



### **Dr. Subhasis Roy, Ph. D.**

Raman Postdoc Fellow, DST-SERB Young Scientist  
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A nano-science and technology professional with 10 years research and academic experience.

*Area of Research Interest:*

1. Energy applications of nanotechnology
2. Advanced Photovoltaics
3. Energy Storage Systems
4. Thin Films, Sub-micro and nano structures, composites
5. Photocatalyst for water splitting
6. Fuel Cell and Hydrogen Energy
7. Ferroelectric, Magnetic and Multiferroic sensor
8. Electrical & Electronic Ceramics

Collaborative, interdisciplinary, research focused on solving fundamental and practical engineering problems to develop novel devices and systems for energy and environmental technology applications that provide higher energy efficiencies, better performance and at lower costs. Efforts go beyond fundamental research and cover technology transfer, education & outreach and business acceleration efforts:

#### **Current status**

Assistant Professor, Department of Chemical Engineering, University of Calcutta, Kolkata, India

#### **Educational Qualification**

- 2012: PhD in Materials Science, Indian Institute of Technology Kharagpur, India
- 2006: M. Tech in Energy Science and Technology, Jadavpur University, India
- 2004: B.Tech in Chemical Engineering, Vidyasagar University, India

#### **Professional and research experience**

- 21<sup>st</sup> November 2013-till date: **Assistant Professor**, Department of Chemical Engineering,

University College of Science and Technology,  
University of Calcutta

- 1<sup>st</sup> September 2016-31<sup>st</sup> August 2017: **Postdoctoral Research** Raman Fellow, Ohio University, USA (research on “metal oxide hybrid perovskite photoelectrode for efficient photoelectrochemical water splitting” )
- 20<sup>th</sup> August 2013- 15<sup>th</sup> November 2013: **Research Associate**, Indian Institute of Science Education & Research (IISER), Kolkata. (research on “Photonic and magnetic interactions of nanoparticles inside carbon nanotubes channels”)
- 8<sup>th</sup> June 2012- 20<sup>th</sup> May 2013: **Postdoctoral Researcher**, Sungkyunkwan University, South Korea (Research on “perovskite based solar cell” )

Summary of Industrial Experience interaction:

- Consolidated Fibres and Chemicals LTD’ (Polymer industry).Haldia, Purba Medinipur, West Bengal (one month trainee)
- “East India Pharmaceuticals Works LTD’.Kolkata, West Bengal (one month trainee)

Other

- One year research experience on **Nanofabricated** PEMFC fuel cell in National Chemical Laboratory , Pune, India for Master thesis (July 2005-April 2006)

## ACADEMIC DISTINCTIONS , HONOURS AND AWARDS

**International :**

1. **Global Achievement Awards** 2020 for Outstanding Research Supervisor.
2. International **Research Ratna Awards** 2020
3. **International Best Scientist Awards** , 2020,
4. **Recognized** as the “IGEN NLLS (Nobel Laureate Lecture ) 01 Campaign Ambassador 2020.
5. **International Research Awards** 2016 Outstanding Scientist for Initiatives, Discoveries, and Developments in the discipline of Nanoscience and Nanotechnology.
6. **Chairing a session** on Information optimization and computing in International conference on Smart and Intelligent Learning for information optimization (CONSILIO - 2019) organized by the Department of Computer Science and Engineering, MGM College of engineering and Technology, Noida, Uttar Pradesh, India during June 08-09, 2019.
7. **Honorable Jury**,South Asian Education Awards-2018

8. **Membership** of Royal Society of Chemistry for the Year 2018 (MRSC)
9. **Travel grant award** from “ECS Physical and Analytical Electrochemistry Division” to assist with the cost of attending the 231st ECS Meeting, May 28-Jun 1, 2017, New Orleans, LA.USA for inviting talk.
10. **Recognized Reviewer** status in Environmental Technology & Innovation, Elsevier 2019.
11. **Outstanding reviewer** status in Material Chemistry and Physics journal,Elsevier 2017.
12. **Recognized Reviewer** status in Environmental Technology and Innovation, 2019
13. **Recognized Reviewer** status Materials Today: Proceedings, 2019
14. **Best Teachers award 2019** for recognize of valuable contribution to the academic community and the students
15. "**Best Faculty Award (Male)**" by "International Academic and Research Excellence Awards (IARE-2019)”
16. **Recognized Reviewer** status in Material Science Research India (MSRI) journal, 2017.
17. **Certificate of Recognition** valued reviewer & has contributed to the quality and success of the International Journal of Engineering Research & Technology (IJERT) during the year of 2017.
18. **Fellow**, International Society for Research and Development (ISRDR) 2017

**National :**

19. **Teachers Associateship for Research Excellence (TARE)** by the Science and Engineering Research Board, 2018.
20. **Innovation Ambassador**, MHRD IIC Council,Calcutta University
21. **Teaching Excellence Awards 2019** by MT Research and Educational Services, India
22. **Membership** of The National Academy of Sciences, India (NASI) for the Year 2019(MASc)
23. **UGC-Raman** Post-Doctoral Fellowship for 2015-16.
24. **Fellow**, Indian Chemical Society 2019
25. Certificate of appreciation **TEACHER INNOVATION AWARD**, 30<sup>th</sup> September, 2019

26. ‘**Adarsh Vidya Saraswati Rashtriya Puraskar (A National Award of Excellence-2019)**’, a distinction of being one of the Best Teachers in the country for the noble work done in the interest of students, teachers and the entire education fraternity.
27. **Recognized Reviewer** status in “Construction and Building Materials”, Elsevier, 2016.
28. Awarded 2nd prize on research paper entitled **Efficiency and Stability Enhancement of Caesium Based Perovskite Quantum Dot Solar Cell** presented by student Sneha Mukherjee in International Conference on Nanotechnology (ICNT - 2018), Department of Fire and Safety Engineering, Institute of Fire and Safety Engineering, Haldia, India, November 16-17, 2018
29. Awarded first prize for an outstanding paper in 1st Regional Science & Technology Congress-2016, Presidency Division, NITTTR, Kolkata, India, November 13-14, 2016, on “**Fabrication and study of Perovskite-based Solar Cell as an Alternative Sources of Energy**” .
30. **Recognized Reviewer** status in “Construction and Building Materials”, Elsevier, 2014.
31. **DST Young Scientist** awarded in Fast Track scheme 2013.
32. **Postdoctoral fellowship**, Sungkyunkwan University, South Korea, 2012.
33. **MHRD** Scholarships for M.Tech study.
34. Qualified GATE 2003 and 2005 in Chemical Engineering.

