

Dr. Srikanti Kavita

Centre for Automotive Energy Materials,
International Advanced Research Centre for Powder Metallurgy and New Materials
(An autonomous R&D Centre of DST, Govt. Of India)
IIT-M Research Park, Phase-1, 7th Floor, Section B1
6, Kanagam Road, Taramani, Chennai-600113
E-mail: srikanti.kavita@gmail.com
Phone: +91-9962052712

Research Interest:

- Magnetic nanostructures
- Magnetic thin films and multilayers /Bulk magnetic materials
- Perpendicular magnetic anisotropy
- Mössbauer spectroscopy
- Surface and interface study
- Effects of Ion beam irradiation in thin films
- Permanent Magnetic Materials
- Magnetocaloric Materials

Qualifications:

Ph.D. (Physics) 2008, Devi Ahilya Vishwa Vidhyalaya, Indore, India

Title of Thesis: “Study of FePt and CoPt alloys exhibiting large perpendicular magnetic anisotropy”

Thesis Adviser: Prof. Ajay Gupta

Institute: UGC-DAE Consortium for Scientific Research, Indore, India

Master of Science (Physics) 2002, First class (80% marks), **Pondicherry Central University**
Pondicherry, India

Bachelor of Science (Electronics) 2000, First class (80% marks), **Andhra University**
Vishakhapatnam, India

Experience:

Positions held –

- **Project Scientist**, Centre for Automotive Energy Materials, International Advanced Research Centre for Powder Metallurgy and New Materials (An autonomous R&D Centre of DST, Govt. of India) from 2012-Present
- **Research Associate**, National University of Singapore, Singapore from 2011-2012

- **Research Associate**, UGC-DAE Consortium for Scientific Research, Indore India from 2009 -2011
- **Ph.D. degree**, Devi Ahilya Vishwa Vidhyalaya, Indore, India from 2002 - 2008.
- **Senior Research Fellow (SRF)** at UGC-DAE Consortium for Scientific Research Indore, India from 2006 to 2008
- **Project Associate/Junior Research Fellow** at UGC-DAE Consortium for Scientific Research Indore, India from 2002 to 2006.

Experience in experimental Techniques-

- **Thin film deposition techniques:** Ion-Beam sputtering, Electron Beam Evaporation.
- **Chemical route:** Solid state reaction, sol-gel method
- **Structural characterization:** X-ray reflectivity and Diffraction (XRR/XRD).
- **Magnetic methods:** Mössbauer spectroscopy, Magneto-optical Kerr Effect (MOKE), Physical Property Measurement System (PPMS), Vibrating sample magnetometer (VSM).
- **Powder Metallurgy routes:** Vacuum arc melting, Ball milling
- **Others:** Differential Scanning Calorimetry

Instrumentation Experience –

- Design and development of Magneto-Optical Kerr Effect set-up

Working Experience in Accelerator and Synchrotron:

- 15UD pelletron (Material Science beamline) in inter University Accelerator Center, **New Delhi, India**
- UGC-DAE CSR, photoelectron spectroscopy beamline RRCAT, **Indore, India.**
- ID 22N and ID32 beamlines at European Synchrotron Radiation Facility (ESRF), **Grenoble, France**
- MR-4A, Spallation Neutron Source, **Oak Ridge National Laboratory, USA**

Award/Scientific recognition:

- **Research Associateship (RA)** from University Grant Commission-Council for Scientific and Industrial Research (UGC-CSIR) India in year 2008.
- **Senior Research Fellowship (SRF)** in year 2005 from University Grant Commission-Council for Scientific and Industrial Research (UGC-CSIR).

Papers Presented in International/National conferences:

- **Oral presentation** in National Conference on Mossbauer Spectroscopy (NSAMS-2006) at Jodhpur, India.
- **Oral presentation** in 46th DAE Solid State Physics symposium, held in year 2003 at Jiwaji University Gwalior, India
- **Oral Presentation** in AVS 58th International Symposium and Exhibition, **Nashville** ,TN, **USA** from Oct 30th -Nov 4th 2011
- **Oral Presentation** in International Conference on Magnetic Materials and Applications (MagMa), held at IIT Guwahati from December 5th -7th , 2013
- **Poster presentation** “58th Annual Conference on MMM, Denver, Colorado, USA, 4th -8 th November 2013
- **Poster Presentation** at International Conference on Magnetic Materials and Applications (ICMagMa 2017) held at Hyderabad, 1st -3rd February 2017

International Conference attended:

- Attended “International Workshop on Nanomaterials Magnetic-Ions Spintronics (IWNMS-2004)” held at M S university **Baroda, India** during 10th –14th February, 2004.
- Attended “Material Science and Technology 2007 Conference and Exhibition” held at COBO centre, Detroit, **Michigan, USA** from 16th -20th September, 2007.
- Attended AVS 58th International Symposium and Exhibition, **Nashville** ,TN, **USA** from Oct 30th -Nov 4th 2011
- Attended International Conference on Magnetic Materials and Applications (MagMa), held at **IIT Guwahati** from December 5th -7th, 2013

- Attended International Conference on Magnetic Materials and Applications (ICMagMa 2017) held at **Hyderabad**, 1st -3rd February 2017

List of Publications: (h-index:4)

