

Dr. Roshnee Sahoo

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Binayak Acharya Degree College,
Berhampur, Odisha
Date of birth: 09/07/1985
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RESEARCH INTEREST

Thin film growth of intermetallic and study of its magnetic and electronic states. Study the utilization of magnetic thin films for future spintronics applications. Basic structure, magnetic and electronic properties study in the thin film as well as in bulk form.

Special Interest:

- Spintronics
- Exchange bias(using multilayer soft/hard or FM/AFM)
- Thin film growth and device fabrication
- Hard magnet
- Magnetocaloric effect
- Neutron diffraction
- Magneto-structural coupling
- First order transition

ACADEMIC RECORD

- Post-doctoral research fellow with Prof. C. Felser - Max Planck Institute for chemical physics of solids, Germany May 2013-July 2017
- Ph. D.- Indian Institute of Technology Bombay, India Jan 2009-May 2013
- M.Sc. in Physics- Utkal University, Bhubaneswar, India 2006-2008

ACADEMIC AWARDS/ACHIEVEMENTS

- Physics Honors topper in B.Sc.
- Qualified National level exam GATE (Graduate Aptitude Test of Engineering) with 95 percentile in 2008.
- Qualified Lectureship in National level NET exam in 2008.
- DST inspire faculty award in 2017
- Odisha Public Service Commission qualified Lectureship position OES, Group-A, 2017
- Odisha Physical Society Young Scientist Award for the year 2018
- Visiting Scientist at Max Planck Institute for Chemical Physics of Solids, Dresden, Germany May 2019-June 2019
- “Best Presentation Award” in oral presentation at NSRAP Seminar that was held from 23rd & 24th March 2019 in PG Department of Physics, Berhampur University, Ganjam, Odisha

LIST OF PUBLICATIONS: REFEREED JOURNALS

Journal	Number	Impact Factor
Nature	1	69.50
Advanced Materials	1	32.09
Physical Review B	1	3.908
Applied Physics Letters Materials	1	6.635
Applied Surface Science	1	6.707
Applied Physics Letter	3	3.971
Journal of Physics D: Applied Physics	1	3.207
Journal of Applied Physics	5	2.877
Journal of Magnetism and Magnetic Materials	3	2.993

For bibliographic information, see Google Scholar

<https://scholar.google.com/citations?user=QYsUd1sAAAAJ&hl=da>

REFEREE FOR JOURNALS

IEEE Magnetic letters, Journal of Physics D: Applied Physics, Scientific Report

FULL LIST OF PUBLICATIONS

1. "Anomalous Hall effect and the role of Berry curvature in Co_2TiSn Heusler films"
B. Ernst, **R. Sahoo***, Y. Sun, J. Nayak, L. Muechler, A. K. Nayak, N. Kumar, J. Gayles, A. Markou, G. H. Fecher, C. Felser, Phys. Rev. B. **100**, 5 (2019)
2. "Enhanced magnetization and anisotropy in Mn-Ga thin films grown on LSAT"
J. Karel, F. Casoli, L. Nasi, P. Lupo, **R. Sahoo**, B. Ernst, A. Markou, A. Kalache, R. Cabassi, F. Albertini, C. Felser, Appl. Phys. Lett. 111, 182405 (2017)
3. "Heteroepitaxial growth of tetragonal MnFeGa Heusler films with perpendicular anisotropy"
A. Kalache, A. Markou, S. Selle, T. Höche, **R. Sahoo**, G. H. Fecher and C. Felser, APL Mat. 5, 096102 (2017).
4. "Magnetic antiskyrmions above room temperature in tetragonal Heusler Materials"
A. K. Nayak, V. Kumar, T. Ma, P. Werner, E. Pippel, **R. Sahoo**, F. Damay, U. K. Rössler, C. Felser and S. S. P. Parkin, Nature 548, 561 (2017).
5. "Field dependent neutron diffraction study in $\text{Ni}_{50}\text{Mn}_{38}\text{Sb}_{12}$ Heusler alloys"
R. Sahoo, A. Das, N. Stuesser and K. G. Suresh, Appl. Phys. Lett. 110, 021902 (2017).

6. "Compensated ferrimagnetic tetragonal Heusler thin films for antiferromagnetic spintronics"

R. Sahoo, L. Wollmann, S. Selle, T. Höche, B. Ernst, A. Kalache, C. Shekhar, N. Kumar, S. Chadov, C. Felser, S. S. P. Parkin and A. K. Nayak, *Adv. Mater.* 28, 8499 (2016).

