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Assistant Professor, Department of Chemical Engineering

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A nano-science and technology professional with 15 years of 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 nanostructures, 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 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

- 2013-till date: **Assistant Professor**, Department of Chemical Engineering, University College of Science and Technology, University of Calcutta
- 2016- 2017: **Postdoctoral Research** Raman Fellow, Ohio University, USA (research on “metal oxide hybrid perovskite photoelectrode for efficient photoelectrochemical water splitting” CEER, Russ College of Engineering, USA)
- 20th Aug. 2013- 15th Nov. 2013: **Research Associate**, Indian Institute of Science Education & Research (IISER), Kolkata. (research on “Photonic and magnetic interactions of nanoparticles inside carbon nanotubes channels”)
- 2012- 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 (July 2005-April 2006)

LIST OF PUBLICATIONS AND PRESENTATIONS

Peer Reviewed Journal:

Peer Reviewed Journal:

2024

- (1) A review on environmental impacts of renewable energy for sustainable development, Debabrata Gayen Risha Chatterjee, **Subhasis Roy**, International Journal of Environmental Science and Technology, (2024) 21:5285–5310. (IF **3.519**)
- (2) Biopolymer-based nanocomposites for application in biomedicine: a review, Abdul Aziz Shaikh, Preetam Datta, Prithwish Dastidar, Arkadip Majumder, Maharghya Dyuti Das, Pratikrit Manna, Subhasis Roy, Journal of Polymer Engineering. (IF **2**). <https://doi.org/10.1515/polyeng-2023-0166>
- (3) Review on green resources and AI for biogenic solar power. Energy Storage and Conversion, Bhattacharjee, J., & Roy, S. (2024). 2(1). <https://doi.org/10.59400/esc.v2i1.457>

2023

- (4) A Potential Roadmap on the Development, Application, and Loopholes of Metal-Organic Frameworks in High-Performance Third-Generation Solar Cells, Swastik Paul, Shibsankar Mondal, Souhardya Bera, Ankit Saha, Ridipt Mishra, Arkadip Majumder, Milan Mondal, **Subhasis Roy**, Chemistry of Inorganic Materials, Volume 1, December 2023, 100024. Elsevier
- (5) Biopolymer-based nanocomposites for application in biomedicine: a review, Abdul Aziz Shaikh, Preetam

Datta, Prithwish Dastidar, Arkadip Majumder, Maharghya Dyuti Das, Pratikrit Manna, Subhasis Roy, Journal of Polymer Engineering ISSN: 2191-0340 (accepted). (IF 1.624).

(6) A review on environmental impacts of renewable energy for sustainable development, Debabrata Gayen Risha Chatterjee, **Subhasis Roy**, International Journal of Environmental Science and Technology, <https://doi.org/10.1007/s13762-023-05380-z>. (IF 3.519)

(7) HPMC-mediated ZnCl₂ doping possible substitution of Pb²⁺ for environment-friendly halide perovskite solar cell fabrication" by Shyamal Datta, Mouli Mitra, **Subhasis Roy**, ECS Journal of Solid State Science and Technology, 2023, Vol. 12, Issue 10, p. 10500510. (IF 2.070).

(8) Synthesis, characterization, and density functional theory calculation studies of a novel Rb-based lead halide perovskite material, Swastik Paul, Shibsankar Mondal, Souhardya Bera, Ankit Saha, Ridipt Mishra, Arkadip Majumder, Milan Kumar Mandal, **Subhasis Roy**, Chemistry of Inorganic Materials, Elsevier. 2023, Volume 1, 100015,

(9) Roadmap on the development of 2D nanomaterials for preparation of efficient photocatalysts, Suchismita Mondal, Souhardya Bera, Subhasis Roy, Materials Science in Semiconductor Processing, Volume 168, 2023, 107834 (IF 4.62).

(10) Morphological tuning and defect-free lead halide perovskite by surface passivation for solar cell fabrication, Shyamal Datta, Mouli Mitra, **Subhasis Roy**, Ionics, Springer, volume 29, pages, 4397–4405 , 2023, DOI 10.1007/s11581-023-05116-6 (IF 2.39).

(11) Photocatalysis for Water and Wastewater Treatment Authors: Preetam Datta, **Subhasis Roy**, Catalysis Research 2023; 3(3): 020;doi:10.21926/cr.2303020.