#### LIST OF PUBLICATIONS AND PRESENTATIONS

##### Peer Reviewed Journal

- (1) Sk Abdul Moyez , Soumyajit Maitra , Kalisadhan Mukherjee , Abhinanda Sengupta and **Subhasis Roy** "Structural features and optical properties of  $\text{CH}_3\text{NH}_3\text{Pb}(1-x)\text{Sn}_x\text{Cl}_3$  thin-film perovskites for photovoltaic applications" *Journal of Electronic Materials*, Springer 2020 (DOI: 10.1007/s11664-020-08529-5) (**IF 1.676**).
- (2) Soumyajit Maitra, Arundhati Sarkar, Touluk Maitra, Somoprova Halder, **Subhasis Roy**, Kajari Kargupta, Cadmium Sulphide Sensitized Crystal Facet Tailored Nanostructured Nickel Ferrite@ Hematite Core-Shell Ternary Heterojunction Photoanode for Photoelectrochemical Water Splitting, *MRS Advances*, Pages1-9, 2020.
- (3) **Subhasis Roy** and Shyamal Datta, Applications of Polymers in Perovskite Solar Cells: A Review, *Annals of Chemical Science Research* Vol. 2 (2) 2020.
- (4) Madhushree Mitra; Manas Mahapatra; Arnab Dutta; Mousumi Deb; Sayanta Dutta; Pijush Chattopadhyay; **Subhasis Roy**; Snehasis Banerjee; Parames C Sil; Nayan Ranjan Singha “Fluorescent Guar Gum-g-Terpolymer via In Situ Acrylamido-Acid Fluorophore-Monomer in Cell-Imaging, Pb(II)-Sensor, and Security-Ink” *ACS Applied Bio Materials* , 3, 4, 1995,2020 (**IF 4.511**).

- (5) Soumyajit Maitra, Subhan Pal, Shyamal Datta, Toulik Maitra, Biswadeep Dutta, **Subhasis Roy**, Nickel doped molybdenum oxide thin film counter electrodes as a low-cost replacement for platinum in dye sensitized solar cells, *Materials Today proceeding*, <https://doi.org/10.1016/j.matpr.2020.07.531>, 2020. (IF 0.694)
- (6) Roy S, Dey A, Das B.C. Improved Photoresponse in Association with a Synthesized Dielectric Material for Quantum Dots Solar Cells. *Mat. Sci. Res. India*, Vol. 16(3), pp. 230-234 (2019)
- (7) Sk. Abdul Moyez , **Subhasis Roy**, Dual-Step Thermal Engineering Technique: A New Approach for Fabrication of Efficient CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub>-Based Perovskite Solar Cell in Open Air Condition, *Solar Energy Materials and Solar Cells*, Elsevier , Vol.185, pp. 145-152, 2018 (IF 6.019).
- (8) **S. Roy** and G. Botte, Perovskite solar cell for photocatalysis water splitting with TiO<sub>2</sub>/ Co-doped hematite electron transport bilayer, *RSC advance*, 2018, Vol 8, 5388-5394 (IF 3.108).
- (9) Argha Dey, Poulami karan, Abhinanda Sengupta , Sk. Abdul Moyez, Subhasish Basu Majumderb, Debabrata Pradhan, **Subhasis Roy**, Enhanced Charge Carrier Generation by Dielectric Nanomaterials for Quantum Dots Solar Cells Based on CdS-TiO<sub>2</sub> Photoanode, *Solar Energy*, Elsevier, Vol.158, pp. 83-88, 2017. (IF 4.67)
- (10) Experimental Investigation of Photocatalytic and Photovoltaic activity of Titania/Rice Husk Crystalline Nano-Silica Hybrid Composite, *Solar Energy Materials and Solar Cells*, Elsevier, Vol. 172, pp 93-98, 2017. (IF 6.019).
- (11) Efficient solid state dye sensitized solar cell based on tricationic ionic crystal pyridinium-imidazolium electrolytes, Rohit L.Vekariya, Abhishek Dhar, Nadavala Siva Kumar, Rumpa Pal, Subhasis Roy, *Organic Electronics*, Vol. 56, 2018, pp. 260–267 (IF 3.39).
- (12) An overview of engineered porous material for energy applications: a mini-review, Rohit L.Vekariya, Abhishek Dhar, Pabitra Kumar Paul, **Subhasis Roy**, *Ionics* (2017). <https://doi.org/10.1007/s11581-017-2338-9> (IF 2.062).
- (13) Fabrication and Study of Structural, Optical Features of Nano Structured, Photo-Harvesting Organo-Lead Halide-Based Perovskite Solar Cell Abhishek Dhar , Rohit L. Vekariya , Argha Dey , **Subhasis Roy**, *Preprints* (2018), 2018040174, doi: 10.20944/preprints201804.0174.v1.
- (14) Abhishek Dhar, Argha Dey, Pradip Maiti, Pabitra Kumar Paul, Subhasis Roy, Sharmistha Paul, Rohit L. Vekariya, Fabrication and characterization of next generation nano-structured organo-lead halide-based perovskite solar cell, *Ionics*, pp. 1–7,2017. DOI 10.1007/s11581-017-2256-x (IF 2.062).
- (15) Gill Sang Han, Sangwook Lee, Dong Wook Kim, Dong Hoe Kim, Jun Hong Noh, Jong Hun Park, **Subhasis Roy**, Tae Kyu Ahn, Hyun Suk Jung, “A Simple Method to Control

Morphology of Hydroxyapatite Nano- and Microcrystals by Altering Phase Transition Route” *ACS, Crystal Growth & Design*, Vol.13, No. 8, pp. 3414, 2013. (IF 4.055)

