

Sk Sabyasachi, M. Sc., Ph. D.

Assistant Professor

Department of Physics

Sundarban Hazi Desarat College, University of Calcutta

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Professional Experiences:

- **Assistant Professor** - Department of Physics, Sundarban Hazi Desarat College, University of Calcutta. Since **January, 2020**
- **Guest Faculty** - Department of Physics, Sammilany Mahavidyalaya, Baghajatin, E.M. Bypass, Near Highland Park. Presidency University, **2018-2019 and 2019-2020**

Education:

Ph. D. (Physics): Thesis: Magnetic and transport properties of bulk and nano structured transition metal oxides , Indian Association for the Cultivation of Science under University of Calcutta, Kolkata, India. 2015. Advisor: Prof. Saurav Giri

M. Sc. in Physics with specialization in Condensed Matter Physics, Visva-Bharati University, 2008

B. Sc. in Physics with major and minor in Chemistry and Mathematics, Visva-Bharati University, 2006

Fellowships and Awards:

Qualified **NET CSIR JRF** , Govt. of India, December 2008, in **PHYSICAL SCIENCES**

Qualified Graduate Aptitude Test in Engineering (**GATE**), in 2009

Qualified Joint Entrance Screening Test in Physics (**JEST**), in 2008

Teaching Interest:

- Mechanics
- Thermodynamics
- Solid State Physics

- Optics
- Electricity and Magnetism
- Analog Electronics

Research Interest:

- Magnetic nanomaterials and thin film devices.
- Magnetic and transport properties of strongly correlated systems.
- Low Dimensional Systems.
- Multiferroics.
- Structural Study using different Diffraction tools (Neutron, Synchrotron).

SKILLS:

- Experience in sample preparation in bulk and nano form by solid-state reaction, wet chemical route and ball milling method.
- Experience in designing and fabricating instruments useful in electrical, dielectric and pyroelectric measurements.
- Experience in low temperature Mossbauer Spectroscopy measurement.
- Experience in Rietveld refinement of X-ray and Neutron diffraction data.
- Conversant with computer programming languages: Python, C, FORTRAN 90, and other related scientific softwares.

LIST OF PUBLICATIONS:

- (1) ***“Surface and exchange bias effect in nanocrystalline Cr_2O_3 and NiO ”***, Sk Sabyasachi, S. Majumdar, S. Giri, Solid State Communications 151, 1515, (2011).
- (2) ***“Glassy magnetic phase driven by short range charge and magnetic ordering in Nanocrystalline $\text{La}_{1/3}\text{Sr}_{2/3}\text{FeO}_3$: Magnetization, Mossbauer, and polarized neutron studies”***, Sk. Sabyasachi, M. Patra, S. Majumdar, S. Giri, S. Das, V. S. Amaral, O. Iglesias, W. Borghols and T. Chatterji, Phys. Rev. B 86, 104416, (2012).
- (3) ***“Influence of A-site ionic size, disorder, and orthorhombic distortion on magnetic and transport properties of $\text{Sm}_{0.5}\text{Ca}_{0.5-x}\text{Sr}_x\text{MnO}_3$ ”***, Sk Sabyasachi, A. Karmakar, S. Majumdar, S. Giri, S. Das, and V. S. Amaral, J. Appl. Phys. 112, 073905, (2012).
- (4) ***“Critical phenomena in $\text{Pr}_{0.52}\text{Sr}_{0.48}\text{MnO}_3$ single crystal”***, Sk Sabyasachi, A. Bhattacharyya, S. Majumdar, S. Giri, T. Chatterji, Journal of Alloys and Compounds 577, 165, (2013).
- (5) ***“Constricted double loop hysteresis and exchange bias attributed to the surface anisotropy in nanocrystalline $\text{La}_{1/3}\text{Sr}_{2/3}\text{Fe}_{1-x}\text{Cr}_x\text{O}_3$ ”***, Sk Sabyasachi, M. Patra, S. Majumdar, S. Giri, Journal of Magnetism and Magnetic Materials 344, 20, (2013).
- (6) ***“Field Induced Phase Transition In $\text{Sm}_{0.5}(\text{Ca}_{0.5-x}\text{Sr}_x)_{0.5}\text{MnO}_3$ ”***, Sk Sabyasachi, S. Majumdar, and S. Giri, AIP Conference Proceedings 1591, 1539, (2014).