(12) Bi-functional Cu-TiO₂/CuO photocatalyst for large scale one-shot synergistic treatment of waste sewage containing organic and heavy metal ions, Yang Ding, Soumyajit Maitra , Chunhua Wang , Runtian Zheng , Tarek Barakat, **Subhasis Roy** , Li-Hua Chen, Bao-Lian Su, Science Science China Materials volume 66, pages179–192 (2023) (IF 8.273)

(13) A Comprehensive Review on Third-Generation Photovoltaic Technologies, Arko De , Jyoti Bhattacharjee , Sahana R. Chowdhury and **Subhasis Roy**, Journal of Chemical Engineering Research Updates, 2023, 1-17.

(14) Bhattacharjee J, Roy S. Utilizing a Variable Material Approach to Combat Climate Change. Mat. Sci. Res. India;20(3).2023, ISSN: 0973-3469. <http://dx.doi.org/10.13005/msri/200301>

2022

(15) Selective photo-reduction of CO₂ to methanol using Cu doped 1D-Bi₂S₃/rGO nanocomposite under visible light irradiation. Arindam Mandal, Soumyajit Maitra, Subhasis Roy, Baisakhi Hazra, Koustuv Ray and Kajari Kargupta, *New J. Chem.*, 2022 (IF 3.6)

(16) Synthesis and characterization of Inorganic Nanoparticles Luminophores for Environmental Remediation, Abdul Aziz Shaikh, Souhardya Bera, Swastik Paul, Shibsankar Mondal, Ankit Saha and **Subhasis Roy**, 4open Special issue Inorganic Nanoparticle Luminophore: Design and Application, 4open 5(19) Number of pp 7, 2022 (<https://doi.org/10.1051/fopen/2022021>).

- (17) "Unveiling the electro-catalytic activity of crystal facet tailored Cobalt Oxide-rGO hetero-structure towards selective reduction of CO₂ to ethanol" Saha, Suparna; Maitra, Soumyajit; Chattopadhyaya, Mausumi ; Sarkar, Arundhati; Haque, Suhail; **Roy, Subhasis**; Kargupta, Kajari, ACS Applied Nano Materials, 5, 8, 10369–10382 2022. (IF 5.097)
- (18) A Mini Review of Flexible Polymer Solar Cell with Higher Conversion Efficiency, Monoj Ghosh and Subhasis Roy Polymer Sci peer Rev J. 4(3). PSPRJ. 000587. 2022. DOI: 10.31031/PSPRJ.2022.04.000587
- (19) Three-dimensionally ordered macroporous materials for photo/electrocatalytic sustainable energy conversion, solar cell and energy storage" Yang Ding, Chunhua Wang, Runtian Zhenga. Soumyajit Maitra, Genwei Zhang, Tarek Barakat, Subhasis Roy, Bao-Lian Su, Li-HuaChen, EnergyChem. Elsevier, 4, 4 , 100081, 2022 (IF 31.9) <https://doi.org/10.1016/j.enchem.2022.100081>
- (20) Review on defect engineering of perovskite in photovoltaic application, Souhardya Bera , Ankit Saha , Shibsankar Mondal , Arnab Biswas , Shreyasi Mallick , Rupam Chatterjee , **Subhasis Roy**, *Materials Advances*, RSC, 2022, 3, 5234–5247, DOI: 10.1039/D2MA00194B,
- (21) Redefining the role of microalgae in industrial wastewater remediation, Shibsankar Mondal, Souhardya Bera, Ridipt Mishra, **Subhasis Roy**, Energy Nexus Volume 6, **100088**, 2022. <https://doi.org/10.1016/j.nexus.2022.100088>
- (22) Ratiometric pH Sensing, Photophysics, and Cell Imaging of Nonaromatic Light-Emitting Polymers , Joy Sankar Deb Roy, Deepak Chowdhury, MD Hussain Sanfui, Nadira Hassan, Manas Mahapatra, Narendra Nath Ghosh, Swapan Majumdar, Pijush Kanti Chattopadhyay, **Subhasis Roy**, and Nayan Ranjan Singha, ACS Appl. Bio Mater. 2022, 5, 6, 2990–3005, <https://doi.org/10.1021/acsabm.2c00297> (IF 3.25)
- (23) Emerging semiconductors and metal-organic compounds related photocatalysts for sustainable hydrogen peroxide production, Yang Ding, Soumyajit Maitra, Daniel Arenas Esteban, Sara Bals, Henk Vrielinck, , Subhasis Roy , Tarek Barakat , 2022, Matter- cell press Volume 5, Issue 7, 6 July 2022, Pages 2119-2167. (IF 19.6)
- (24) Photochemical production of hydrogen peroxide by digging pro-superoxide radical carbon vacancies in porous carbon nitride Yang Ding, Soumyajit Maitra, Daniel Arenas Esteban, Sara Bals, Henk Vrielinck, Tarek Barakat, **Subhasis Roy**, Gustaaf Van Tendeloo, Jing Liu, Yu Li, Alexandru Vlad, and Bao-Lian, *Cell Reports Physical Science* 2022. **100874**. DOI: 10.1016/j.xcrp.2022.100874. (IF 9.423)
- (25) Vacancy defect engineering in semiconductors for solar light driven environmental remediation and sustainable energy production, Journal: Interdisciplinary Materials, Yang Ding, Soumyajit Maitra, Chunhua Wang, Somopova Halder, Runtian Zheng, Tarek Barakat, **Subhasis Roy**, Li-Hua Chen and Bao-Lian Su, *Interdisciplinary Materials*. 2022;1–43., DOI: 10.1002/idm2.12025 .
- (26) Light-Emitting Redox Polymers for Sensing and Removal-Reduction of Cu(II): Roles of Hydrogen Bonding in Nonconventional Fluorescence Joy Sankar Deb Roy, Mousumi Deb, MD Hussain Sanfui, Shrestha Roy, Arnab Dutta, Pijush Kanti Chattopadhyay, Narendra Nath Ghosh, Subhasis Roy, and Nayan Ranjan Singha: ACS Appl. Polym. Mater. 2022, 4, 3, 1643–1656 (IF 4.089)
- (27) Hydrophilic bi-functional B-doped g-C₃N₄ hierarchical architecture for excellent photocatalytic H₂O₂ production and photoelectrochemical water splitting, Yang Ding, Soumyajit Maitra, Chunhua Wang, Runtian Zheng, Meiyu Zhang, Tarek Barakat, Subhasis Roy, Jing Liu, Yu Li, Tawfique Hasan, Bao-Lian Su, *Journal of Energy Chemistry* 70 (2022) 236–247, ISSN 2095-4956 (IF 9.676)
- (28) A review on Z/S – scheme heterojunction for photocatalytic applications based on metal halide perovskite