- (16) **Subhasis Roy**, and S.B. Majumder “Recent advances in multiferroic thin films and composites”, *Journal of Alloys and Compounds*, Elsevier , Vol. 538, pp. 153–159, 2012. (IF 3.13)
- (17) Synthesis of high throughput multiferroic nanocomposite using sol-gel process, **Subhasis Roy**, *International Journal of Engineering and Management Research*, Vol.7, No. 4, pp. 151-154, 2017. (IF 3.1)
- (18) **Subhasis Roy**, Ratnamala Chatterjee and S.B. Majumder “Magnetolectric coupling in sol-gel synthesized dilute magnetostrictive - piezoelectric composite thin films”, *Journal of Applied Physics*, AIP Publishers, Vol.110, pp. 036101-. 036104, 2011. (IF 2.08)
- (19) **Subhasis Roy**, and S.B. Majumder, “Optical Characteristic of Sol-Gel Synthesized Lead Lanthanum Titanate-Cobalt Iron Oxide Multiferroic Composite Thin Film”, *Journal of Applied Physics*, AIP Publishers, Vol. 112, pp. 043520-043528, 2012. (IF 2.08)
- (20) **Subhasis Roy**, Saikat Chakraborty, Saibal Ganguly, and Kajari Kargupta "Preparation of Polyaniline Nanofibers and Nanoparticles via Simultaneous doping and Electrodeposition", *Materials Letters*, Elsevier ,Vol. 62, pp. 2535-2538, 2008. (IF 2.57)
- (21) **Subhasis Roy**, and S.B. Majumder, “Analyses of the Leakage Current Characteristics of Lead Lanthanum Titanate-Cobalt Iron Oxide Multiferroic Composite Thin Film, *ECS Journal of Solid State Science and Technology*, Vol. 1, pp. N19-N23. 2012. (IF 2.00)
- (22) **Subhasis Roy**, and S.B. Majumder “Percolative dielectric behavior of wet chemical synthesized lead lanthanum titanate- cobalt iron oxide composite thin films”, *Physics Letters A* ,Elsevier, Vol. 375, pp. 1538–1542, 2011. (IF 1.77)
- (23) **Subhasis Roy**, Gill Sang Han, Hyun Jung Shin, Jin Wook Lee, Jin Soo Mun, Hyun Ho Shin and Hyun Suk Jung "Low temperature synthesis of rutile TiO<sub>2</sub> nanocrystals and their photovoltaic and photocatalytic properties" *Journal of Nanoscience and Nanotechnology*, American Scientific Publishers Vol. 15, pp. 4416-4521, 2015. (IF 1.55)
- (24) **Subhasis Roy** and S.B. Majumder “Electrical and Magnetic Properties of Sol-Gel Synthesized CoFe<sub>2</sub>O<sub>4</sub>/Pb<sub>0.85</sub>La<sub>0.15</sub>TiO<sub>3</sub> Composite Thin Films”, *Integrated Ferroelectrics*, Taylor & Francis, Vol. 121, pp. 120-128 , 2010. (IF 0.457)
- (25) **Subhasis Roy**, Bulbul Biswas and S.B. Majumder, “Investigations on Flexible Multiferroic Composites”, **Mesoscopic, Nanoscopic, and Macroscopic Materials**, American Institute of Physics, Vol. 1063, pp. 276-289, 2008.
- (26) **Subhasis Roy**, Ratnamala Chatterjee and S.B. Majumder “Magnetolectric coupling in sol-gel synthesized dilute magnetostrictive - piezoelectric composite thin films”. *Virtual Journal of Nanoscale Science & Technology*, APS and AIP, Vol. 24, pp. 7-10 , 2011.

- (27) Argha Dey, Sk. Abdul Moyez, Milan Kumar Mandal, **Subhasis Roy**, "Fabrication of solar cell using extracted biomolecules from tea leaves and hybrid perovskites" *Materials Today: Proceedings*, Elsevier, Vol. 3, pp. 3498–3504, 2016 (IF 0.694)
- (28) Sk. Abdul Moyez, Abhishek Dhar, Hyun Suk Jung, **Subhasis Roy**, "A Review of the Multiple Exciton Generation in Photovoltaics" in the special issue *Reviews in Advanced Sciences and Engineering*, American Scientific Publishers, Vol. 5, No.1, pp. 1-14, 2016
- (29) Sk Abdul Moyez, Abhinanda Sengupta, Asit Baran Biswas, **Subhasis Roy**, Argha Dey, Bhaskar Chandra Das, "Fabrication of Environmental Friendly Perovskite Solar Cells by Partial Replacement of Lead with Tin," *Invertis Journal of Renewable Energy*, Vol. 7, No. 2, pp. 59-63, 2017.
- (30) Abhishek Dhar, Abhishek Dutta, Pushan Sharma, **Subhasis Roy**, "Nano-structured superacidic sulfated zirconium oxide catalyst: synthesis, characterization and application in one-pot isomerisation of n-alkanes predicting their reaction-kinetics", in the special issue '*Energy and Environment Focus*', Vol. 6, pp. 1–8, 2017, American Scientific Publishers.
- (31) Influence of tagging thiophene bridge unit on optical and electrochemical properties of coumarin based dyes for DSSCs with theoretical insight, Abhishek Dhara, Nadavala Siva Kumar, Pabitra Kumar Paul, **Subhasis Roy**, Rohit L. Vekariyae, *Organic Electronics* Vol. 53, pp. 280–28, 2018 (IF 3.399)
- (32) Sk Abdul Moyez, **Subhasis Roy**, Asit Baran Biswas "Tailoring the surface morphology with annealing temperature of the lead free perovskite solar cell,  $\text{CH}_3\text{NH}_3\text{SnCl}_3$  and its relation to the cell performance", *Materials Today: Proceedings*, Elsevier, Vol. 4, Issue 14, 2017, pp.12657–12660 (IF 0.694)
- (33) Argha Dey, Abhishek Dhar, **Subhasis Roy**, Bhaskar Chandra Das, "Combined Organic-Perovskite Solar Cell Fabrication as conventional Energy substitute", *Materials Today: Proceedings*, Elsevier, Vol. 4, Issue 14, 2017, pp.12651–12656 (IF 0.694)
- (34) Graphene Co-Doped  $\text{TiO}_2$  Nanocomposites for Photocatalysis and Photovoltaics Applications, Argha Dey, Sk. Abdul Moyez, **Subhasis Roy**, Abhishek Dhar, Asit Baran Biswas, Bhaskar Chandra Das, *Indian Journal of Science and Technology*, Vol. 10 Issue 31, 2017. (IF 0.68).
- (35) A Dhar, A Dutta, P Sharma, B Panda, **S Roy**, Synthesis and characterization of solid-phase super acid catalysts and their application for isomerization of n-alkanes, *Chemical Engineering Communications*, Vol. 204, Issue 12, 2017, pp.1341-1356 (IF 1.433).
- (36) Sk Abdul Moyez, **Subhasis Roy**, Thermal engineering of lead free nanostructured  $\text{MASnCl}_3$  perovskite material for thin film solar cell, *Journal of Nanoparticle Research* Vol. 20, Issue 5, pp.1-13, 2018 (IF 2.020).

