PARTHA HAJRA

Department of Physics
Sarsuna College (Calcutta University)
Address: 4/HB/A, Ho-Chi-Minh Sarani, Sarsuna Upanagari, Kolkata- 700 061
E-mail: parthahajrap@gmail.com

Academic Qualifications

- **Ph. D. (Science)** December, 2008 – January, 2013

(Indian Association for the Cultivation of Science (I.A.C.S.)/Jadavpur University, India)
Thesis Title: "Investigation on some Magnetic and Multiferroic Nanocomposites"
Supervisors: Prof. Dipankar Chakravorty and Prof. Shyamal Kumar Saha.

- **M. Sc. (Physics)** 2005

Specialization – (Condensed Matter physics/ Materials Science**)**
Guru Ghasidas University (**A Central University**), India.

- **B. Sc. (Physics)** 1999

The University of Burdwan, India.

Teaching Experience

Assistant Professor in Physics:

- Sammilani Mahavidyalaya (Calcutta University), India. 01-04- 2006 **to** 01-12- 2008
- Sarsuna College (Calcutta University), India. 01-10-2015 - Present

Teaching Subject: Mathematical methods, Solid State Physics, Electrostatics, Magnetism, Statistical Mechanics, Heat and thermodynamics.

Research Experience

Postdoctoral Research 2013 – 2015

(Dr. D. S. Kothari Postdoctoral Research Fellow (U.G.C., Govt. of India))
Title:-"Optical, electrical and magnetic properties of Graphene oxide-based metal oxide nanocomposites", Thin Film and Nano Science Laboratory, Department of Physics; Jadavpur University, India.

Research Interest/Area

- Synthesis, fabrication and characterization of nanocomposite materials.
- Graphene oxide-based metal oxide nanocomposites, Solar Cell, Supercapacitors.
- Semiconductor, Magnetic, Multiferroic materials.

Awards/Achievements

- Dr. D. S. Kothari Postdoctoral Research Fellow (U.G.C., Govt. of India) 2013-2015
- Senior Research Fellow (DST Project Fellow, Govt. of India) 2010-2012
- Visiting Staff/Research Fellow 2011
  (University of New South Wales (UNSW), Sydney, Australia)
- Graduate Aptitude Test in Engineering (GATE, Govt. of India) 2010

- Junior Research Fellow (DST Project Fellow, Govt. of India) 2008-2010

Project Profile

- **U.G.C. (Govt. of India) Project:** 2013-2015

Project Title: "Optical, electrical and magnetic properties of Graphene oxide-based metal oxide nanocomposites".
Supervisor- Prof. Kalyan Kumar Chattopadhyay
Thin Film and Nano Science Laboratory, Department of Physics; Jadavpur University, India.

- **Indo-Australian project:** 2010-2012

Project Title: "Nano-composite Materials for clean energy: Energy generation storage, saving and safety".
Supervisor- Prof. Dipankar Chakravorty
Indian Association for the Cultivation of Science, India and University of New South Wales (UNSW), Sydney, Australia.

- **Indo-Russian project:** 2008-2010

Project Title: "Investigation on Synthesis and Properties of Magnetic Nanostructures and Nanocomposites by Electromagnetic Method".
Supervisor- Prof. Dipankar Chakravorty
Indian Association for the Cultivation of Science, Kolkata, India and Kotel'nikov Institute of Radio Engineering and Electronics, Russian Academy of Sciences, Russia.

List of Publications

[1] "Exchange bias in ferrimagnetic–antiferromagnetic nanocomposite produced by mechanical attrition" **Partha Hajra**, Soumen Basu, Saurav Dutta, Pradip Brahma, Dipankar Chakravorty, *J. of Magn. and Magn. Mater.*, **321,** 2269–2275 (2009), http://dx.doi.org/10.1016/j.jmmm.2009.01.037.

[2] "Magnetodielectric properties of nanodisc bismuth ferrite grown within Na-4 mica nanochannels" **Partha Hajra**, Mrinal Pal, Anindya Datta, Dipankar Chakravorty, Vyacheslav Meriakrie and Michael Parkhomenko, *J. of Appl. Phys.*, **108**, 114306 (2010), http://dx.doi.org/10.1063/1.3512910.