material, Applied Surface Science Advances , Ridipt Mishra, Souhardya Bera, Rupam Chatterjee, Saptaparna Banerjee, Satarupa Bhattacharya, Arnab Biswas, Shreyasi Mallick, **Subhasis Roy** Volume 9, June 2022, 100241

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- (29) Swastik Paul, Souhardya Bera, Rishav Dasgupta, Shibsankar Mondal, **Subhasis Roy**, Review on the recent structural advances in open and closed systems for carbon capture through algae, Energy Nexus, Volume 4, 2021, 100032, ISSN 2772-4271.
- (30) “Simulated Performance Studies of Thin Film Perovskite Solar Cell”. Shyamal Datta & Subhasis Roy , Journal of The Institution of Engineers (India): Series C vol. 103, pp.189–195 (2021) (IF 1.676).
- (31) “Solvothermal Etching-Assisted Phase and Morphology Tailoring in Highly Porous CuFe₂O₄ Nanoflake Photocathodes for Solar Water Splitting”, Soumyajit Maitra, Subhan Pal, Toulik Maitra, Somoprova Halder, and **Subhasis Roy**, *Energy & Fuels*, ACS, Vol 35 (17), pp 14087-14100, 2021 (IF **3.421**).
- (32) “Solvothermal Phase Change Induced Morphology Transformation in CdS / CoFe₂O₄ @ Fe₂O₃ Hierarchical Nanosphere Arrays as Ternary Heterojunction Photoanodes for Solar Water Splitting”, Soumyajit Maitra, Arundhati Sarkar, Toulik Maitra, Somoprova Halder, Kajari Kargupta and **Subhasis Roy** , *New Journal of Chemistry - RSc*, Vol.45, pp12721, 2021 (IF **3.591**).
- (33) “Superior light absorbing CdS/vanadium sulphide nanowalls@TiO₂ nanorod ternary heterojunction photoanodes for solar water splitting” , Soumyajit Maitra,, Somoprova Halder, Toulik Maitra, **Subhasis Roy**, *New Journal of Chemistry*, RSc, Vol 45 (16), 7353-7367, 2021. (IF **3.591**).
- (34) “Research on dye sensitized solar cell: A review highlighting the progress in India”, Journal of Physics: Energy, , K. Mukherjee S. Bera , D. Sengupta, **Subhasis Roy**, *Journal of Physics: Energy*, IOP science Volume 3, Number 3 pp 032013, 2021. (IF **7.528**)
- (35) “Blending of Dielectric Perovskite with Electron Transport Materials: A Case Study towards Improving Bio-Molecular Devices for Energy Harvest”, K. Mukherjee, **Subhasis Roy**, Argha Dey, Shyamal Datta, Sk. Abdul Moyez, Abhijit Kamila, *ECS Journal of Solid State Science and Technology*, Vol 10 (1), 013003, 2021. (IF **2.142**)
- (36) 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: Proceedings*, Volume 39, Part 5, 2021, Pages 1856-1861. (IF **1.24**)

