

Dr. Susnata Bera

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EDUCATIONAL BACKGROUND

Post-Doctoral Fellowship:	<i>National Post-Doctoral Fellow (Young Scientist)</i> (2016-2018)
Institution:	Dept. of Chemistry, IIT Delhi, India
Project Title:	Solution Processed CZTS Solar Cell for Green Energy
PhD in Physics:	March 2016
Institution:	Dept. of Physics, IIT Kharagpur, India
Thesis Title:	<i>Optical and Electrical Properties of Chalcogenide Semiconductor Nanostructures for Hybrid Devices</i>
Master of Science (M Sc):	(2006-2008)
Institution:	Department of Physics & Techno physics, Vidyasagar University, West Bengal, India
Major:	<i>Physics with Solid State Physics</i>
Bachelor of Science (B Sc):	(2003-2006)
Institution:	Vidyasagar University, West Bengal, India
Major:	<i>Physics, Mathematics and Computer Science</i>
Intermediate:	(2001-2003)
Council	WBCHSE, West Bengal
Major	<i>Physics, Chemistry, Mathematics and Biology</i>
Matriculation:	2001
Board	WBBSE, West Bengal

LIST OF RESEARCH PUBLICATIONS

Book Published

1. **Susnata Bera**, “Opto-Electrical Properties of Chalcogenide Semiconductor Nanostructure” published by LAP Lambert Academic Publishing on 21-06-2016, ISBN-978-3-659-90875-0.

International Journals

1. Md. Samim Hassan, Pooja Basera, **Susnata Bera**, Mona Mittal, Samit Ray, Saswata Bhattacharya, Sameer Sapra, “Enhanced Photocurrent owing to Shuttling of Charge Carriers across 4-Aminothiophenol Functionalized $\text{MoSe}_2\text{-CsPbBr}_3$ Nanohybrids”, ACS Applied Materials & Interfaces (In Press).
2. **Susnata Bera**, Subhendu Sarkar, Md. Samim Hassan, Divya Gupta, Sameer Sapra, Samit K. Ray, “ $\text{MoSe}_2\text{-Cu}_2\text{S}$ Heterostructure Photodetectors with High Detectivity, (communicated to Nanoscale, RSC). (Impact Factor: 7.233).
3. Md. Samim Hassan, **Susnata Bera**, Divya Gupta, Samit K. Ray, Sameer Sapra, “ $\text{MoSe}_2\text{-Cu}_2\text{S}$ Vertical p-n Nanoheterostructures for High-performance Photodetector”, ACS Applied Materials and Interfaces, 11 (2019) 4074-4083 (Impact Factor: 8.097).
4. Md. Samim Hassan, Atanu Jana, Nimai Bhandary, **Susnata Bera**, Pravin P. Ingole, Sameer Sapra, “Colloidally Synthesized Defect-Rich MoSe_2 Nanosheets for Superior Catalytic Activity”, Bulletin of Materials Science, 42 (2019) 72. (Impact Factor: 0.925).
5. **Susnata Bera** and Samit K. Ray, “The role of nanocrystal size in solution processable CdSe:P3HT hybrid photovoltaic devices”, Journal of Nanoscience and Nanotechnology, 16 (2016) 4840-4845 (Impact Factor: 1.556).
6. **Susnata Bera**, Suvra P. Mondal, Arun K. Sinha, Ajit K. Katiyar and Samit K. Ray, “Resistive switching characteristics of a single Zn-doped CuS nanoball anchored with multi-walled carbon nanotubes”, Materials & Design, 101 (2016) 197-203 (Impact Factor: 3.501).
7. **S. Bera**, S.P. Mondal, D. Naskar, S. C. Kundu and S. K. Ray (2014), Flexible and Transparent Nanocrystal Floating Gate Memory Devices Using Silk Protein, Organic Electronics, 15 (2014) 1767–1772 (Impact Factor: 3.827).
8. **Susnata Bera**, Shashi B. Singh, S.K. Ray, Green route synthesis of high quality CdSe quantum dots for applications in light emitting devices, Journal of Solid State Chemistry, 189 (2012) 75-79 (Impact Factor: 2.133).
9. **Susnata Bera**, Suvra Prakash Mondal, and Samit K. Ray, Optical Properties of CdSe Nanoparticles Embedded in Polyvinyl Alcohol Matrix, Journal of Nanoscience and Nanotechnology, 12 (2012) 1–6 (Impact Factor: 1.556).
10. S. P. Mondal, **S. Bera**, G. Narender, and S. K. Ray, CdSe quantum dots-poly(3-hexylthiophene) nanocomposite sensors for selective chloroform vapor detection at room temperature Appl. Phys. Lett. 101 (2012) 173108; doi: 10.1063/1.4762861 (Impact Factor: 3.302).
11. B. Pandey, P.P. Pal, **S. Bera**, S. K. Ray, A. K. Kar, Effect of nickel incorporation on microstructural and optical properties of electrodeposited diamond like carbon (DLC) thin films, Applied Surface Science, 261 (2012) 789–799 (Impact Factor: 2.711).

