

Bibekananda Maji, Ph. D

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Department of Physics
Acharya Jagadish Chandra Bose
College
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Kolkata 700020

RESEARCH EXPERIENCE

10/2013- 03/2015: Postdoctoral Fellow at National Taiwan University, Taipei, Taiwan

04/2013-10/2013: Postdoctoral Fellow at Saha Institute of Nuclear Physics, Kolkata, India

MAJOR RESEARCH INTEREST

- Strongly correlated electron systems
- Rare-earth Intermetallics
- Spintronics
- Nanomagnetism

EDUCATION

❖ Ph.D in Physics, 2013

Indian Institute of technology Bombay, Mumbai, India

Advisor: Prof. K. G. Suresh

Thesis: Magnetic and related properties in certain rare earth based intermetallic systems

❖ M.Sc (1st class) in Physics, 2008

Indian Institute of technology Bombay, Mumbai, India

Advisor: Prof. K. G. Suresh

Project: Magnetism in novel intermetallic compounds

❖ B.Sc (1st class) in Physics (Honours), 2006

Bankura Christian College, University of Burdwan, India

SCHOLASTIC HONORS/ACHIEVEMENTS

• Joint CSIR-UGC NET, 2008

Qualified the national level test conducted for research fellowship and lectureship eligibility with the highest category of CSIR JRF.

- JAM, 2006 : Qualified admission test to M.Sc. and M.Sc.-Ph.D. dual degree programs in IITs

TEACHING EXPERIENCE

- Assistant professor at Acharya Jagadish Chandra Bose College (University of Calcutta) from 02/04/2015.
- Worked as Teaching Assistant (5 semesters) in General Physics Laboratory for 1st year B.Tech. students (course Ph 117), Dept. of Physics, IIT Bombay.

FIELD OF EXPERTISE

Fabrication

- Fabrication of intermetallic alloys and compounds using arc melting furnace, high temperature chamber furnaces.
- Single crystal growth by flux method.
- Fabrication of thin films and nanostructure using sputtering.
- Fabrication of oxide materials by chemical routes and high temperature furnace.

Characterization

- Structural studies and analysis by X-ray diffraction [Panalytical X'Pert Pro Diffractometer in room temperature as well as in cryogenic temperature using window cryostat]and Rietveld analysis.
- Magnetic measurements (both AC and DC susceptibility) by Quantum Design SQUID-VSM and Physical property measurement system (PPMS) with VSM attachment.
- Magnetotransport characterization by PPMS and laboratory-built setup.
- Heat Capacity and Thermal transport by PPMS.
- Characterization of spintronics devices using transport measurements.
- Expertise in handling vacuum pumps, high temperature box and tubular furnaces, cryogenic systems and transferring liquid helium
- Mossbauer spectrometer
- Exposure to Scanning electron microscopy with energy dispersive X-ray spectroscopy (SEM/EDX), Transmission electron microscopy (TEM)
- Experience with Linde helium liquification plant and Nitrogen liquification plant at Physics Dept., IIT Bombay

SOFTWARE SKILLS

- Operating systems used: Windows and Linux.
- Origin, MATLAB
- Fullprof and Xpert Plus for refinement of X-ray diffraction data.
- MS office, LyX and LATEX.
- Experienced user of Powder cell, Ball and sticks, X'pert HighScore, PCPDF etc.

