Faculty Profile

1. Name: DR SUJIT KUMAR BERA

2. Designation: Associate Professor

3. Name of the Department: Physics

4. E-mail ID: sujit1974_bera@rediffmail.com

5. WEB Page, if any: NA

6. Educational Qualifications (Graduation onwards):

Examination	Name of the University/Institution	Year of Passing	Subject
B. Sc.	Jadavpur University	1996	Physics (Hons)
M. Sc.	Jadavpur University	1998	Physics (Solid State Physics)
NET	CSIR	1998	Physical Sciences
SLET	WBCSC	1998	Physical Sciences
GATE	IIT	1998	Physics

7. Research Degree(s):

Degree	Name of the Degree Awarding Institution	Date of Award	Title
Ph. D	Jadavpur University	28.08.2002	

8. Teaching Experience (in Years): **(i) Under Graduate Level: 20 Years**
(ii) Post Graduate Level: 13 Years

9. Specialization/Expertise/Teaching Area: Solid State Physics

10. Courses Taught:

(i) Under Graduate Level: Vector Analysis, Classical Mechanics, General Properties of Matter, Optics, Modern Physics, Special Theory of Relativity, Heat and Thermodynamics, Complex Analysis, Electricity and Magnetism, Solid State Physics, Nuclear Physics, Semiconductor Devices & Amplifiers, Renewable Energy and Energy Harvesting, Nano Materials and Applications etc.

(ii) Post Graduate Level: Electrodynamics, Semiconductor Physics, X-Ray and Crystallography, Materials Preparation and Characterization, Semiconductor Devices, Applied Optics, , Molecular Spectroscopy & Laser Physics, Band theory of solids, Optical Properties, Defect studies, Superconductivity, Magnetism etc.

11. Present Research Activities, if any: Synthesis and Characterization of Nanocrystalline Semiconductor thin films.

12. Major/Minor Research Project(s) Undertaken/Completed:

(i). Synthesis of ZnO and ZnO/polyaniline (PAN) films by sol-gel method for UV detection – Funded by Department of Science & Technology, Government of West Bengal, Acted as Co-Investigator – 1

(ii). Fabrication of diodes using Zinc Oxide (ZnO) nanostructures synthesized by sol-gel technique for lasing action – Funded by Department of Science & Technology, Government of India, Acted as Co-Investigator – 1

13. Publications and Others:

A] Books Published:

1. **D Jana and S K Bera, *Uchchamadhyamik Byabaharik Padarathavidya (XI)*, Santra Publication Pvt. Ltd., Kolkata, 2013.**

2. **D Jana and S K Bera, *Uchchamadhyamik Byabaharik Padarathavidya (XII)*, Santra Publication Pvt. Ltd., Kolkata, 2014.**

3. **D Jana and S K Bera, *Uchchamadhyamik Padarathavidya (XI)*, Santra Publication Pvt. Ltd., Kolkata, 2015, T. B. No. WBCHSE / HH7911 / XI - 2015-17.**

4. **P Bhattacharyya, S K Bera, M C Chaudhuri and D. C. Santra, *Bhoutobignyan Parichay (IX)*, Santra Publication Pvt. Ltd., Kolkata, 2016, T. B. No. TRIPURA/SCI/23/2015/PROVI dated 13th October, 2015.**

5. **S K Bera, D Ghosh and P Bera, *Physical Science and Environment (X)*, Santra Publication Pvt. Ltd., Kolkata, 2016, T. B. No. WBBSE/PScE(E)/X/2017/T03/04 dt.01/11/2017.**

6. **D Jana and S K Bera, *Uchchamadhyamik Padarathavidya (XII)*, Santra Publication Pvt. Ltd., Kolkata, 2016, T. B. No. WBCHSE / HH6811 / XII – 2016-18.**

7. **P Bhattacharyya, S K Bera, M C Chaudhuri and D. C. Santra, *Bhoutobignyan Parichay (X)*, Santra Publication Pvt. Ltd., Kolkata, 2017, T. B. No. TRIPURA/SST/15/2016/PROVI dated November 10, 2016.**