[3] "Magnetodielectric coupling in Co_3O_4 nanoparticles grown within a silica glass**" Partha Hajra**, Saurav Dutta, Pradip Brahma, Dipankar Chakravorty, *J. of Magn. and Magn. Mater.*, **323,** 864–867 (2011), http://dx.doi.org/10.1016/j.jmmm.2010.11.068.

[4] "Multiferroic behaviour in composites of nickel - exchanged glass containing nanoparticles of Barium titanate" R.Venkata Ram Naidu, **Partha Hajra**, Anindya Datta, Santanu Bhattacharya, and Dipankar Chakravorty, *J. Am. Ceram. Soc.*, **94** [9] 3006–3011 (2011), http://dx.doi.org/10.1111/j.1551-2916.2011.04490.x.

[5] "Enhancement of Magnetic Anisotropy in Mechanically Attrited Cr_2O_3 nanoparticles" **Partha Hajra**, Pradip Brahma, Saurav Dutta, Sourish Banerjee, Dipankar Chakravorty. *J. of Magn. and Magn. Mater.*, **324,** 1425–1430 (2012), http://dx.doi.org/10.1016/j.jmmm.2011.11.064.

[6] "Room temperature magnetoelectric coupling in single crystal $Bi_2Fe_4O_9$ nanotubes grown within an anodic aluminum oxide template." **Partha Hajra**, Ramaprasad Maiti, Dipankar Chakravorty. *Materials Letters*, **81**, 138 (2012), http://dx.doi.org/10.1016/j.matlet.2012.04.123.

[7] "Giant Magnetocapacitance effect in Nickel Zinc Ferrite Impregnated Mesoporous Silica" Shilpi Banerjee, **Partha Hajra**, Asim Bhaumik and Dipankar Chakravorty. *Materials Letters,* **79**, 65-68 (2012), http://dx.doi.org/10.1016/j.matlet.2012.03.076.

[8] "Large Magnetodielectric Effect in Nickel Zinc Ferrite-Lithium Niobate Nanocomposite" Shilpi Banerjee, **Partha Hajra**, Asim Bhaumik, Sri Bandyopadhyay and Dipankar Chakravorty, *Chemical Physics Letters,* **541**, 96–100 (2012), http://dx.doi.org/10.1016/j.cplett.2012.05.056 .

[9] "Exchange Bias effect in Nickel Zinc Ferrite-Mesoporous Silica Nanocomposites" Shilpi Banerjee, **Partha Hajra,** Mykanth Reddy Mada, Asim Bhaumik, Sri Bandyopadhyay, Dipankar Chakravorty. *J. of Magn. and Magn. Mater.*, **332,** 98–102 (2013), http://dx.doi.org/10.1016/j.jmmm.2012.12.023.

[10] "Magnetodielectric effect in $Ni_{0.5}Zn_{0.5}Fe_2O_4$-$BaTiO_3$ nanocomposites" Shilpi Banerjee, **Partha Hajra**, Anindya Datta, Asim Bhaumik, Mykanth Reddy Mada, Sri Bandyopadhyay and Dipankar Chakravorty. *Bull. Mater. Sci.*, **37**, 497–504, (2014).

[11] "High creep strain rates observed in nanocrystalline α-Fe_2O_3 particles by nano indentation measurement" **P. Hajra**, D. R. Saha, M. R. Mada, S. Dutta, P. Brahma, P. Boughton, S. Bandyopadhyay, D. Chakravorty. *Materials Science and Engineering A,* **605**, 1-7 (2014), http://dx.doi.org/10.1016/j.msea.2014.03.038.

[12] RGO enveloped vertically aligned Co3O4 nanowires on carbon fabric: A highly efficient prototype for flexible field emitter arrays by P.Howli, Swati Das, Subhajit Saha, Biswajit Das, **Partha Hazra**, Dipayan Sen and Kalyan Kumar Chattopadhyay, *RSC Adv***, 6**, 91860-91869, (2016) ISSN: 2046-2069, https://doi.org/10.1039/C6RA19436B

Review Articles

[1] "Multiferroic nanocomposites" D. Chakravorty, Ramaprasad Maiti and **Partha Hajra**. *Nanotech Insights*, **1,** 27 (2010).