PUBLICATIONS

1. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Magnetic and electrical properties of RCO_2Mn ($R=Ho, Er$) compounds*, ***J. Magn. Magn. Mater.* 322, 2415 (2010)**.
2. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Observation of spontaneous magnetization jump and field-induced irreversibility in Nd_5Ge_3* , ***Euro. Phys. Lett.* 91,37007 (2010)**.
3. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Observation of spin-orbital compensation in $Sm_{1-x}Gd_xNi_2$* , ***Appl. Phys. Lett.* 98, 152506 (2011)**.
4. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Low temperature cluster glass behavior in Nd_5Ge_3* , ***J. Phys.: Condens. Matter* 23, 506002 (2011)**.
5. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Evidence of re-entrant spin glass phase in Nd_5Ge_3* , ***AIP conf. proc.* 1147, 1193 (2011)**.
6. **Bibekananda Maji**, K. G. Suresh, X. Chen, and R. V. Ramanujan, *Magnetic and magnetocaloric properties of ball milled Nd_5Ge_3* , ***J. Appl. Phys.* 111, 073905 (2012)**.
7. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Anomalous magnetoresistance and magnetocaloric properties of $NdRu_2Ge_2$* , ***Appl. Phys. Lett.*, 102, 062406 (2013)**.
8. Yu.V. Knyazev, A.V. Lukoyanov, Yu.I. Kuz'min, **B. Maji**, K. G. Suresh, *Electronic structure and optical properties of Nd_5Ge_3 compound*, ***Journal of alloys and compounds*, 588, 725 (2014)**
9. **Bibekananda Maji**, and K. G. Suresh, *Nonequilibrium magnetic properties in Nd_5Ge_3* , ***Journal of alloys and compounds* 605, 29 (2014)**
10. Mayukh K. Ray, **Bibekananda Maji**, K. Bagani, K. G. Suresh and S. Banerjee, *Role of partial Cu/Co substitution on magnetic and electronic properties of $Ni_{46}Mn_{43}In_{11}$ shape memory alloy*, ***Journal of Physics D: Applied Physics* 47, 385001 (2014)**

11. **Bibekananda Maji**, Mayukh K. Ray, K. G. Suresh and S. Banerjee, *Large exchange bias and magnetocaloric effect in $TbMn_2Si_2$* , ***J. Appl. Phys.* *116*, 213913 (2014)**
12. **Bibekananda Maji**, K. G. Suresh and A. K. Nigam, *Anomalous magnetic, transport and thermal properties of Gd_5Ge_3* , [arxiv:1211.2515](https://arxiv.org/abs/1211.2515).
13. **Bibekananda Maji**, Mayukh K. Ray, K. G. Suresh and S. Banerjee, *Magnetic properties and large reversible magnetocaloric effect in Er_3Pd_2* , In preparation
14. **Bibekananda Maji**, R. Sankar, I. Panneer Muthuselvam, F. C. Chou, and, Minn-Tsong Lin, *Two-dimensional transport-induced linear magneto-resistance in giant Rashba system $BiTeI$ single crystal*, In preparation

CONFERENCES

1. Attended and presented paper at "The 19th International conference on magnetism with SCES" from July 8-13, 2012 held at Busan, Korea.
2. Accepted paper at the international conference on "*Strongly Correlated Electron system*", from 29th August- 3rd September 2011 in Cambridge, UK.
3. Attended and presented paper at the 56th *DAE Solid State Physics Symposium (DAE SSPS 2011)* held at SRM University, Kattankulathur, Chennai, Tamil Nadu, India, from 19-23, December, 2011.
4. Attended and presented paper at the international conference on "*Magnetic Materials*", from Oct. 25-29, 2010, organized by Saha Institute of Nuclear Physics, Kolkata, India.
5. Attended and presented paper at the international Workshop on "*Principles and Design of Strongly Correlated Electronic Systems*" from Aug. 2-13, 2010, organized by the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy.
6. Attended and presented paper at the international conference on "*Magnetism, Superconductivity and Phase Transition in Novel and Complex Materials*" from Nov.1-14, 2009, organized by S N Bose National Centre For Basic Sciences, Kolkata, India.
7. Attended the *Indo-US Workshop on Advanced Magnetic Materials and their application*, organized jointly by IIT Bombay and Northeastern University, USA, from March 1-4, 2009, held at Indian Institute of Technology Bombay, Powai, Mumbai, India.
8. Attended the One day Workshop on "*Cryogenics and Physics at Low Temperature*" organized by TIFR, Mumbai, India, 9th July 2009.
9. Attended the *DAE Solid State Physics Symposium (DAE SSPS 2008)* held at Bhabha Atomic Research Centre (BARC) and Tata Institute of Fundamental Research (TIFR), Mumbai, India, from 16-20, December, 2008