8. **S K Bera, D Ghosh and P Bera, *Physical Science and Environment (IX)*, Santra Publication Pvt. Ltd., Kolkata, 2017, T. B. No. WBBSE/PScE(E)/X/2017/T03/04 dt.01/11/2017.**

9. **S Maity, S K Bera and D K Santra, *Bhoutobignyan O Paribesh Parichay (X)*, Santra Publication Pvt. Ltd., Kolkata, 2017, T. B. No. WBBSE/PScE(B)/X/2017/T21/25/ dt.01/11/2017.**

10. **S Maity, S K Bera and D K Santra, *Bhoutobignyan O Paribesh Parichay (IX)*, Santra Publication Pvt. Ltd., Kolkata, 2017, T. B. No. WBBSE/PScE(B)/IX/2017/T16/20 dt.01/11 /2017.**

11. **D Jana, S K Bera and S Pal, *Snatak Padarthavidya - Semester I*, Santra Publication Pvt. Ltd., Kolkata, 2018, ISBN No. 978-93-86911-43-8.**

12. **D N Jana, S K Bera, M Jana and S Pal, *Essential Physics (XI)*, Santra Publication Pvt. Ltd., Kolkata, 2018, ISBN No. 978-93-86911-17-9.**

13. **D Jana, S K Bera and S Pal, *Snatak Padarthavidya - Semester II*, Santra Publication Pvt. Ltd., Kolkata, 2019, ISBN No. 978-93-86911-19-9.**

14. **D Jana, S K Bera and S Pal, *Snatak Padarthavidya - Semester III*, Santra Publication Pvt. Ltd., Kolkata, 2019, ISBN No. 978-93-86911-61-2.**

15. **D Jana, S K Bera and S Pal, *Snatak Padarthavidya - Semester I (Revised Edition)*, Santra Publication Pvt. Ltd., Kolkata, 2020, ISBN No. 978-93-86911-95-7.**

16. **D Jana, S K Bera and S Pal, *Snatak Padarthavidya - Semester IV*, Santra Publication Pvt. Ltd., Kolkata, 2020, ISBN No. 978-93-86911-87-2.**

B] Research Papers in International/National Journals:

1. **S K Bera, S Chaudhuri and A K Pal, *Percolative conduction in CdSe nanoparticles embedded in a silicon dioxide dielectric matrix*, J. Phys. D: Appl. Phys. 33, 2000, 2320 – 2326.**

2. **S K Bera, S Chaudhuri, R P Gupta and A K Pal, *Electrical transport studies in nanocrystalline CdSe/SiO2 composite films,* Thin Solid Films 382 (1-2) , 2001, 86 – 94.**

3. **S K Bera, S Chaudhuri, A K Bandyopadhyay, B R Chakrabarty and A K Pal, *Quantum size effect in silicon nanocrystals prepared by dc magnetron sputtering*, J. Phys. D: Appl. Phys. 34 (3), 2001, 273 – 278.**

4. **S K Bera, S Chaudhuri and A K Pal, *Electron transport properties of CdTe nanocrystals in SiO2/CdTe/SiO2 thin film structures,* Thin Solid Films 415 (1-2), 2002, 68 – 77.**

5. **B Bhattacharjee, S K Bera, D Ganguly, S Chaudhuri and A K Pal, *Studies on CdS nanoparticles dispersed in silica matrix prepared by sol-gel technique,* Uropian Physical Journal B 31, 2003, 3 - 9.**

6. **G K Paul, A Bhaumik, A S Patra and S K Bera, *Enhanced photo-electric response of ZnO/polyaniline layer-by-layer self assembled films,* Materials Chemistry and Physics 106 (2-3), 2007, 360 – 363.**

7. **A Chakraborty, T Mondal, S K Bera, S K Sen, R Ghosh and G K Paul, *Effects of aluminum and indium incorporation on the structural and optical properties of ZnO thin films synthesized by spray pyrolysis technique,* Materials Chemistry and Physics 112 (1), 2008, 162 – 166.**