- (37) S. K. Panda, S. Sen, **S. Roy**, A. Moyez, Synthesis of Colloidal Silver Nanoparticles by Reducing Aqueous AgNO<sub>3</sub> Using Green Reducing Agents, *Materials Today: Proceedings*, Elsevier, Vol. 5, Issue 3, 2018, pp. 10054-10061(**IF 0.694**)
- (38) **S. Roy** and G. Botte, Surface modification of cobalt-doped Fe<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> thin films by MaPbI<sub>3</sub> perovskite for photocatalysis and photovoltaics applications (Communicated).
- (39) Shyamal Datta, **Subhasis Roy**, Simulated performance studies of thin film perovskite solar cell, Proceedings of International Conference on Energy and Sustainable Development, ISBN 978-93-83660-56-8, 2020, pp. 115-117

### **Book Chapters**

- (1) R. Dorey, **S. Roy**, A. Sharma, C. Ghanty, S.B. Majumder, "Composite film processing in Chemical Solution Deposition of functional Oxide Thin Films" *Chemical Solution deposition of functional oxide thin films*, ISBN 978-3-211-99310-1 ISBN 978-3-211-99311-8 (eBook), DOI 10.1007/978-3-211-99311-8, Springer Wien Heidelberg New York Dordrecht London, pp 445-482, 2013.
- (2) Dey, A., **S. Roy**, S., Mondal, S., 2020. "Performance enhancement of dye-sensitized solar cell using extracted photo-sensitized organic molecules in addition with dielectric nanomaterial". in **Advances in Bioprocess Engineering and Technology**. Springer Singapore Print ISBN: 978-981-15-7408-5 Electronic ISBN: 978-981-15-7409-2, pge 415-422, 2020.
- (3) **Roy, S.** and Majumder, S.B., 2009, "Review on the Recent Advances on Multiferroic Thin Films and Composites", *In Dielectrics and Ferroelectrics: Modern Perspectives*, R.N.P. Choudhary and A.K. Thakur (Eds.), Anamaya Publishers, New Delhi, India (In Press).
- (4) Shyamal Datta, **Subhasis Roy**, Optimization of TiO<sub>2</sub>-KMnO<sub>4</sub> Composites with Natural Dyes for Solar Cell Application in **Advances in Bioprocess Engineering and Technology**. Springer Singapore Print ISBN: 978-981-15-7408-5 Electronic ISBN: 978-981-15-7409-2, Pages 397-404, 2020.

### **Proceedings of Conferences and Presentations**

1. **Supercapacitor electrodes: A mini review**, Rajeev Ranjan, Subhasis Roy GAA 2020 & Indo American Multidisciplinary Web Conference on Arts, Science, Engineering and Technology IAMWCASET-2020 proceedings, 31st August 2020. Page-89-93, ISBN -978-81-945642-4-9.
2. Shyamal Datta, **Subhasis Roy** "Simulated performance studies of thin film perovskite solar cell." Conference: Proc. ICESD 2020-038, ISBN 978-93-83660-56-8. 2020.
3. "Optimization of TiO<sub>2</sub>/ KMnO<sub>4</sub> composites with natural dyes for solar cell Application" Shyamal Datta, Subhasis Roy, 2nd International Conference on Advances in Bioprocess Engineering and Technology 2020 (ICABET 2020) on January 20-22, 2020, Page - O-93
4. "Performance enhancement of Dye-sensitized solar cell using extracted photo-sensitized organic molecules in addition with dielectric nanomaterial" Argha Dey, Subhasis Roy and



Sourav Mondal, 2nd International Conference on Advances in Bioprocess Engineering and Technology 2020 (ICABET 2020) on January 20-22, 2020, Page - O-96

5. **“Simulated performance studies of thin film perovskite solar cell, International Conference on Energy and Sustainable Development”** Shyamal Datta , Subhasis Roy, Jointly organized by Jadavpur University and The Institution of Engineers, India February 14-15, 2020.
6. **“Synthesis and Characterization of Nanomaterials for Photoelectrochemical application”** Subhasis Roy on 10<sup>th</sup> January, 2020 in “International Conference on Chemistry for Human Development (ICCHD- 2020) in collaboration with ‘University of Calcutta’ and “Heritage Institute of Technology” during January 9-11, 2020 in Calcutta, IL-63, Page-136
7. **“Nickel Doped Molybdenum Oxide Thin Film Counter Electrodes as a Low-Cost Replacement for Platinum in Dye Sensitized Solar Cells”** Soumyajit Maitra , Subhan Pal , Shyamal Datta , Subhasis Roy, 3rd International Conference on Solar Energy Photovoltaic from 19th December 2019 to 21st December 2019 at KIIT Deemed University , Bhubaneswar, India, from 19th – 21th December 2019 , Page- 0608
8. **“Titanium dioxide and KMnO<sub>4</sub> composite film on FTO glass as a working electrode for solar cell application”** Young Scientists' conference. 5-7 NOVEMBER, Indian International Science Festival-2019. BISWA BANGLA CONVENTION CENTRE. KOLKATA. Ministry of Science and Technology, India.
9. **“Integrated Metal Oxide Hybrid Perovskite Photoelectrode for Efficient Photoelectrochemical Water Splitting”** Gerardine G. Botte, Subhasis Roy, 231st Electrochemical Society Meeting New Orleans, LA,USA, May 28- Jun 1, AI 1439, 2017
10. **“Fabrication of Lead (Pb) free CH<sub>3</sub>NH<sub>3</sub>SrICl<sub>2</sub> based thin film perovskite solar cell at ambient condition”** Subhan Kumar Pal , Sk Abdul Moyez, Sneha Mukherjee , Subhasis Roy, Emerging Trends for Sustainable Development, 2019 (ICETSD '19) 05-06 th March, 2019, Page 61-64
11. **“Synthesis and Characterization of the Organo-Lead Halide- Based Perovskite Solar cell”**, Abhishek Dhar, Argha Dey , **Subhasis Roy**, Sharmistha Paul, 24<sup>th</sup> West Bengal State Science and Technology Congress, 2017, Presidency Division, NITTTR, Kolkata,India, 28<sup>th</sup> February/ 1<sup>st</sup> March, pp-117, 2017 (Awarded first prize).
12. **“Optimization of Pb-Sn Based perovskite Solar cells”**, Abhinanda Sengupta, Sk Abdul Moyez, Asit Baran Biswas, Bhaskar Chandra Das, **Subhasis Roy**, CHEMCON 2016, Chennai Regional Centre of IChE, Chennai, Tamilnadu during 27-30 December, 2016,T-43, PP.1244. (Awarded 2<sup>nd</sup> best prize)
13. **“Fabrication of Environmental Friendly Perovskite Solar Cells by Partial Replacement of Lead with Tin”**, International symposium on semiconductor material and devices (ISSmd - 4), Abhinanda Sengupta, Sk Abdul Moyez, Bhaskar Chandra Das, **Subhasis Roy**, School of Materials Sciences & Nanotechnology Jadavpur University , Kolkata, during 8–10 Mar 2017.