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- (37) Enhanced performance of dye-sensitized solar cell with thermally stable natural dye-assisted TiO₂/MnO₂ bilayer-assembled photoanode, Shyamal Datta. Argha Dey. Nayan Ranjan Singha,

Subhasis Roy , *Materials for Renewable and Sustainable Energy*, Springer Volume 9, pp. 25, 2020 (IF 2.98)

- (38) "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" Sk Abdul Moyez, Soumyajit Maitra, Kalisadhan Mukherjee, Abhinanda Sengupta and **Subhasis Roy**, *Journal of Electronic Materials*, Springer, Vol. 49, No. 12, pp. 7133, 2020 (IF 1.938)
- (39) "Fluorescent Guar Gum-g-Terpolymer via In Situ Acrylamido-Acid Fluorophore-Monomer in Cell-Imaging, Pb(II)-Sensor, and Security-Ink." Madhushree Mitra; Manas Mahapatra; Arnab Dutta; Mousumi Deb; Sayanta Dutta; Pijush Chattopadhyay; Subhasis Roy; Snehasis Banerjee; Parames C Sil; Nayan Ranjan Singha, *ACS Applied Bio Materials*, Vol.3, No. 4, pp.1995–2006, 2020 (IF 3.25).
- (40) "Cadmium Sulphide Sensitized Crystal Facet Tailored Nanostructured Nickel Ferrite@ Hematite Core-Shell Ternary Heterojunction Photoanode for Photoelectrochemical Water Splitting", Soumyajit Maitra, Arundhati Sarkar, Toulik Maitra, Somoprova Halder, **Subhasis Roy**, Kajari Kargupta, *MRS Advances*, RSC Volume 5, Issue 50 (Energy, Storage and Conversion), pp. 2585-2593. 2020.
- (41) "A Review on Perovskite Nanostructure for Renewable Energy Applications in Recent Advances", **Subhasis Roy**, *International Journal of Applied Nanotechnology*, ISSN: 2455-8524, Vol. 6: Issue 2, 2020. (DOI: 10.37628/ijan.v6i2.720)
- (42) "Applications of Polymers in Perovskite Solar Cells: A Review", *Annals of Chemical Science Research*, **Subhasis Roy** and Shyamal Datta, Vol. 2 (2) 2020.(DOI: 10.31031/ACSR.2020.02.000531)
- (43) "A mini review of recent strategies towards stable nanostructure perovskite solar cell fabrication", Shyamal Datta and **Subhasis Roy**, *International Journal of Engineering and Management Research*, Vol. 9(12):430,2020.

2019

- (44) "Improved Photoresponse in Association with a Synthesized Dielectric Material for Quantum Dots Solar Cells", **Subhasis Roy**, Argha Dey, B.C.Das, *Material Science Research India*, Vol. 16(3), pp. 230-234 (2019)

2018

- (45) "Dual-Step Thermal Engineering Technique: A New Approach for Fabrication of Efficient $\text{CH}_3\text{NH}_3\text{PbI}_3$ -Based Perovskite Solar Cell in Open Air Condition", *Solar Energy Materials and Solar Cells*, Elsevier, Sk. Abdul Moyez , **Subhasis Roy**, Vol.185, pp. 145-152, 2018 (IF 7.267).
- (46) Perovskite solar cell for photocatalysis water splitting with TiO_2 / Co- doped hematite electron transport bilayer, **Subhasis Roy** and G. Botte *RSC advance*, Vol 8, 5388-5394, 2018. (IF 3.24).
- (47) 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**).