8. **G K Paul, R Ghosh, S K Bera, S Bandyopadhyay, T Sakurai and K Akimoto, *Deep level transient spectroscopy of cyanide treated polycrystalline p-Cu2O/n-ZnO solar cell*, Chemical Physics Letters 463 (1-3), 2008, 117 – 120.**

9. **S K Bera, D Bhattacharyya, R Ghosh and G K Paul, *Spectroscopic ellipsometry of SiO2/CdTe nanocomposite thin films prepared by dc magnetron sputtering*, Applied Surface Science 255, 2009, 6634 – 6640.**

10. **S Patra, S Sarkar, S K Bera, R Ghosh and G K Paul, *Hydrophobic self-cleaning surfaces of ZnO thin films synthesized by sol–gel technique,* Journal of Physics D: Applied Physics 42 (7), 2009, 075301 – 075304.**

11. **S K Neogi, R Ghosh, G K Paul, S K Bera and S Bandyopadhyay, *Effects of Co doping on structural, morphological and transport properties of sol-gel AZO thin films*, Journal of Alloys and Compounds 487 (1-2) , 2009, 269 – 273.**

12. **S Sarkar, S Patra, S K Bera, G K Paul and R Ghosh, *Water Repellent ZnO Nanowire Arrays Synthesized by simple Solvothermal Technique,* Materials Letters 64, 2010, 460 – 462.**

13. **S Patra, S Sarkar, S K Bera, G K Paul and R Ghosh, *Influence of surface topography and chemical structure on wettability of electrodeposited ZnO Thin Films*, Journal of Applied Physics 108 (083507), 2010, 1 - 5.**

14. **S Sarkar, S Patra, S K Bera, G K Paul, and R Ghosh, *Rectifying properties of sol–gel synthesized Al:ZnO/Si (N–n) thin film heterojunctions*, Physica E 46, 2012, 1 - 5.**

15. **G K Paul, S Adhikary, S K Bera and R Ghosh, *Synthesis of nanocrystalline CdS thin films by sol-gel technique*, Tamralipta Mahavidyalaya Research Review: A Peer Reviewed National Journal of InterdisciplinaryStudies (ISSN: 2456 - 1681) 1, 2016, 42 – 44.**

16. **G K Paul and S K Bera, *Improvement of Photovoltaic Conversion Efficiency and also Photoluminescence Efficiency of p-Cu2O/n-ZnO thin film heterostructures by Cyanide Treatment*, International Journal for Research in Applied Science & Engineering Technology 5 (XI), 2017, 132 – 135.**

17. **S K Bera, *Studies on Nanocrystalline CdS Thin Films Prepared By Magnetron Sputtering Technique*, International Journal for Research in Applied Science & Engineering Technology 5 (XI), 2017, 924 – 928.**

18. **G K Paul and S K Bera, *Characterization of nano-structured Cuprous Oxide thin films deposited by reactive direct - current magnetron sputtering technique*, Strad Research 8 (8), 2021, 259 – 267.**

C] Conference Papers:

a) International Conference:

1. **S K Bera, S Chaudhuri and A K Pal, *Preparation and characterization of nanostructured CdSe/SiO2 composite films*, Proceedings of the 6th International Symposium on Advanced Physical Fields, Tsukuba, Japan, March 6 – 9, 2001.**

2. **S K Bera, S Chaudhuri and A K Pal, *Growth of well defined silicon nanostructures by high pressure d.c. magnetron sputtering*, Proceedings of 6th International Symposium on Advanced Physical Fields, Tsukuba, Japan, March 6 – 9, 2001.**

3. **G K Paul, S K Bera, A K Das, A B Maity and K Akimoto, *Deep Level Transient Spectroscopy (DLTS) characterization of n-ZnO/i-ZnO/p-Cu2O inorganic solar cell device*, Proceedings of International Conference on Advances on Energy Research (ICAER 2007), Indian Institute of Technology, Mumbai, India, December 12 – 14, 2007.**