Conferences

1. **Susnata Bera**, Subhendu Sinha Sarkar, Sameer Sapra “MoSe₂/Si and MoSe₂/GaAs 2D/3D heterojunctions for photodetector applications”, National Seminar on Hybrid Materials, 13th & 14th January, 2020, Midnapore College, Midnapore.
2. Subhendu Sinha Sarkar, **Susnata Bera**, Md. Samim Hussain, R. K. Khatri , Sameer Sapra , Samit K. Ray “Photodetectors based on 2D/3D heterostructures of MoSe₂ with Si and GaAs”, IWPSD 2019, 17th -20th 2019, Kolkata, West Bengal.
3. **Susnata Bera**, Md. Samim Hassan, Sameer Sapra “MoSe₂-Cu₂S/Si heterostructures based broadband photo detector”, CMDAYS 2019, 29th -31st August 2019, Vidyasagar University, Midnapore.
4. **Susnata Bera**, Md. Samim Hassan, Sameer Sapra “MoSe₂-Cu₂S heterostructures on Si platform for broadband photo detection”, EMRS Spring Meeting 2018, 18th -22nd June 2018, Strasbourg, France.
5. **Susnata Bera**, Anupam Midya and Samit Ray “Improved Photovoltaic Characteristics of CZTS Nanocrystals and Graphene Nanocomposites”, ICMAT 2015, 28th June-3rd July 2015, Suntec Singapore.
6. **Susnata Bera** and Samit Ray “Enhancement of Electrical Bistability in Core –shell CdS-PbS Nanocrystals”, ICMAT 2013, 30th June-5th July 2013, Suntec Singapore.
7. S. Mitra, **S. Bera** and S. K. Ray “Synthesis and characterization of CdSe QDs decorated grapheme nanocomposites for hybrid solar cells”, India-Singapore joint physics symposium (ISJPS 2013), 25th -27th Feb 2013, IIT Kharagpur [Page no-50].
8. A. K. Sinha, S. P. Mondal, **S. Bera** and S. K. Ray, “Synthesis of zn⁺² doped CuS nanoflowers for hybrid photovoltaic applications”, IEEE International Nanoelectronics Conference (INEC 2013), 2nd - 4th Jan, 2013, Singapore at Resorts World Sentosa.
9. **S. Bera**, S. P. Mondal, S. K. Ray, “Steady state and transient photoluminescence of CdSe nanoparticles embedded in polyvinyl alcohol matrix” ICONSAT 2010, 17th -20th Feb, IIT Bombay [page no.248].
10. **S. Bera**, S. P. Mondal and S. K. Ray, “ Highly Selective Chloroform Vapor Sensors Using CdSe-Polymer Nanocomposites”, ICONSAT 2012, 20th-23rd Jan, Hotel Taj Krishna, Hyderabad [page no.106].
11. **S. Bera**, S. P. Mondal and S. K. Ray, “Olive Oil Capped CdSe Quantum Dots for Hybrid Photovoltaic Device Applications”, IWPSD 2011, 19th-22nd Dec, IIT Kanpur.
12. Narendar. G, S. P. Mondal, **S. Bera**, A. Chandra and S. K. Ray, “Growth of vertically aligned zno nanorods for optoelectronic devices” , International Conference on Theoretical and Applied Physics (ICTAP 2011), 1st -2nd December, 2011, IIT, Kharagpur.
13. **S. Bera**, Shashi B Singh and S. K. Ray, “ Optical Properties of Green Route Synthesized CdSe Quantum Dots for Light Emitting Devices ”, ICMAT 2011, Solution processing technology for inorganic films, nanostructures and functional materials, 26 june-1 july, Singapore.[page no.19, JJ1-4].

Workshops

1. **Indian Nanoelectronics Users Program (INUP)**, IISC Bangalore, January 3rd-8th 2011.
2. **Workshop on Electron Microscopy (WEM)**, IOP Bhubaneswar, November 23rd -25th 2011.

PRESTIGIOUS HONOURS AND AWARDS RECEIVED

- Awarded “**International Travel Support**” by DST India to present paper (oral presentation) at EMRS-2018, Strasbourg, France, 2018.
- Awarded “**International Travel Grant**” by IIT Kharagpur to present paper (oral presentation) at ICMAT, Suntec city, Singapore, 2015.
- Awarded “**International Travel Grant**” by Council of Scientific & Industrial Research (**CSIR**), Govt. of India, to present paper at Suntec city, Singapore, 30th June-5th July 2013
- Council of Scientific & Industrial Research (**CSIR**) **SRF** 2013, Govt. of India
- Graduate Aptitude Test for Engineers (**GATE**) 2010

LANGUAGES KNOWN

- English (R/W/S)
- Bengali (R/W/S)
- Hindi (R/W/S)

POSITIONS OF RESPONSIBILITY

- Mentored two M. Tech. students for their respective projects in IIT Kharagpur.
- Mentored two Summer Intern for their summer projects in IIT Kharagpur.
- Handled own project (Solution Processed CZTS Solar Cell for Green Energy) of Rs. 1920000/- funded by DST, India during 2 years Post Doc in IIT Delhi from 2016 to 2018.