magnetic, and electrical properties of Fe_2CoSi Heusler alloy thin films for spin-based device Applications,
   V. Asvini, G. Saravanan, R. K. Kalaiezhily, M Manivel Raja and K Ravichandran**,** ***J. Supercond. Nov. Magn,*** doi.org/10.1007/s10948-018-4955-6.
3. Effect of film thickness on soft magnetic behavior of Fe_2CoSi Heusler alloy for spin transfer torque device applications,
   V. Asvini, G. Saravanan, R. K. Kalaiezhily, M Manivel Raja and K Ravichandran, ***AIP Conference Proceedings,*** 1942, 130051 (2018).
4. Synthesis, Structural, Magnetic and Optical Properties of Sr_2CoSn based Inverse Heusler Alloy Nanoparticles,
   V. Asvini, G. Saravanan, R. K. Kalaiezhily, and K. Ravichandran, ***AIP Conference Proceedings***, 1953, 120037 (2018).
5. Role of Annealing Temperatures of Fe_2CoSn Half Metallic Heusler Alloy Nanoparicles for Spintronics Applications,
   V. Asvini, G. Saravanan, R. K. Kalaiezhily, and K Ravichandran**,** ***J. Supercond. Nov. Magn,*** doi.org/10.1007/s 10948-019-05292-5.
6. Impact of annealing temperature on structural and magnetic properties of Co_2FeSn Heusler alloy,
   V. Asvini, G. Saravanan, R. K. Kalaiezhily, and K. Ravichandran, ***J. Magn. Magn. Materials,*** http://doi.org/10.1016/j.jmmm.2020. 166731.
7. Soft Ferromagnetic Properties of Half Metallic Mn_2CoAl Heusler Alloy Nanoparticles for Spintronics Applications,
   V. Asvini, G. Saravanan, R. K. Kalaiezhily, V. Ganesan and K. Ravichandran, ***J. Supercond. Nov. Magn*****,** doi:10.1007/s10948-020-05528-9.
8. A facile Synthesis method of BiSb Nanoparticles for Thermo-electric Applications,
   V. Asvini, G. Saravanan, R.K. Kalaiezhily, M. Pavithra and K. Ravichandran, ***J. Supercond. Nov. Magn*****,** doi: 10.1007/s10948-020-05748-z.
9. Influence of annealing temperatures on structural and magnetic properties for Cr based inverse Heusler alloy nanoparticles,
   V. Asvini, and K. Ravichandran, ***J. Supercond. Nov. Magn*****.** doi.org/10.1007/s1094-021-05963-2.
10. Preparation and characterization of SbAs nanorods for opto-electronics applications,
    V. Asvini, G. Saravanan, R. K. Kalaiezhily, and K Ravichandran, ***Bulletin of Material Science,*** doi.org/10.1007/s12034-022-02849-4.
11. Effect on Annealing Temperature (Ta) of Ternary Full Fe_2CrSi Heusler Alloy Nanoparticles for Spin-Based Device Applications,
    G. Saravanan, **V. Asvini**, R. K. Kalaiezhily and K. Ravichandran, ***J. Supercond. Nov. Magn,*** 10.1007/s10948-020-05666-0
12. Investigation of Ni Doped CeO_2 nanoparticles- Spintronics Applications,

Mubeena Parveen. I, **V. Asvini,** G. Saravanan, K. Ravichandran and D. Kalaiselvi, ***Journal of Ionics***, 1-7, 2017.

13. Luminescence from Zn interstitial due to combustion derived complex of Dy and Gd activated ZnO nanopowders,
    R. K. Kalaiezhily, **V. Asvini**, G. Saravanan and K. Ravichandran, ***Journal of Materials Science: Materials in Electronics,*** pp 1–9, 2018.
14. Deficiency of O_2 molecules enhances ionic conductivity in Cr-doped O-Ce-O for solid oxide fuel cell applications,
    Mubeena Parveen. I, **V. Asvini,** G. Saravanan, K. Ravichandran, and D. Kalai selvi, ***Ceramics International***, 5 April 2019; doi.org/10.1016/j.ceramint.2019. 03. 247.
15. Excitation-induced tunable luminescence of luminomagnetic Dy and Ce co-doped ZnO nanoparticles,
    R. K. Kalaiezhily, **V. Asvini**, G. Saravanan and K. Ravichandran, ***Dalton Trans.,*** 2019,48, 12228-12238.
16. Synthesis and Characterization of Rare earth based Fe_2CeAg Heusler Alloy nanoparticles for ultra-soft magnetic Applications,
    G. Saravanan, **V. Asvini**, and K. Ravichandran, ***AIP Conference Proceedings,*** 1832, 130052 (2017).
17. Structural and Magnetic Studies of Half-Metallic Heusler Alloy Cr_2CoSi Nanoparticles Synthesized by Mechanical-Alloying method,
    G. Saravanan, **V. Asvini**, R. K. Kalaiezhily and K. Ravichandran, ***AIP Conference Proceedings,*** 1953, 120052 (2018).
18. Structural and Magnetic Characterization of Fe_2CrSi Heusler Alloy Nanoparticles as Spin Injectors and Spin Based Sensors,
    G. Saravanan, **V. Asvini**, R. K. Kalaiezhily, I. Mubeena Parveen and K. Ravichandran; ***AIP Conference Proceedings,*** 1953, 120078 (2018).
19. Comparative Optical Studies of ZnO And ZnO-TiO_2 - Metal Oxide Nanoparticles,
    R. Vanathi Vijayalakshmi, **V.Asvini**, P. Praveen Kumar, K. Ravichandran, ***AIP Conference proceeding,*** 1953, 030161 (2018).
20. Enhanced Photoluminescence and Influence of Doping Concentration in Structural, Morphological and Optical Properties of Ce Doped ZnO Nanoparticles,
    R. K. Kalaiezhily, **V. Asvini**, G. Saravanan and K. Ravichandran, ***AIP Conference proceeding,*** 1953, 030165 (2018).
21. Tuning of Violet to Blue Emission by Gd doped ZnO Nanoparticles Synthesized via Simple Combustion Technique,
    R. K. Kalaiezhily, **V. Asvini,** G. Saravanan and K. Ravichandran, ***AIP Conference proceeding,*** 1953, 030269 (2018).
22. Tuning violet to green emission in luminomagnetic Dy, Er co-doped ZnO nanoparticles,
    R. K. Kalaiezhily, G. Saravanan, **V. Asvini,** N. Vijayan, K. Ravichandran, ***Ceramic Interntional,*** doi.org/10.1016/j.ceramint.2018.07.200.