14. **“Combined Organic-Perovskite Solar Cell Fabrication as conventional Energy substitute”** Argha Dey, **Subhasis Roy**, 2<sup>nd</sup> International Conference on Solar Energy Photovoltaic, ICSEP 2016, , held at School of Electronic Engineering, KIIT University, Bhubaneswar, Odisha, 17 -19 December 2016, P-0207, pp 73.
15. **“Fabrication and study of Perovskite-based Solar Cell as an Alternative Sources of Energy”**, Abhishek Dhar, Argha Dey , **Subhasis Roy**, Sharmistha Paul, 1st Regional Science & Technology Congress-2016, Presidency Division, NITTTR, Kolkata,India,November 13-14,pp-158, 2016 (Awarded first prize).
16. **“Tailoring the surface morphology with annealing temperature of the lead free perovskite solar cell, CH<sub>3</sub>NH<sub>3</sub>SnCl<sub>3</sub> and its relation to the cell performance”**. Sk Abdul Moyez, **Subhasis Roy**, 2<sup>nd</sup> International Conference on Solar Energy Photovoltaic, ICSEP 2016, , held at School of Electronic Engineering, KIIT University, Bhubaneswar, Odisha, 17 -19 December 2016, P-0212, pp 27.
17. **“Studies on the Perovskite-based Solar Cell as Energy Harvesting Substitute”** Argha Dey, Sk.Abdul Moyez, Asim Kumar Hajra, **Subhasis Roy** at National Conference on Recent Trends in Functional Materials in Relation to Nanomaterials and Nanotechnology (RTFMNN). Organized by Department of Chemistry, St. Paul’s Cathedral Mission College, Kolkata, India. February 4-5, 2016.
18. **“Nano Bio-synthesis of Anthocyanin and Chlorophyll for Dye Sensitized Solar Cells Application”** Sk. Abdul Moyez, Argha Dey, **Subhasis Roy** at International Conference on Advances in Bioprocess Engineering and Technology (ICABET 2016). Organized by Department of Chemical Engineering and Department of Biotechnology, Heritage Institute of Technology, Kolkata, India. January 20-22, pp-30, 2016.
19. **“Synthesis of Natural Dyes to Replace the Organic Dyes for the Fabrication of Dye-Sensitized Solar Cell”** Sk. Abdul Moyez, Argha Dey, Sanjoy Maity, **Subhasis Roy** at National Conference on Recent Trends in Functional Materials in Relation to Nanomaterials and Nanotechnology (RTFMNN). Organized by Department of Chemistry, St. Paul’s Cathedral Mission College, Kolkata, India. February 4-5, pp-69, 2016.
20. **“Biomolecules Combined Hybrid Perovskites for Energy Efficient Solar Cell”** Argha Dey, Milan Kumar Mandal, Sk.Abdul Moyez, **Subhasis Roy** at International Conference on Advances in Bioprocess Engineering and Technology (ICABET 2016). Organized by Department of Chemical Engineering and Department of Biotechnology, Heritage Institute of Technology, Kolkata, India. January 20-22, , 2016.
21. **“Ferroelectric and Magnetic Behaviors of CoFe<sub>2</sub>O<sub>4</sub>/Pb<sub>0.85</sub>La<sub>0.15</sub>TiO<sub>3</sub> nano-Composite Thin Films Synthesized By Sol-Gel Precursor Hybrid Processing Route”**, **Subhasis Roy** and S.B. Majumder ,at International Conference on Nano Science and Technology (ICONSAT), IIT Bombay, Mumbai, India, February 17-20, FM-62, 2010.
22. **“Flexible Solid-state Dye-sensitized Solar Cells Based on ITO Nanowire Arrays”**, Gill Sang Han, **Subhasis Roy**, Sangwook Lee, Jun-Hong Noh, Hyun Suk Chung, Hyun Suk Jung, MRS Spring Meeting at the Moscone, West Convention Center, April 1-5, 2013.
23. **“Development of an Automated Gas Sensing Measurement System Using Semiconducting Oxides as Sensing Material”**, K. Mukherjee, K. K. Bhargav, **Subhasis**

- Roy, A. P. Gour and S.B. Majumder, at International Conference on Hi-Tech, Materials Science Centre, IIT Kharagpur., February 11- 13, 2009.
24. **“Electrical and Magnetic Properties of Sol-Gel Synthesized  $\text{CoFe}_2\text{O}_4/\text{Pb}_{0.85}\text{La}_{0.15}\text{TiO}_3$  Composite Thin Films”**, Subhasis Roy, and S.B. Majumder, at International Conference on Electroceramics (ICE) – 2009, University of Delhi, New Delhi, India, December 13-17, 2009.
  25. **“Synthesis and Characterization of  $\text{CoFe}_2\text{O}_4/\text{Pb}_{0.85}\text{La}_{0.15}\text{TiO}_3$  Composite Thin Films”**, Subhasis Roy, and S.B. Majumder, at International Symposium on Microwave and Optical Technology (ISMOT)-2009, Hotel Ashok, New Delhi, India, December 16 – 19, 2009.
  26. **“Analysis of Deposition and Dewetting Characteristics of Polyaniline (PANI) Films using Langmuir Blodgett Technique”**, S. Manigandan, Subhasis Roy, Saikat Chakraborty, Saibal Ganguly, and Kajari Kargupta, CHEMCON, Kolkata, December 27-30, 2007.
  27. **“Wet chemical synthesis of electro-ceramic thin films”**, S. Roy and S.B. Majumder, at National Conference on Recent Advances in Innovative Materials (RAIM-2008), NIT, Hamirpur, February 16-17, 2008.
  28. **“Dielectric and Magnetic Properties of Flexible PVDF:  $\text{CoFe}_2\text{O}_4$  Composites,”** Subhasis Roy, and S.B. Majumder at National Seminar on Ferroelectric & Dielectrics (NSFD-15), School of Physics & Material Science, Thapar University, Patiala- 147004, India, November 6-8, 2008.
  29. **Enhanced-Light-Harvesting ITO Nanowire Arrays for Efficient Solid-State Dye-Sensitized Solar Cells**, Gill Sang Han, Sangwook Lee, Jun-Hong Noh, Subhasis Roy, Hyun Suk Jung, 7th International Conference on Surfaces, Coatings and Nanostructured Materials (NANOSMAT)” held in Prague, Czech Republic, September 18-21 2012.
  30. **Efficiency enhancement of perovskite  $\text{CH}_3\text{NH}_3\text{PbCl}_3$  based chlorophyll dye sensitized thin film solar cells**, Argha Dey, Subhasis Roy, Bhaskar Chandra Das at 70<sup>th</sup> Annual Session of Indian Institute of Chemical Engineers CHEMCON – 2017. Organised by Indian Institute of Chemical Engineers, Haldia Regional Centre & Department of Chemical Engineering, Haldia Institute of Technology, Haldia, West Bengal, India. December 27 – 30, pp 12, 2017.
  31. **Efficiency and Stability Enhancement of Caesium Based Perovskite Quantum Dot Solar Cell**, Sneha Mukherjee, Sk Abdul Moyez, Subhasis Roy, International Conference on Nanotechnology (ICNT - 2018), Department of Fire and Safety Engineering, Institute of Fire and Safety Engineering, Haldia, India, November 16-17, 2018, page 73.
  32. **Cationic replacement of lead (Pb) to improve environmental stability of perovskite based solar cells**, Subhan Pal, SK Abdul Moyez, Subhasis Roy, International Conference on Nanotechnology (ICNT - 2018), Department of Fire and Safety Engineering, Institute of Fire and Safety Engineering, Haldia, India, November 16-17, 2018, page 74.