(48) 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.

(49) Fabrication and characterization of next-generation nano- structured organo-lead halide-based perovskite solar cell, Abhishek Dhar, Argha Dey, Pradip Maiti, Pabitra Kumar Paul, **Subhasis Roy**, Sharmistha Paul, Rohit L. Vekariya, *Ionics*, 24, pp. 1227–1233, 2018. DOI 10.1007/s11581-017-2256-x (IF **2.39**).

(50) 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. Vekariya, *Organic Electronics* Vol. 53, pp. 280–28, 2018 (IF **3.72**)

(51) Synthesis of Colloidal Silver Nanoparticles by Reducing Aqueous AgNO₃ Using Green Reducing Agents, S. K. Panda, S. Sen, **Subhasis Roy**, A. Moyez, *Materials Today: Proceedings*, Elsevier, Vol. 5, Issue 3, pp. 10054-10061, 2018 (IF **1.24**)

(52) Thermal engineering of lead free nanostructured MASnCl₃ perovskite material for thin film solar cell , Sk Abdul Moyez, **Subhasis Roy**, *Journal of Nanoparticle Research*, Springer, Vol. 20, Issue 5, pp.1-13, 2018 (IF **2.13**).

(53) An overview of engineered porous material for energy applications: a mini-review, Rohit L. Vekariya, Abhishek Dhar, Pabitra Kumar Paul, **Subhasis Roy**, *Ionics*, Springer, 24, pp. 1–17, 2018. (IF **2.39**).

2017

(54) Enhanced Charge Carrier Generation by Dielectric Nanomaterials for Quantum Dots Solar Cells Based on CdS-TiO₂ Photoanode, Argha Dey, Poulami karan, Abhinanda Sengupta , Sk. Abdul Moyez, Subhasish Basu Majumderb , Debabrata Pradhan, **Subhasis Roy**, *Solar Energy*, Elsevier, Vol.158, pp. 83-88, 2017. (IF **5.74**)

(55) Experimental Investigation of Photocatalytic and Photovoltaic activity of Titania/Rice Husk Crystalline Nano-Silica Hybrid Composite, Sk. Abdul Moyez, Argha Dey, Sudip Kumar Das, **Subhasis Roy**, *Solar Energy Materials and Solar Cells*, Elsevier, Vol. 172, pp 93-98, 2017. (IF **6.98**).

(56) 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.

(57) "Fabrication of Environmental Friendly Perovskite Solar Cells by Partial Replacemnet of Lead with Tin," Sk Abdul Moyez, Abhinanda Sengupta, Asit Baran Biswas, **Subhasis Roy**, Argha Dey, Bhaskar Chandra Das *Invertis Journal of Renewable Energy*, Vol. 7, No. 2, pp. 59-63, 2017.

(58) "Nano- structured superacidic sulfated zirconium oxide catalyst: synthesis, characterization and application in one-pot isomerisation of n-alkanes predicting their reaction-kinetics", Abhishek Dhar, Abhishek Dutta, Pushan Sharma, Poulomi Sarkar, **Subhasis Roy**, in the special issue '*Energy and*

Environment Focus', American Scientific Publishers, Vol. 6, pp. 1–8, 2017.

(59) “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”, Sk Abdul Moyez, **Subhasis Roy**, Asit Baran Biswas *Materials Today: Proceedings*, Elsevier, Vol. 4, Issue 14, , pp.12657–12660, 2017 (IF **1.25**)

(60) “Combined Organic- Perovskite Solar Cell Fabrication as conventional Energy substitute”, Argha Dey, Abhishek Dhar, **Subhasis Roy**, Bhaskar Chandra Das, “*Materials Today: Proceedings*”, Elsevier, Vol. 4, Issue 14, 2017, pp.12651–12656 (IF **1.25**)

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(64) "A Review of the Multiple Exciton Generation in Photovoltaics" Sk. Abdul Moyez, Abhishek Dhar, Poulomi Sarkar, Hyun Suk Jung, **Subhasis Roy**, in the special issue Reviews in *Advanced Sciences and Engineering*, American Scientific Publishers, Vol. 5, No.1, pp. 1-14, 2016