4. **S K Bera, G K Paul, D Bhattacharyya, S Chaudhuri and A K Pal, *Spectroscopic ellipsometry of CdTe nanocrystallites dispersed in SiO2 matrix*, Proceedings of 5th International Conference on Precision, Meso, Micro and Nano-Engineering (COPEN 2007), Mascot Hotel (organized by College of Engineering, Trivandrum), Trivandrum, Kerala, India, December 13 – 14, 2007.**

5. **G K Paul, R Ghosh, A B Maity and S K Bera, T Sakurai and K Akimoto, *Cyanide Treatment on Cu2O/ZnO Solar Cell and its Deep Level Transient Spectroscopy*, 18th International Photovoltaic Science and Engineering Conference & Exhibition (PVSEC18), Science City Convention Centre, Kolkata, India, January 19 – 23, 2009.**

6. **S K Bera and R Ghosh, *Photoluminescence and Raman Studies of nanocrystalline Si thin films prepared by dc magnetron sputtering*, International Conference on Nanomaterials: Synthesis Characterization and Applications (ICN – 2010), Kottayam, Kerala, India, April 27 – 29, 2010.**

7. **R Ghosh, S Sarkar, S Patra, S K Bera, G K Paul and A B Maity, *Wetting characteristics of ZnO nanowire arrays prepared by solvothermal technique*, International Conference on Nanomaterials: Synthesis Characterization and Applications (ICN – 2010), Kottayam, Kerala, India, April 27 – 29, 2010.**

b) National Conference

1. **K Chakrabarti, S K Bera, S Chaudhuri and A K Pal, *Deposition of diamond films by CVD of camphor*, Indo-Japanese Symposium on Frontiers in Electron Microscopy in the 21st century and XXII Annual Meeting of the Electron Microscope Society of India (EMSI), Centre for Cellular and Molecular Biology, Hyderabad, India, November 9 – 11, 1998.**

2. **S K Mandal, S K Bera, S Chaudhuri and A K Pal, *Electron transport process in discontinuous silver films*, National Seminar on Physics of Materials for Electronic and Optoelectronic Devices (NSPMEOD), Jai Narayan Vyas University, Jodhpur, India, March 8 – 10, 1999.**

3. **S K Bera, S Chaudhuri and A K Pal, *Studies on SiO2/CdSe/SiO2 multilayers in nanocrystalline form*, DAE - BRNS Workshop on Thin Film Multilayers, Bhabha Atomic Research Centre, Mumbai, India, October 6 – 8, 1999.**

4. **K Chakrabarti, S K Bera, S Chaudhuri and A K Pal, *Microstructure of diamond and diamond like carbon films prepared by chemical vapour deposition*, National Conference on Electron Microscopy & XXIII Annual Meeting of Electron Microscope Society of India (EMSI), Defence Materials & Stores Research & Development Establishment, Kanpur, India, December 1 – 3, 1999.**

5. **S K Bera, S Chaudhuri and A K Pal, *Studies on nanocrystalline Si thin films prepared by dc magnetron sputtering*, National Conference on Science and Technology of Nanomaterials and Clusters, Institute of Physics and Electronics, Barkatullah University, Bhopal, India, November 23 – 25, 2000.**

6. **B Deb, S K Bera, S Chaudhuri and A K Pal, *Synthesis of wurtzite GaN films by reactive hot wall vapour deposition technique: Fabrication of Au/GaN Schottky diode*, Electron Microscope Society of India, Chandigarh University, Chandigarh, India, February 9 – 11, 2001.**

7. **S K Bera and A K Pal, *Studies on SiO2/CdTe/SiO2 nano-composites in thin film form*, IVSNS-2001, National Symposium on Science and Technology of Vacuum and Thin Films, Indian Institute of Science, Bangalore, India, September 5 – 7, 2001.**

8. **S K Bera, Chaudhuri and A K Pal, *Percolative conduction in Cadmium Selenide nanocrystals in SiO2/CdSe/SiO2 structures*, National Seminar on Optical and Electronic Properties of Novel Materials, Department of Physics and Technophysics, Vidyasagar University, India, April 5 – 7, 2002.**