7. " Mn_xGa_{1-x} nanodots with high coercivity and perpendicular magnetic anisotropy"

J. Karel, F. Casoli, P. Lupo, F. Celegato, **R. Sahoo**, B. Ernst, P. Tiberto, F. Albertini, C. Felser, *Appl. Surf. Sci.* 387, 1169 (2016).

8. "Titanium nitride as a seed layer for Heusler compounds"

A. Niesen, M. Glas, J. Ludwig, J. M. Schmalhorst, **R. Sahoo**, D. Ebke, E. Arenholz, G. Reiss, *J. Appl. Phys.* 118, 243904 (2015).

9. "Magnetic phase coexistence and metastability caused by the first-order magnetic phase transition in the Heusler compound Mn_2PtGa "

A. K. Nayak, **R. Sahoo**, C. S. Mejia, M. Nicklas and C. Felser, *J. Appl. Phys.* 117, 17D715 (2015).

10. "Structural, electronic and magnetic properties of perpendicularly magnetized Mn_2RhSn thin film"

O. Meshcheriakova, A. Kohler, S. Ouardi, Y. Kondo, T. Kubota, C. Shekhar, J. Karel, C. V. Barbosa, R. Stinshoff, **R. Sahoo**, S. Ueda, E. Ikenag, S. Mizukami, S. Chadov, D. Ebke, G. H. Fecher and C. Felser, *J. Phys. D: Appl. Phys.* 48, 164008 (2015).

11. "Structural and magnetic properties probed using neutron diffraction technique in $Ni_{50-x}Co_xMn_{38}Sb_{12}$ ($x=0$ and 5) Heusler system"

R. Sahoo, K. G. Suresh and A. Das, *J. Mag & Mag Mat.* 371, 94 (2014).

12. "Effect of annealing on the magnetic, magnetocaloric and magnetoresistance properties of Ni-Co-Mn-Sb melt spun ribbons"

R. Sahoo, D. M. Raj Kumar, D. Arvindha Babu, K. G. Suresh, A. K. Nigam and M. Manivel Raja, *J. Mag & Mag Mat.* 347, 95 (2013).

13. "In-plane and out of plane magnetic properties in $Ni_{46}Co_4Mn_{38}Sb_{12}$ Heusler alloys ribbons"

R. Sahoo, D. M. Raj Kumar, D. Arvindha Babu, K. G. Suresh and M. Manivel Raja, *J. Appl. Phys.* 113, 17A940 (2013).

14. "Structural, magnetic, magnetocaloric and magneto transport properties in Ge doped Ni-Mn-Sb Heusler alloys"

R. Sahoo, A. K. Nayak, K. G. Suresh and A. K. Nigam, *J. Mag & Mag Mat.* 324, 1267 (2012).

15. "Effect of Si and Ga substitutions on the magnetocaloric properties of NiCoMnSb quaternary Heusler alloys"

R. Sahoo, A. K. Nayak, K. G. Suresh and A. K. Nigam, *J. Appl. Phys.* 109, 07A921 (2011).

16. "Effect of Fe substitution on magnetic, transport, thermal and magnetocaloric properties in $\text{Ni}_{50}\text{Mn}_{38-x}\text{Fe}_x\text{Sb}_{12}$ Heusler alloys"

R. Sahoo, A. K. Nayak, K. G. Suresh and A. K. Nigam, J. Appl. Phys. 109, 123904 (2011).

17. "Anisotropic induced large exchange bias behavior in Ni-Co-Mn-Sb ball milled sample"

A. K. Nayak, **R. Sahoo**, K. G. Suresh, A. K. Nigam, X. Chen and R. V. Ramanujan, Appl. Phys. Lett. 98, 232502 (2011).

EXPERIMENTAL PROPOSAL

1. Neutron proposal accepted and performed field dependent Neutron diffraction measurement from 22-27 August 2012, in HZB, Hahn-Meitner-Platz 1, Berlin, Germany.

CONFERENCE PROCEEDING

1. "Effect of annealing on the structural, microstructural and magnetic properties in $\text{Ni}_{46}\text{Co}_4\text{Mn}_{38}\text{Sb}_{12}$ ribbons" **R. Sahoo**, D. M. Raj Kumar, D. Arvindha Babu, K. G. Suresh, and M. Manivel Raja, AIP conference proceeding. 1512, 1074 (2013).