## INVITED TECTURES DELIVERED

### Abroad :

1. Invited talk on “**Integrated Metal Oxide Hybrid Perovskite Photoelectrode for Efficient Photoelectrochemical Water Splitting**” 231st Electrochemical Society Meeting New Orleans, LA,USA, Jun 1, 2017
2. Invited talk on “**Design, Synthesis and Characterization of Functionalized Nanomaterials and its Applications**” Department of Chemical and Biomolecular Engineering, Stocker Center 181,1 Ohio University, Athens , USA, 23<sup>rd</sup> January, 2017.
3. Invited talk on “**Hybrid Materials**”, Department of Materials Science and Engineering, Seoul National University, South Korea under Professor Ki-Bum Kim group, 12<sup>th</sup> May,2013.

### India :

4. Invited talk on “**Synthesis and Characterization of Nanomaterials for Photoelectrochemical application**” on 10<sup>th</sup> January, 2020 in “International Conference on Chemistry for Human Development (ICCHD- 2020) in collaboration with ‘University of Calcutta’ and “Heritage Institute of Technology” during January 9-11, 2020 in Calcutta
5. Invited talk on as an external expert in the refreshers Course on ‘Avant-grade theoretical modeling and state of the art experimental techniques in Nanoelectronic devices’. held between 10th to 21st December 2019 in nanotechnology at JIS College of Engineering Kalyani. The talk was on “**Low Dimensional Nanoelectronic Devices for Clean Energy Applications**” on 18<sup>th</sup> December, 2019.
6. Invited talk on “**Application of Chemical Engineering on Natural Resources**” Applications Department of Chemical Engineering, IGIT-Sarang ,workshop on 'Application of Chemical Engineering on Natural Resources' during 16-21 July, 2018.
7. Invited talk on “**Characterization of Functionalized Nanomaterials**” Department of Chemical engineering, IIT Kharagpur, 9th October, 2017

## ATTENDED WORKSHOPS/SHORT TERM COURSES

1. IIC Innovation Ambassador Training Program on 6-7<sup>th</sup> March 2020 at IISER, Kolkata.
2. Virtual Conference on Materials for Energy Harvesting and Catalysis 1-3 May, 2020 organized by Tata Institute of Fundamental Research (TIFR), Mumbai and Indian Institute of Science Education and Research (IISER), Kolkata.
3. Webinar on “Indian Citation Index” on 13-05-2020.
4. National Level Webinar on "Research Capability Building - A Strategy to Promote Research Culture in Higher Education". organized by Bhavan's Vivekananda College of Science, Humanities, and Commerce.

5. Two Days Online International Training on Research Manuscript Drafting and Publishing TORMP 2020 May 16-17, 2020
6. Webinar on Research Publication: Skills, Ethics and Misconducts on 15.05.2020 organized by Department of Chemistry, Kumaraguru College of Technology, Coimbatore.
7. A National Webinar on “ NO LOCK-DOWN FOR SOLAR ENERGY ” organized by Department of Physics, Dr.MGR Educational and Research Institute, Adayalampattu Phase II Campus, Chennai on 15th May 2020.
8. Online faculty development IPR AWARENESS PROGRAM 13th May 2020
9. International Webinar, DOCTRINA-5 organized by Department of Chemistry & IQAC of Sir Syed College on 26-05-2020. The speakers are Dr. Mangala Sunder Krishnan, HOD, Department of Chemistry, IIT, Madras.
10. One week Faculty Development Program titled "Manufacturing and Analysis of Advanced Materials and Engineering Structure" organized by Department of Aeronautical Engineering, MLR Institute of Technology from 26-05-2020 to 30-05-2020.
11. International Webinar on “Nano-Structured thin films for Multifunctional Applications” organised by the Departments of Chemistry, Physics & Electronics, on 11th June 2020.
12. Webinar on ‘Research Paper Development for Quality Journals’ held on 14 June, 2020.
13. Webinar on Recent Advance of Chemical Science, JB Institute of Engineering and Technology 25-26 June 2020
14. Five-days Webinar Series on “Advances in Materials Science and Technology (WSAMST-2020)” held during 22-26 June 2020 by the Department of Applied Sciences and Humanities (Physics), School of Engineering, University of Petroleum and Energy Studies, Dehradun.
15. Online workshop on "Materials Processing and Technology" conducted by Department of Physics and Chemistry, Mahatma Gandhi Institute of Technology (MGIT), Hyderabad 27 June 2020.
16. Five day webinar on Nanotechnology Driven Engineered Materials (NDEM-2020) 03 July 2020.
17. Online One Week Faculty Development Program on MOODLE from 23-29 May 2020 organized by Willingdon College, Sangli in association with Spoken Tutorial IIT, Bombay.