2015

(65) "Low temperature synthesis of rutile TiO_2 nanocrystals and their photovoltaic and photocatalytic properties", **Subhasis Roy**, Gill Sang Han, Hyun Jung Shin, Jin Wook Lee, Jin Soo Mun, Hyun Ho Shin and Hyun Suk Jung *Journal of Nanoscience and Nanotechnology*, American Scientific Publishers Vol. 15, pp. 4416-4521, 2015. (IF **1.55**)

2013

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

2012

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(68) “Optical Characteristic of Sol-Gel Synthesized Lead Lanthanum Titanate-Cobalt Iron Oxide Multiferroic Composite Thin Film”, **Subhasis Roy**, and S.B. Majumder, *Journal of Applied Physics*,

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2008

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Book Chapters

- 1) ‘Diamanoids and Diamane Oxide synthesis and properties: An overview’ Subhasis Roy, Sanglap Mondal, Swapnadipa Patra the book titled ‘Diamane: Fabrication, properties and new advances in 2D diamond’ edited by Santosh K. Tiwari and Arpan Kumar Nayak, IOP Publishing Ltd.
- 2) "Characteristics, Applications, and Limitations of Nanocomposites in Biosensing: Nanocomposites as Biosensors," Jyoti Bhattacharjee, Debjani Bhakta, Subhasis Roy in book "Smart and Sustainable Applications of Nanocomposites", IGI Global
- 3) Semiconducting Fiber for Thermoelectrics, Jyoti Bhattacharjee, Debjani Bhakta, Subhasis Roy, CRC. *Semiconducting Fibers: Preparation, Advances, and Applications*.
- 4) “Heavy Metals and Other Chemicals Removal by Microalgae” Jyoti Bhattacharjee, Souhardya Bera, Suchismita Mondal, Subhasis Roy, *Advances in Sustainable Applications of Microalgae (the “Work”)* (9780443221279) edited by Jose Carlos Magalhaes Pires, Ana Filipa Cruz Esteves and Eva Margarida de

Azevedo Campos Salgado (the “Editor”). Woodhead Publishing, an imprint of Elsevier Ltd.

- 5) Nanopar, SK Rozi Unnesa Alam, Soumyadeep Mitraticles for Diagnosis and Treatment of Infectious Diseases, Sujit Mukherjee, Debmalya Pal, Arunava Bhattacharyya, Pritam Mondal, **Subhasis Roy** book, "Emerging Applications of Novel Nanoparticles," to be published by Springer. (Comments received)
- 6) Nano materials for biofuels, Abdul Aziz Shaikh, Rituparna Roy, **Subhasis Roy** book Biofuel Cells and Energy Generation, Elsevier
- 7) Applications of Futuristic Trends of Chemical Material Sciences & Nano Technology, IIP Book Series, IIPV3EBS06_G65 Debjani Bhakta Swapnadipa Subhasis Roy. Futuristic Trends in Chemical Material Sciences & Nano Technology under Volume 3, 2023, IIP Proceedings
- 8) Introduction of Futuristic Trends in Chemical Material Sciences & Nano Technology IIP Book Series IIPV3EBS06_G65 Futuristic Trends in Chemical Material Sciences & Nano Technology under Volume 3, 2023, IIP Proceedings
- 9) Nanoceramics in Advanced Materials Industry for Renewable Energy and Storage, Arpan Kar, Sowmik Maji, Somoprova Halder and Subhasis Roy Chapter 15, Elsevier , book: Industrial Applications of Nanoceramics Editor(s) Chaudhery Mustansar Hussain, Shadpour Mallakpour, 2023
- 10) Applications and Types of Smart Materials- Rituparna Roy, Debjani Bhakta, Subhasis Roy, page 266 , 2023 DOI: 10.4018/978-1-6684-9224-6.ch013 Book chapter to be published in IGI Global publisher of timely knowledge, Book Modeling, Characterization, and Processing of Smart Materials, DOI: 10.4018/978-1-6684-9224-6 ISBN13: 9781668492246
- 11) Significance of renewable energy in water management and irrigation-Jyoti Bhattacharjee, Subhasis Roy book Gender Issues in Water Management in Developing Countries and Sustainable Development" which is intended to publish in Springer Nature, Singapore , DOI : 10.1007/978-981-99-8639-2
- 12) Agrarian Aspects of Nanotechnology Preetam Datta, Subhasis Roy, Arindam Mandal , Book Green Nanotechnology: Synthesis and Applications. DOI : 10.1007/978-981-99-7943-1, Springer Nature.
- 13) Nanomaterials for biofuels- Abdul Aziz Shaikh, Rituparna Roy, Subhasis Roy, Book chapter to be published in Elsevier, Book titled “BIOFUEL CELLS AND ENERGY GENERATION”.
- 14) “Applications, Biomedical Necessities, and Green Future of Metallic Nanoparticles” Jyoti Bhattacharjee, Subhasis Roy, in BOOK, Recent Advancements in Multidimensional Applications of Nanotechnology (RAMAN), Vol1, BENTHAM SCIENCE Books.
- 15) Recent Advancements in the Harvesting and Storage of Solar Energy,Sanglap Mondal, Soumyodeep Haldar, **Subhasis Roy**, Reference Module in Earth Systems and Environmental Sciences, Elsevier, 2023,ISBN 9780124095489, <https://doi.org/10.1016/B978-0-323-93940-9.00001-3>.
- 16) Manufacturing process for different nanofillers by **Subhasis Roy**, Arnab Biswas, Rupam Chatterjee, Shreyasi Mallick, Jyoti Bhattacharjee editors Mallakpour & Mustansar Hussain Sustainable Nanofillers: Fundamentals, Synthesis, and Applications (Micro & Nano Technologies) 1 January 2025 by Elsevier, ISBN 9780323994705 (ISBN10: 0323994709)
- 17) Piezoelectric Smart Materials and Commercialization: Smart Materials , Rahul Saha, Ridipt Mishra, Avijit Dhara, Abir Chakravorty, **Subhasis Roy**, Diversity and Applications of New Age Nanoparticles,