23. Effects of Temperature on Electrical Conductivity behavior of $Ce_{(1-x)}Ag_{(x)}O_2$ by combustion Synthesization,
    Mubeena Parveen. I, G. Saravanan, **V. Asvini**, K. Ravichandran and D. Kalaiselvi, ***AIP Conference Proceedings,*** 1832, 050095 (2017).
24. Temperature stimulates charge carriers in $Ce_{0.90}Fe_{0.1}O_2$ for semiconductor to metal phase, Mubeena Parveen. I, G. Saravanan, **V. Asvini,** K. Ravichandran, and D. Kalaiselvi, ***AIP Conference proceeding,*** 1942, 050133 (2018); doi: 10.1063/1.5028764.
25. A Facile Method of Synthesis and Characterization of Sr Doped CeO2 Nanocrystalline Materials,
    G. Gnanasangeetha, **V. Asvini**, G. Karthik & K. Ravichandran, ***Indian Journal of Pure & Applied Physics,*** Vol. 59, October 2021, pp. 700-705.

Conference/ Workshop Participated

[1] CUTN-DAE Workshop on "Advances in Computational Material Sciences" organized by Central University of Tamilnadu, Thiruvarur. Sponsored by DAE-BRNS & CUTN, from 23rd to 25th April 2015.

[2] Indo-Norway Workshop on "Materials for Medical & Energy Applications" Organized by Department of Medical Physics, College Of Engineering, Guindy Campus, Anna University, Chennai -600 025, from 20th to 21st May 2015.

[3] NCMMW-2015 "National Conference on Materials for Modern World" organized by Department of Physics, Easwari Engineering college, Sponsored by DST-SERB from28th to 29th September 2015.

[4] BTNT-2015 "Bringing the Nanoworld Together 2015" organized by IIT Madras, Chennai, from 3rd to 4th November 2015.

[5] ICMAGMA-2015 "International Conference On Magnetic Materials And Applications" organized by School of Advance Sciences, VIT University, Vellore, from 2nd to 4th December 2015.

[6] "Awareness workshop On Advanced material Characterization & Synthesis facilities, organized by UGC-DAE Consortium for Scientific Research (UGC-DAE CSR), Department of Nuclear Physics, and University of Madras held during June 27-28, 2016.

[7] "Workshop on Frontiers in Condensed Matter Physics- 2016" (CONDMAT 2016) held during February 22-27, 2016 organized at Institute of Physics, Bhubaneswar.

[8] "8th Asia – Ocean Neutron Scattering School", Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, held during Nov 15-19, 2016.

[9] "6th Conference on Neutron Scattering 2016", Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, held during Nov 21-23, 2016.

[10] "International Conference on Magnetic materials and applications (ICMAGMA-2017)" organized by Magnetic Society of India (MSI), February 1-3, 2017.

[11] "National Conference on Preparation and Characterization of Crystalline Materials (NCPCCM-2017)", UGC sponsored held during 05-06, September -2017.

[12] "4th International Conference on Nanoscience and Nanotechnology (ICONN 2017)", organized by SRM University, August 09-11, 2017, Chennai.

[13] "2nd International Conference on Condensed Matter and Applied Physics (ICC-2017)", from 24th-25th Nov 2017, Bikaner, India.

[14] "62nd DAE Solid State Physics Symposium (DAE SSPS-2017)", December 26-30 2017, Bhabha Atomic Research Centre, Mumbai, India.

[15] "Recent Trends in Nanobiosensors" organized by Department of Inorganic Chemistry, University of Madras, Guindy Campus, Chennai-25 on 22-23 Feb 2018.

[16] "Certificate Course on Materials Characterization", organized jointly by Department of Metallurgical and materials Engineering, IIT Madras, during 25-28 July, 2018.

[17] The CSR lecture series on "Magnetism", held at UGC-DAE CSR, Indore, during 27-31 August 2018.

[18] "Summer Training Program in Physics" organized by the academy of science and Department of Nuclear Physics, University of Madras and sponsored by the science city government of Tamilnadu, Chennai during on May 28-June 17, 2019.

[19] "One day seminar on Nobel Prize 2019-chemistry" held at Anna Centenary Library organized by the Tamil Nadu Science Forum Popular Science Lecture Series unit on Dec 07, 2019.

AFFILIATIONS

Life Member: Magnetics Society of India (MSI)

Member: International X-ray Absorption Society (IXAS)

Member: American physical society (APS)

REVIEW IN JOURNALS

1. Journal of Physics: Condensed Matter
2. Journal of Physica Scripta
3. Journal of Nanoparticle Research
4. Materials Research Express