18. One day e-Conference on Perovskite Solar Cell , 30.06.2020.
19. webinar on 'Perovskite Nanocrystals: Photoluminescence and Charge Carrier Dynamics', organized by the Dept. of Chemistry, School of Basic and Applied Sciences, Adamas University, dated 04.07.2020.
20. SRCW Webinar for Research Scholars organized by the Research & Development Cell of Sri Ramakrishna College of Arts & Science for Women, Coimbatore from 11.05.2020 to 15.05.2020.
21. UGC-HRDC Refresher Course(Inter Disciplinary) in Chemical sciences, Engg. & Technology University of Calcutta, during Aug. 26- Sep 9, 2019
22. Summer School Titled "Advanced School on Nanoscience and Nanotechnology" at CRNN University of Calcutta during July 07-13, 2019
23. Attend Half day awareness programme on Chemical Weapon Convention 28<sup>th</sup> January, 2019 at Dr. HL Roy Bulding, IICHE auditorium, Jadavpur.
24. Attend stakeholder's Workshop on 12th February 2020 - AICTE Auditorium, New Delhi
25. One day National Seminar "Advanced Materials and Devices with emphasis on nanotechnology for green Energy" organized by Bidhan Chandra College, Rishra, January 31<sup>st</sup>, 2019.
26. "Workshop on MOOC with MOODLE", e-content development and Open Educational Resources", from 10th & 11th May, 2018, held at Centre for Research in Nano Science and Nanotechnology (CRNN) Salt Lake City, Kolkata, University of Calcutta Campus.
27. Three weeks Refresher Course on ICT , Academic Staff College, UGC-Human Resource Development CentreJadavpur University , December 1, 2017 to December 22, 2017
28. TEQIP II sponsored workshop under advanced pedagogy on "recent advancement in energy harvesting and water treatment technologies", June 13-17, 2016, Chemical Engineering Department, Jadavpur University.
29. Entrepreneurship Development Program on "Solar Energy" at Hotel Inn, 17 Rafi Ahmed kidwal Road Kolkata 700013 organized by KVIC, Ministry of MSME (Govt. of India) March 12-13, 2016.
30. Faculty Development Programme on "Pedagogy Accreditation Research and Entrepreneurship" 25<sup>th</sup> -27<sup>th</sup> May, 2016, held at CSDEC, IEI, Shimla-02
31. "Solid and surface CAD modelling with CAM applications in CNC machining " at I.I.T. Kharagpur, Central workshop and instruments service section, February 09-13,2015.
32. "Orientation Programme 112", Academic Staff College, University of Calcutta December 01-30, 2015

33. Short Term Course on "Bioremediation of Industrial Wastes for a Greener World" December 8-12, 2014, at NIT Durgapur.
34. "Author Workshop jointly organized by Springer and University of Calcutta", 20<sup>th</sup> November, 2014 at University of Calcutta.
35. "Industrial Academia workshop on Recent Trend in Petroleum Exploration Technology" organized by ONGC Academy oil and natural Gas corporation Limited, 10<sup>th</sup> February to 14<sup>th</sup> February, 2014 at Kolkata.
36. Nano-materials and Devices for Energy Application" at "International Conference on nano Nano Science and Technology 2010" at I.I.T. Bombay, Mumbai, INDIA , 17<sup>th</sup> February, 2010.
37. "Mechatronics using LabVIEW" under Technical Education Quality Improvement Programme (TEQIP), at Bengal Engineering & Science University, Shibpur, 27-28<sup>th</sup> March 2009.

#### PATENT FILED

1. A NOVEL OXIDIZED CARBON NANOSPHERE / CARBON NANOFOAM COMPOSITE MATERIAL AS AN EFFICIENT FILTER FOR MAINSTREAM CIGARETTE SMOKE (Application no: 201931037368, 17/09/2019)

#### SPONSORED R&D PROJECTS EXECUTED

Project title	Funding Agency	Duration in years	Period Year to Year
Fabrication of solid state desensitized solar cells and their performance <b>(PI) (Sole)</b>	Science and Engineering Research Board (SERB) under DST Fast Track scheme	3 years	2014-2017
Multidimensional Hematite Structure for Efficient Hydrogen Generation <b>(PI) (Sole)</b>	UGC under Raman Fellowship scheme	1 year	2016-2017
Synthesis, characterization, and structure-property correlation of functional nanomaterials based QD hybrid solar cells (supervisor)	MANF, UGC	5 years	2015-2019
Optical Spectroscopy to Optimize the Composition of Hybrid Perovskite for Photoluminescence, Photovoltaic and Photocatalysis Applications <b>(PI)</b> with	Science and Engineering Research Board (SERB) under Teachers Associateship for	3 years	2018-2021

collaboration of the Bose Institute, Kolkata	Research Excellence (TARE)		
Engineering of hybrid organic–inorganic perovskite materials for highly efficient photoelectrochemical cells (PI) with collaboration of the University of British Columbia , Canada and Jadavpur University	Department of Science and Technology, Ministry of Science and Technology, India	3 years	2019-2022

#### ACADEMIC/ ADMINISTRATIVE ACTIVITIES

- Convener of Departmental Committee, Chemical Engineering, University of Calcutta, 2014-2016.
- Expert for Poster Evaluation at “International Conference on Emerging Technologies for Sustainable Development- ICETSD 19; 5th & 6th March 2019; GCELT, Kolkata, India
- Technical program committee (TPC) member of 2nd International Conference on Advanced Material Research and Processing Technology (AMRPT2020), which will be held on November 22-23, 2020, Beijing, China.
- Coordinator, 33 days program on “GATE training as provided by GATEFORUM” Organised by Chemical Engineering Department & TEQUIP Phase III, University of Calcutta at Prof. N. K. Bose Memorial Hall, Raja Bazar Science College Campus in 2019-20.
- Technical program committee (TPC) member of International Conference on Materials in Civil Engineering (MICE 2020) will be held on October 23-25, 2020 in Sanya, China.
- Technical program committee (TPC) member of 2019 International Conference on Advanced Education, Management and Humanities held in Wuhan, China during July 19-21, 2019 (AEMH2019).
- Technical program committee (TPC) member of The 12th Asia-Pacific Power and Energy Engineering Conference (APPEEC 2020) April 24-26, 2020 Xi'an, China
- Technical Program Committee and Advisory committee member for International Conference on Emerging Techniques in Engineering and Education (ICETEE-2020) in Jaipur (India) during 22-23 Feb. 2020 and in Bangkok (Thailand) during 13-14 June, 2020.
- Technical program committee (TPC) member of 2019 International Conference on Management, Economics and Social Science (ICMESS2019) during August 30-31, 2019, in Changsha, China.