9. **S K Maity, S K Bera, A B Maity, G K Paul and R Ghosh, *Photoresponse Properties of ZnO Nanowire Arrays*, Technological Challenges of 21st Century – the Road Ahead, B. I. T. Sindri, Dhanbad, Jharkhand, India, February 8 – 9, 2008.**

D] Conference/Symposium Attended

- **International Level**

Name of the Conference	Organizer, Date, Venue	Financially Supported by
5th International Conference on Precision, Meso, Micro and Nano-Engineering (COPEN 2007)	Held at Mascot Hotel, Organized by College of Engineering, Trivandrum, Kerala, India, December 13 – 14, 2007.	Not Known
18th International Photovoltaic Science and Engineering Conference & Exhibition (PVSEC18)	Science City Convention Centre, Organized by IACS, Kolkata, India, January 19 – 23, 2009.	Department of Science & Technology, Govt. of India
International Conference on Nanomaterials: Synthesis Characterization and Applications (ICN – 2010)	Mahatma Gandhi University, Kottayam, Kerala, India, April 27 – 29, 2010.	University Grants Commission

- **National Level**

Name of the Conference	Organizer, Date, Venue	Financially Supported by
Indo-Japanese Symposium on Frontiers in Electron Microscopy in the 21st century and XXII Annual Meeting of the Electron Microscope Society of India (EMSI)	Centre for Cellular and Molecular Biology (CCMB) , Hyderabad, India, November 9 – 11, 1998.	CCMB & Electron Microscope Society of India (EMSI)
National Seminar on Physics of Materials for Electronic and Optoelectronic Devices (NSPMEOD)	Jai Narayan Vyas University, Jodhpur, India, March 8 – 10, 1999.	University Grants Commission
DAE - BRNS Workshop on Thin Film Multilayers	Bhabha Atomic Research Centre, Mumbai, India, October 6 – 8, 1999.	DAE & BRNS
National Conference on Electron Microscopy & XXIII Annual Meeting of Electron Microscope Society of India (EMSI)	Defence Materials & Stores Research & Development Establishment, Kanpur, India, December 1 – 3, 1999.	DRDO & EMSI
Workshop on Physics at the nano-scale	S. N. Bose National Centre for Basic Sciences, Salt Lake City, Calcutta, India, March 7 - 9, 2000.	SNBNCBS
Young Material Scientist Programme	Central Glass & Ceramic Research Institute, Jadavpur, Calcutta, India, May 6, 2000	Materials Research Society of India, Calcutta Chapter
National Conference on Science and Technology of Nanomaterials and Clusters	Institute of Physics and Electronics, Barkatullah University, Bhopal, India, November 23 – 25, 2000	University Grants Commission
National Symposium on Science and Technology of Vacuum and Thin Films	Indian Institute of Science, Bangalore, India, September 5 – 7, 2001.	Not Known
Technological Challenges of	B. I. T. Sindri, Dhanbad, Jharkhand,	Not Known

21st Century – the Road Ahead	**India, February 8 – 9, 2008.**	

E] Invited Lectures Delivered in Seminars/Webinars: (Title, Name of Seminar, Organizer, Date and Venue):

1. ***Photoluminescence and Raman Studies of nanocrystalline Si thin films prepared by dc magnetron sputtering*, International Conference on Nanomaterials: Synthesis Characterization and Applications (ICN – 2010), Kottayam, Kerala, India, April 27 – 29, 2010.**

2. ***An Overview of Crystallography* – A State Level Symposium on Quantum Mysteries & Dimensional Analysis in Physical Science, Organized by the Department of Physics, Mahishadal Raj College, Mahishadal, Purba Medinipur, W. B., India, November 13 & 15, 2019.**

F] Orientation Programme/Refresher Course/Short Term Course Completed:

1. **Orientation Programme, *Geography & Environment Management*, Vidyasagar University, 03.11.2003 - 28.11.2003.**