[2] "Nanostructure Multiferroic" **Partha Hajra**, Ramaprasad Maiti, Dipankar Chakravorty. *Trans. Ind. Ceram. Soc.,* **70 (2),** 53-64 (2011).

Conference Proceedings

[1] "Nanoindentation Studies on Composites of CuO Nanoparticles-Lithia Silica Nanoglass" Dhriti Ranjan Saha, **Partha Hajra**, Mykanth Reddy Mada, Philip Boughton, Sri Bandyopadhyay, Dipankar Chakravorty, *AIP Conference Proceedings*, **1447**, 287 (2012), http://dx.doi.org/10.1063/1.4709992

[2] "Nanoindentation Studies of Nickel Zinc Ferrite Embedded Mesoporous Silica template" Shilpi Banerjee, **Partha Hajra,** Mykanth Reddy Mada, Sri Bandyopadhyay, Dipankar Chakravorty, *AIP Conference Proceedings*, **1512**, pp. 198-199 (2012); doi:http://dx.doi.org/10.1063/1.4790979).

[3] "Creep behaviour in $Ni_{0.5}Zn_{0.5}Fe_2O_4$-$BaTiO_3$ nanocomposites" Shilpi Banerjee, **Partha Hajra**, Mykanth Reddey Mada, Sri Bandyopadhyay, Dipankar Chakravorty, (National Conference on Recent Development and Applications of Nanoscience and Nanotechnology, Nano Tech 2012, Techno India, Kolkata, India, *ISBN:-978-81-924141-1- 0*.

National Conference/Seminar

[1] Participated in National Level Seminar on "Undergraduate Physics Education and Advancement in Physics Research**"** 2006 (Sponsored by UGC and co-sponsored by DST and INSA.) organized by Sammilani Mahavidyalaya (Calcutta University).

[2] Presented a poster entitled "Magnetic Properties of Core-Shell Nano-Composites Produced by Mechanical Attrition" in the National Review and Co-Ordination Meeting 2009- Nano Mission Council, DST, Govt. of India (NSNT'09) organized by S. N. Bose National Centre for basic Sciences, Kolkata, India.

[3] Presented a poster in the "Foundation Day In-house Symposium-2009". Indian Association for the Cultivation of Science, Kolkata, India.

[4] Participated in a Workshop on "Advanced Functional Materials (WAFM-2012)" (Under U.G.C. Networking Programme) March 19-24, 2012. Department of Physics, Banaras Hindu University, Varanasi, India.

[**5**] Presented a poster entitled "Study of variation of dielectric property with applied magnetic field of some silica based nanocomposites" in National Conference on Sustainable Development through Innovative Research in Science and Technology, 28-29th September, 2012 under DST PURSE Programme, Organized by Jadavpur University, Kolkata, India.

[6] Attended in the ACS on Campus event at Indian Association for the Cultivation of Science on October 12, 2012. Kolkata, India.

[7] Presented a poster entitled "Multiferroic Behavior of Nanodisc $BiFeO_3$ Grown Within Na-4 mica Nanochannels" in 1st International Workshop on Nanomaterials (IWoN): Engineering Photon and Phonon Transport, December 14-15, 2012; School of Materials Science and Nanotechnology, Jadavpur University, Kolkata, India.

International Conference/Seminar

[1] Participated in the "International Conference on Fundamental and Applications of Nanoscience and Nanotechnology" 2010. Jadavpur University, Kolkata, India.

[2] Presented a poster entitled "Magnetoelectric coupling at room temperature in single Crystal $Bi_2Fe_4O_9$ (BFO) nanotube" in India-Australia International workshop on Nanotechnology in Materials and Energy Application (IAWNT-2011). Jadavpur University, Kolkata, India.

Oral presentation

[**1**] Presented an Oral presentation in national conference in the "Recent developments and Applications of nanoscience and nanotechnology" 2012. Techno India, Kolkata, India.