- Technical program committee (TPC) member of 5th International Conference on Science, Engineering and Environment SEE-Bangkok 2019, Thailand, November 11-13, 2019
- Technical program committee (TPC) member of 4th International Conference on Mechanical Structures and Smart Materials (4th ICMSSM2018) during September 22-23, 2018 in Shenzhen, China.
- Technical program committee (TPC) member of 2018 the 6th International Conference on Mechanical Engineering, Materials Science and Civil Engineering during December 21-22, 2018 in Xiamen, China
- Technical program committee (TPC) member of 2nd International Conference on Advances in Management Science and Engineering (AMSE2018) during June 24-25, 2018, Xi'an, China.
- Technical program committee (TPC) member of 3rd International Conference on Automation, Mechanical and Electrical Engineering (AMEE2018) will be held in Shanghai, China during July 22-23, 2018.
- Technical program committee (TPC) member of 4th International Conference on Science, Engineering and Environment during November 12-14, 2018 in SEE-NAGOYA 2018, Japan.
- Technical program committee (TPC) member of International Conference on Materials, Sensors and Smart Manufacturing (MSSM2018) September 16th and 17th 2018 in Xiamen China.
- Technical program committee (TPC) member of 8th International Conference on Advanced Computer Control (8th ICACC2018) during May 17-18, 2018 in Bangkok, Thailand.
- Technical program committee (TPC) member of International Conference on Electrical, Control and Mechanical Engineering (ECME2018), which will be held on April 22-23, 2018, Beijing, China.
- Technical program committee (TPC) member of 3rd International Conference on Chemistry and Biochemical Engineering (CHEMBIO2018) May 29-31, 2018 Hangzhou, China
- Acted as a reviewer for the 3rd International Conference on New Energy and Future Energy System (NEFES 2018), August 21st - 24th, 2018, Shanghai, China
- Acted as a reviewer for the 3rd Renewable Energy Sources - Research and Business (RESRB-2018), June 18-20 2018, Brussels, Belgium
- Technical program committee (TPC) member of International Conference on Mechanical, Automation and Applied Mechanics, which will be held on in. (MAAM2018) February 7-8, 2018, , Wuhan, China Organizing Committee.

- Technical program committee (TPC) member of the 2nd International Conference on Environmental Research and Public Health (ICERP2017) Oct. 20 - 22, 2017, Shenzhen, China Organizing Committee.
- Technical program committee (TPC) member of 9th International Conference on Environmental Pollution and Public Health (EPPH 2017), Hangzhou, China, Jun. 16-18, 2017.
- Technical program committee (TPC) member of 3rd Annual 2017 International Workshop on Material Science and Engineering (IWMSE2017), Guangzhou, Guangdong, China, September 8-10, 2017.
- Technical program committee (TPC) member of 2017 2nd International Conference on Materials Engineering and Industrial Applications (MEIA2017) is going to be held in Phuket, Thailand during August 6-7, 2017
- Technical program committee (TPC) member of Third International Conference on Science, Engineering & Environment (SEE2017) will be held in University of Southern Queensland (USQ), Springfield Campus, Brisbane, Australia (SEE-USQ) Nov. 13-16, 2017
- Working as a member of departmental sub-committees of Calcutta University.
- Ph.D Scholar's Representative in Materials Science Centre, IIT Kharagpur, 2009-2012.
- Editor, Research Scholar's magazine, Materials Science Centre, IIT Kharagpur, 2009-2011.
- Research Programme Advisory Committee Member, IIT Kharagpur, 2009-2012.
- Department Academic Advisory Committee member, IIT Kharagpur, 2009-2012.

#### COLLABORATIONS

- Ohio University (USA), Center for Electrochemical Engineering Research (CEER), USA : (Photocatalytic water splitting)
- Sungkyunkwan University, School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU), Suwon, Korea (South Korea): (Thin film Solar Cells)
- Department of Materials Engineering, KU Leuven, Kasteelpark Arenberg 44 Bus 2450, 3001 Heverlee-Leuven, Belgium, (Synthesis materials)
- Chemical Engineering Department, Jadavpur University, Jadavpur, Kolkata 700032, India
- Department of Mechanical Engineering, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi 110016, India (Synthesis materials)
- School of Chemical Engineering, Fuzhou University, Fuzhou-350116, China (Synthesis materials)

- Department of Science and Technology, Government of West Bengal, Vigyan Chetana Bhaban, Saltlake, Kolkata, (Perovskite Solar Cell)
- Department of Physics, Jadavpur University, Jadavpur, Kolkata 700032, India
- Material Science Centre, IIT Kharagpur, India
- Faculty of Applied Sciences, Ton Duc Thang University, Ho Chi Minh City, Vietnam
- Department of Physics, Bose Institute, 93/1, A P C Road, Kolkata-700009, India

### **COURSES TAUGHT (2013-TILL NOW) AND TEACHING TUTORIAL**

Undergraduate level:

- Material Science & Material of Construction (BChE-106)
- Energy Sources & Utilization (BChE-105)
- Chemical Technology (BChE-104 & 204)
- Polymer Engineering (BChE-601)
- Separation Processes II (ChE 502 )
- Mass transfer lab (BChE-407)
- Fluid Mechanics lab (BChE-207)
- Fuel Technology lab (BChE-109)
- Nanotechnology (BChE 804)

Graduate level:

- Petrochemicals and Petroleum Refining ((MChE 142)
- Environmental Engineering Lab (MChE-254)

### **Knowledge and Technology Translation and Facilities developed**

- Low cost ferroelectric traser using sawyer tower circuit with Labview interfacing (at IIT KGP)
- Low cost solar simulator (at CU)
- Sol-gel ceramic thin film synthesis and electrical characterization facilities(at IIT KGP & CU)

## Research Guidance as Supervisory

Ongoing / Submitted M.Tech Thesis

Sl. No	Scholar Name	Thesis Title	Status	Complete in Year
1	Poulomi Karan	Controlled Processing of Nanorod-Based Materials and Nanostructured Film for Solar Cell Application	completed	2015
2	Sanjoy Maity	Lead Free Hybrid Perovskites for Solar Cell Application	completed	2016
3	Sneha Mukherjee	Development of new material for energy conversion	Completed	2019
4	Subhan Kumar Pal	Mesoporous thin film for hybrid perovskite solar cell	Completed	2019
5	Shyamal Datta	Study of combined hybrid thermoelectric devices in photovoltaic in order to increase efficiency	Completed	2020
6	Rajeev Ranjan	Synthesis and characterization of lead-free methylammonium (MA) iodide based electroactive materials for renewable energy systems	Running	2021

Ongoing / Submitted Ph. D. Thesis

Sl.No	Scholar Name	Thesis Title	Status	Complete in Year
1	Argha Dey,	Fabrication of Solid-State Dye-Sensitized Solar Cells and Study of their performance	On going	
2	Sk. Abdul Moyez	Analysis of Perovskite Based Thin Films for Solar Cells Application	Thesis submitted	
3	Joy Sankar Deb Roy	Polymer composite	On going	
4	Madhushree Mitra	Polymer composite synthesis and characterization	On going	
5	Mousumi Deb (Joint)	Nanopolymer synthesis and characterization	On going	