2. **Refresher Course, *Topics in Theoretical Physics*, Academic Staff College, University of Calcutta, 06.11.2006 to 25.11.2006.**

3. **Refresher Course, *Recent Perspective of Nanoscience and Technology*, Academic Staff College, Jadavpur University, 04.12.2008 to 26.12.2008.**

4. ***Orientation Course for the untrained NSS Programme Officers*, Sponsored by Ministry of Youth Affairs and Sports, Govt. of India, IIT Kharagpur, 27.09.2004 to 06.10.2004.**

5. ***Prgramme Officers Training under Universities Talk Aids*, Sponsored by Ministry of Youth Affairs and Sports, Govt. of India, NSS Regional Centre, Kolkata, 15.12.2004 to 18.12.2004.**

G] Articles Published in Magazines:

1. *Stress: A Major Challenge in the 21st Century* – Ruchira 2010

14. Awards and Recognitions, if any:

1) Received the National Merit Scholarship, 1991.

2) Received the National Merit Scholarship, 1993.

3) **Received the National Merit Scholarship, 1996.**
4) **Junior Research Fellowship, sponsored by the Indian Association for the Cultivation of Science (IACS), 18th August 1998 – 17th August 2000.**
5) **Senior Research Fellowship, sponsored by the Indian Association for the Cultivation of Science (IACS), 18th August 2000 – 17th January 2001.**
6) **Best Micrograph Award (Leo Electron Microscopy Limited)' -- Shri S K Bera and Prof. A K Pal, I A C S, Calcutta at the *XXIII Annual Meeting of the Electron Microscope Society of India*, Kanpur, December 1 - 3, 1999.**

15. Membership of Reputed Bodies/Organizations including Professional Associations:

1. **Life Member of Indian Association for the Cultivation of Science (IACS) (Membership No. 3870), 2A & 2B Raja S C Mallick Road, Jadavpur, Kolkata 700 032, India.**
2. **Life Member of Indian Association of Physics Teachers (IAPT) (Membership NO. L 4559), L 117/302, Naveen Nagar, Kanpur – 208 025, India.**
3. **Life Member of Indian Physical Society (IPS) (Membership No. LM/0795), 2A & 2B Raja S C Mallick Road, Jadavpur, Kolkata 700 032, India.**
4. **Member (Teachers' Representative) of Governing Body (6th G. B.) of Tamralipta Mahavidyalaya, Tamluk 721636, Purba Medinipur, West Begnal, for the term 2006 – 2010.**
5. **Member (Teachers' Representative) of Governing Body (7th G. B.) of Tamralipta Mahavidyalaya, Tamluk 721636, Purba Medinipur, West Bengal, for the term 2010 – 2014.**
6. **Member (University Nominee) of Governing Body (7th G. B.) of Vivekananda Mission Mahavidyalaya, Chaitanyapur, Haldia 721645, Purba Medinipur, West Bengal, for the term 2012 – 2014.**
7. **Member (Teachers' Representative) of Governing Body (8th G. B.) of Tamralipta Mahavidyalaya, Tamluk 721636, Purba Medinipur, West Bengal, for the term 2014 – 2018.**
8. **Member (University Nominee) of Governing Body (8th G. B.) of Vivekananda Mission Mahavidyalaya, Chaitanyapur, Haldia 721645, Purba Medinipur, West Bengal, for the term 2014 – 2018.**
9. **Member (Teachers' Representative) of Governing Body (9th G. B.) of Tamralipta Mahavidyalaya, Tamluk 721636, Purba Medinipur, West Bengal, for the term 2019 – 2020.**
10. **Member (West Bengal State Council of Higher Education Nominee) of Governing Body (9th G. B.) of Vivekananda Mission Mahavidyalaya, Chaitanyapur, Haldia 721645, Purba Medinipur, West Bengal, for the term 2019 – 2020.**

16. Significant Information, if any:

Acted as *Teacher-in-Charge*, Tamralipta Mahavidyalaya, Tamluk – 721636, Purba Medinipur, West Bengal, from 21.07.2015 to 25.06.2018.