

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)
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Research Interest:

- Magnetic nanostructures
- Magnetic thin films and multilayers
- Perpendicular magnetic anisotropy
- Mössbauer spectroscopy
- Surface and interface study
- Effects of Ion beam irradiation in thin films
- Permanent Magnetic 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** under the guidance of Prof. Ajay Gupta, Devi Ahilya Vishwa Vidhyalaya, Indore, India from 2002 - 2008.
- **Senior Research Fellow (SRF)** under the guidance of Prof. Ajay Gupta at UGC-DAE Consortium for Scientific Research Indore, India from 2006 to 2008
- **Project Associate/Junior Research Fellow** under Dr. V. R. Reddy 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), Vibrating sample magnetometer (VSM).
- **Powder Metallurgy routes:** Vacuum arc melting, Ball milling

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).

Scientific talk delivered:

- **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

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

List of Publications:

1. *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)
2. *On the question of thermal stability and magnetic properties of $Mn_{0.6}Zn_{0.4}Fe_2O_4$ nanoparticles prepared by sol-gel method*
Shanigraham Mallesh, **S.Kavita**, R.Gopalan and V.Srinivas
IEEE Trans. On Magn. 50, 2008204 (2014)
3. *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)
4. *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)
5. *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)
6. *^{57}Fe Mossbauer study of $L1_0$ Ordering in $^{57}Fe/Pt$ multilayers*
V. Raghavendra Reddy, **S. Kavita**, and Ajay Gupta
Journal of Applied Physics 99, 113906 (2006)
7. *Study of low energy Ar^+ ion irradiated $^{57}Fe/Pt$ multilayers*
V. Raghavendra Reddy, **S. Kavita**, S. Amrithapandian, Ajay Gupta and B. K. Panigrahi
Journal of Physics Condensed Matter 18, 6401 (2006)

8. *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)
9. *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)
10. *Preparation of Fe/Pt films with Perpendicular Magnetic Anisotropy*
S. Kavita, V. Raghavendra Reddy, Ajay Gupta and Mukul Gupta
Hyperfine Interactions 160, 157 (2005)
11. *Evolution of LTP MnBi phase with ball milling*
S.Kavita, V.V.Ramakrishna and R. Gopalan
(Manuscript under preparation)

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