- Suneev Bansal, Virat Khanna , Nilanthy Balakrishnan , Pallav Gupta, 2023, pages 267-294, ISBN13: 9781668473580 | ISBN10: 1668473585 | EISBN13: 9781668473603, 2023, 10.4018/978-1-6684-7358-0.ch011.
- 18) Polymer nanocomposite foams as metal ions removers Arvil Dasgupta, Souhardya Bera, Arnab Roy, Rishov Kumar Das, Subhasis Roy Book “Recent Advancements and Innovative Approaches in Multifunctional Polymeric Foams”, Dr.SoneyC.George Edition First Published 2023 Imprint CRC Press Pages19 eBook ISBN9781003218692, 2023, <http://dx.doi.org/10.1201/9781003218692-5>
 - 19) Fundamentals and functionalization of CNTs and other carbon nanomaterials, , Swastik Paul, Shib Sankar Mandol, Ankit saha, **Subhasis Roy**, doi:10.1016/B978-0-12-824366—4.00008-X , Elsevier, book- Nanomaterials for Theranostic Applications 1st Edition - September 30, 2022 Editors: Shadpour Mallakpour, Chaudhery Mustansar Hussain Paperback ISBN: 9780128243664
 - 20) From 3.8% to over 23.8% Power Conversion Efficiency: Commercial Perovskite Solar Cells, Significant Manufacturing Techniques, and Future Prospects” Encyclopedia of Materials: Electronics, **Subhasis Roy** Paul Arkashis Sarkar Baidurya Paul Swastik Abdul Moyez Hyun Suk Jung, doi:10.1016/B978-0-12-819728-8.00044-9, Reference Module in Materials Science and Materials Engineering, Elsevier,2022, ISBN 9780128035818
 - 21) Application and Commercialization of Piezoelectrics to Smart Materials and Commercialization of Piezoelectrics to Smart Materials, book New age nanoparticles: Diversity and applications, in IGI Global, USA 2022.
 - 22) A Comparative Study of 0D, 1D, and 2D Nanocatalysts Towards CO₂ Conversion, Arindam Mandal , Subhasis Roy, Print ISBN 978-1-83916-311-1, 2022 Rsc book-2D Nanomaterials for CO₂ Conversion into Chemicals and Fuels, Editors: Kishor Kumar Sadasivuni, Karthik Kannan, Aboubakr M Abdullah, Bijandra Kumar.
 - 23) Supercapacitors Based on Waste Generated in Automobiles, Souhardya Bera and Subhasis Roy , ISBN 9781032013596 March 29, 2022 Imprint CRC Press Pages14 eBook ISBN9781003178354, 10.1201/9781003178354-32 Book Energy from Waste Edition1st Edition First Published Edited By Ram K. Gupta, Tuan Anh Nguyen.
 - 24) Recent Advances in Transition Metal Chalcogenides for Flexible Supercapacitors By Somoprova Halder, Souhardya Bera, **Subhasis Roy**, doi:10.1201/9781003186755-26 Book Smart and Flexible Energy Devices Edition1st Edition First Published, 2022 Imprint CRC Press Pages19 eBook ISBN9781003186755.
 - 25) Chalcogenides for photoelectrochemical water splitting, Dipanjan Sengupta, Tridib Kumar Sinha, **Subhasis Roy** and Kalisadhan Mukherjee in book IOP Publishing Nanostructured Materials for Photoelectrochemical Water Splitting Jih-Hsing Chang, Mohanraj Kumar and Arpan Kumar Nayak, **IOP Publishing** Ltd, Hardback ISBN: 9780750336970, doi:10.1088/978-0-7503-3699-4ch6 page 6-1, 2021
 - 26) PbS Nanoparticle Sensitized Fe-Doped Mesoporous TiO₂ Photoanodes for Photoelectrochemical Water Splitting. Halder S., Maitra S., **Subhasis Roy**. *Innovations in Sustainable Energy and Technology*. **Springer**, Singapore, pp 23-34, 2021, ISBN 978-981-16-1119-3. https://doi.org/10.1007/978-981-16-1119-3_3
 - 27) Application to Advanced Materials Simulation By Soumyajit Maitra, Souhardya Bera, **Subhasis Roy** Book Computational Technologies in Materials Science Edition 1st Edition 2021, Imprint **CRC Press**