1. *Investigation of structural and magnetic properties of Al and Cu doped MnBi alloy*
V.V. Ramakrishna, **S. Kavita**, Ravi Gautam , T. Ramesh and R. Gopalan (JMMM, Under Review)
2. *Tailoring of martensite transition in Ni-Mn-Sn alloy with B doping*
S.Kavita, V.V.Ramakrishna, Poonam Yadav, Shravani Kethavath, N.P.Lalla, Tiju Thomas and R.Gopalan (APL, Under Review)
3. *Influence of sintering temperature on structural, dielectric and magnetic properties of Li substituted CuFe₂O₄ nanoparticles*
V. Manikandan, A. Vanitha , E. Ranjith Kumar , **S. Kavita**
J.Magn. and Magn.Mat ,426 11 (2017)
4. *Sintering treatment effects on structural, dielectric and magnetic properties of Sn substituted NiFe₂O₄ nanoparticles*
V. Manikandan , N. Priyadharsini , **S. Kavita** , J. Chandrasekaran
Superlattices and Microstructures 1 1-7(2017)
5. *Structural and magnetic properties of the low temperature phase MnBi with ball milling*
S.Kavita, V.V.Ramakrishna, A.Srinivasan and R.Gopalan
Mater. Res.Exp 3, 056102 (2016)
6. *On the temperature dependent properties of Mn-Bi ribbons*
S.Kavita, U.M.R.Seelam, D.Prabhu and R. Gopalan
J.Magn. and Magn.Mat. 377, 485 (2015)
7. *On the question of thermal stability and magnetic properties of Mn_{0.6}Zn_{0.4}Fe₂O₄ nanoparticles prepared by sol-gel method*
Shanigraham Mallesh, **S.Kavita**, R.Gopalan and V.Srinivas
IEEE Trans. On Magn. 50, 2008204 (2014)
8. *Jahn-Teller assisted polaron hopping and associated dielectric response of PrFe_{0.5}Mn_{0.5}O_{2.95}*

C. Ganeshraj, **S. Kavita**, R. Mahendiran, N. Sharma, A. Das and P. N. Santhosh
Appl. Phys. Lett. 103, 112909 (2013)

9. *Evolution of structural and magnetic properties of FePt/C granular films with isothermal annealing*

S. Kavita, V. Raghavendra Reddy and Ajay Gupta

Solid State Communications 151, 794 (2011)

10. *On the Si⁺ ion irradiation in CoPt multilayer system*

S. Kavita, V. Raghavendra Reddy, S. Amirthapandian, Ajay Gupta and B. K. Panigrahi

Journal of Physics Condensed Matter 21, 096003 (2009)

11. *⁵⁷Fe Mossbauer study of L1₀ Ordering in ⁵⁷Fe/Pt multilayers*

V. Raghavendra Reddy, **S. Kavita**, and Ajay Gupta

Journal of Applied Physics 99, 113906 (2006)

12. *Study of low energy Ar⁺ ion irradiated ⁵⁷Fe/Pt multilayers*

V. Raghavendra Reddy, **S. Kavita**, S. Amrithapandian, Ajay Gupta and B. K. Panigrahi

Journal of Physics Condensed Matter 18, 6401 (2006)

13. *Effect of swift heavy ion irradiation in FePt system*

S. Kavita, V. Raghavendra Reddy, Ajay Gupta and D. K. Awasthi

Nucl. Inst. and Methods in Phy. Res. B 244, 19 (2006)

14. *Study of Face centered tetragonal FePt phase formation in as-deposited and heavy ion irradiated Fe/Pt multilayers*

S. Kavita, V. Raghavendra Reddy, Ajay Gupta and A. Pandian

Nucl. Inst. and Methods in Phy. Res. B 244, 206 (2006)

15. *Preparation of Fe/Pt films with Perpendicular Magnetic Anisotropy*

S. Kavita, V. Raghavendra Reddy, Ajay Gupta and Mukul Gupta

Hyperfine Interactions 160, 157 (2005)

Conference Series

1. *Effect of thickness on the $L1_0$ ordering in Fe/Pt multilayer films*

S. Kavita, V.Raghavendra Reddy and Ajay Gupta

Proc. 50thDAE Solid State symposium (2005) 46, 459-460, BARC, Mumbai

2. *^{57}Fe Mossbauer study of $L1_0$ ordering in $^{57}\text{Fe}/\text{Pt}$ multilayers.*

S. Kavita, V.Raghavendra Reddy, and Ajay Gupta

Proc. 47thDAE Solid State symposium (2004) 49, 456-457, Amritsar

3. *Formation of ordered $L1_0$ FePt phase in Fe/Pt multilayers.*

S. Kavita, V.Raghavendra Reddy and Ajay Gupta

Proc. 46th DAE Solid State symposium (2003) 46, 415-416, Gwalior

4. *X-ray Photoelectron spectroscopy study of Pt/TiN Interface.*

S. Kavita, Satish Potdar and D.M.Phase.

Proc. 46thDAE Solid State symposium (2003) 46, 375-376, Gwalior

5. *Study of Co/Pt multilayer system with thermal annealing*

S. Kavita and Ajay Gupta

AIP proceedings **DAE Solid State symposium (2010)**, Manipal University

Other Activities:

- Involved in setting up of the lab at CAEM, ARCI
- Won many prizes in interschool and intercollege Debate and elocution competitions
- Actively hosted various college functions.