- (7) ***“Colossal magnetocapacitance near room temperature in ferromagnetic Cr_2O_3 film”***, A. Ghosh, K. Dey, Sk Sabyasachi, A. Karmakar, S. Majumdar, and S. Giri, Appl. Phys. Lett. 103, 052412, (2013).
- (8) ***“Magnetic Memory Effects in $\text{Fe}/\gamma\text{Fe}_2\text{O}_3$ Nanostructures”***, S. Biswas, Sk Sabyasachi, A. Bhaumik, and R. Ray, IEEE Transactions On Magnetism 50, 3, (2014).
- (9) ***“Size effect on magnetic phase coexistence in $\text{Pr}_{0.5}\text{Sr}_{0.5}\text{Mn}_{1-x}\text{Cr}_x\text{O}_3$ ”***, M. Patra, Sk Sabyasachi, S. Majumdar, S. Giri, A. Kumar, S. M. Yusuf, and V. Siruguri, Materials Research Express 1, 036109, (2014).
- (10) ***“Semiconducting properties of a ferromagnetic nanocomposite: Fe@ZnO ”***, S. Biswas, S. Sarkar, D. De, Sk Sabyasachi, A. Bhaumik, and R. Ray, Indian Journal of Physics, 89,703, 2015.
- (11) ***“Structural and dielectric characterization of triple perovskites $\text{Ba}_3\text{NiTaNbO}_9$ and $\text{Ba}_3\text{NiTaSbO}_9$ ”***, A. Barua , S.K. Dey , S.K. Sabyasachi , S. Kumar , Journal of Alloys and Compounds 854, 157217, (2021).

Articles Presented In Conference/Symposium:

- (1) ***“Exchange Bias Effect in $\text{La}_{1/3}\text{Sr}_{2/3}\text{Fe}_{1-x}\text{Cr}_x\text{O}_3$ Nanoparticles”***, Sk Sabyasachi, M. Patra, S. Majumdar, and S. Giri, International Conference on Magnetic Materials (ICMM- 2010), Saha Institute of Nuclear Physics, Kolkata, India. October 25th to October 29th, 2010.
- (2) ***“Field Induced Phase Transition In $\text{Sm}_{0.5}(\text{Ca}_{0.5-x}\text{Sr}_x)_{0.5}\text{MnO}_3$ ”***, Sk Sabyasachi, S. Majumdar, and S. Giri, 58th DAE Solid State Physics Symposium, December 17-21, 2013, Thapar University, Patiala, Punjab, India.

Attended School:

“XV School on Neutrons As Probes Of Condensed Matter”, Bhaba Atomic Research Centre (BARC), Mumbai, January 8 – 12, 2013

Orientation/ Refreshers Course/ Work Shop Attended:

Faculty Induction Programme: *“Participated in 10th Faculty Induction Programme (GURU-DAKSHTA)”* by HRDC centre of Ranchi University, Ranchi, from 03/03/2022 to 30/03/2022.

Webinar Attended:

“First Training Program on Fundamentals of Python Language” by West Bengal State Council of Higher Education in Collaboration with Maulana Abul Kalam Azad University of Technology , West Bengal from 16.02.2022 to 03.03.2022

One Day National e-Seminar On ***“DISCOVERING THE ‘SMALL’ WORLD”*** by Department of Physics, Sukumar Sengupta Mahavidyalaya Keshpur, Paschim Medinipur, West Bengal, India August 08, 2020

International ***“Webinar on Current Topics in Emerging Magnetic Materials”*** by Surya Sen Mahavidyalaya, Surya Sen Colony, Block - B, Siliguri - 04