2. "Effect on magnetic and magnetocaloric properties with Ge substitution in Ni-Mn-Sb Heusler alloys" **R. Sahoo**, A. K. Nayak, K. G. Suresh and A. K. Nigam, AIP conference proceeding 1447, 1225 (2012).

CONFERENCE ATTENDED

1. Attended virtual "11th Annual Symposium on Magnetism 2021" 16th-17th Dec 2021, IEEE Magnetism Society, Singapore.

2. Attended online "Faculty Development Program on Advances and Challenges in Physics" 13th-18th Dec 2021, HRDC, FM University, Balasore, Odisha, India.

3. Attended online national symposium "NS-MagSpin-2021" on 20th Dec 2021, IIT Hyderabad, Hyderabad, India.

4. Attended and made oral presentation (**Best Presentation Award**) at NSRAP Seminar from 23rd-24th March 2019, P. G. Department of Physics, Berhampur University, Bhanja Bihar, Odisha, India.

5. Attended and made oral presentation at ICMAGMA Conference from 9th-13th December 2018, School of Physical Science, NISER, Bhubaneswar, Odisha, India.

6. Attended and made oral presentation at MMM Conference, from 6th-10th November, 2017, Pittsburgh, USA.

7. Attended and made oral presentation at DPG Conference, from 19th - 24th March, 2017, Dresden, Germany.

8. Attended Deutscher MBE workshop, on Oct 13 & 14, 2016, held at Garching, Munich, Germany.

9. Attended ICNS mini symposium on spintronics and 2D material, on May 2, 2016, held at MPI, Halle, Germany.

10. Attended and made **oral** presentation at 13th joint MMM/Intermag conference, from Jan 11-Jan 15, 2016, held at San Diego, California.

11. Attended and made **oral** presentation at 59th MMM conference, from 3-Nov 7, 2014, held at Honolulu, Hawaii.
12. Attended and made **poster** presentation at ASPIMATT workshop, on Nov 24 & 25, 2014, Sendai, Japan.
13. Attended and made **oral** presentation at DPG spring meeting, from Mar 30-Apr 4, 2014, held at Dresden, Germany.
14. Attended and made **oral** presentation at Joint European Magnetic Symposia JEMS 2013, from Aug 25-30, 2013, held at Rhodes, Greece.
15. Attended and made two **poster** presentations at the 12th Joint MMM/Intermag Conference, from Jan 14-18, 2013, held at Chicago, Illinois, USA.
16. Attended and got **best poster award** at the "57th DAE Solid State Physics Symposium" (DAE SSPS 2012), from 3-7 December, 2012 held at IIT Bombay, India.
17. Attended and made **oral** presentation at the international conference on "Magnetic Refrigeration at Room Temperature, THERMAG V", from 17-20 September, 2012, held at Grenoble, France.
18. Attended and made **poster** presentation at the "56th DAE Solid State Physics Symposium" (DAE SSPS 2011), from 19-23 December, 2011, held at SRM University Chennai, India.
19. Attended and made **poster** presentation in winter school on "Chemistry and Physics Materials", from 5-10 December, 2011, JNCASR, Bangalore, India.
20. Attended and made **poster** presentation in "DCMP and MS meeting", 14 April, 2011, TIFR, Mumbai, India.
21. Attended and made **poster** presentation in first department in house symposium "SYMPHY 2011", 15 January, 2011, held at IIT Bombay, Mumbai, India.
22. Attended and made **oral** presentation at the international conference on "Magnetic Materials", from 25-29 October, 2010, organized by Saha Institute of Nuclear Physics, Kolkata, India
23. Attended the "3rd AONSA neutron school", from 4-9 October, 2010, BARC, Trombay, Mumbai, India.
24. Attended the "Indo-US Workshop on Advance Magnetic Materials and their Applications", from 1-4 March, 2009, held at IIT Bombay, Mumbai, India.

INTERNATIONAL/NATIONAL COLLABORATION

Prof. C. Felser

Max Planck Institute for Chemical Physics of Solids,
Dresden, Germany

Prof. S. S. P. Parkin

Max Planck Institute of Microstructure Physics, Halle,
Germany

Prof. K. G. Suresh

Indian Institute of Technology Bombay, Mumbai, India

Dr. A. Das

Bhabha Atomic Research Centre, Mumbai, India

Prof. N. C. Mishra

Retired Professor, Department of Physics, Utkal University,
Bhubaneswar, India