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- 30) Optimization of TiO₂–KMnO₄ Composites with Natural Dyes for Solar Cell Application Shyamal Datta, **Subhasis Roy**, *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.
- 31) "Composite film processing in Chemical Solution Deposition of Functional Oxide Thin Films" R. Dorey, **Subhasis Roy**, A. Sharma, C. Ghanty, S.B. Majumder, *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.

Proceedings of Conferences and Presentations

1. **Biogenic Electrodes for Low-Temperature Solid Oxide Fuel Cells**, Jyoti Bhattacharjee and Subhasis Roy, 2023 ECS - The Electrochemical Society ECS Meeting Abstracts, Volume MA2023-01, in Fuel Cells, Electrolyzers, and Energy Conversion 2023 Meet. Abstr. MA2023-01 2805 DOI 10.1149/MA2023-01402805mtgabs
2. **Functionalized Nanomaterials Based Devices for Energy**, International Hybrid Conference on Nano Structured Materials and Polymers (ICNP 2023), pp-106
3. **Nanomaterials Based Devices** , International Conference on Chemical Engineering Innovations & Sustainability, Jadavpur University (ICEIS2023) February 26- 27, 2023
4. **Environment Needs Innovation**, The magnificence of humbles, ISBN 978-81-907938-0-3 Jyoti Bhattacharjee, Subhasis Roy, pp-58, 2023
5. "Chemical Approaches Toward Eco-friendly and Stable of Perovskite Based Thin Films Solar Cells" conference proceedings International Conference on Recent Trends in Chemical Sciences-2022(RTCS-2022) 59th Convention of Chemists (ACC-2022) of Indian Chemical Society is being organised at the Department of Chemistry & Biology, Indian Institute of Technology (ISM) Dhanbad , Jharkhand during December 16-18, 2022, pp 50
6. **Cadmium sulphide Sensitized Fe-doped SnO₂ Photoanodes for Photoelectrochemical Water Splitting**, Somprova Halder, Sagnik Bhattacharya¹, Subhasis Roy , Proceedings of CUCHE Alumni Symposium 2021 On "Diverse Applications of Chemical Engineering" Volume 1, Issue 1, December 2021, ISBN: 978-81-954649-0-6
7. A combined photoelectrochemical and electrochemical analysis of MnMoS₄ nanostructured electrodes for multifunctional applications Somprova Halder, Subhasis Roy Apr 5-May 1, 2021 ACS Spring Meeting 2021, <https://doi.org/10.1021/scimeetings.1c00605>
8. **Simulated performance studies of thin film perovskite solar cell** , Subhasis Roy,

ICESD2020_038 International Conference on Energy and Sustainable Development Jointly organized by Jadavpur University and The Institution of Engineers, India, February 14-15, 2020 Jadavpur-ICESD conference.

9. **Ultrathin SnS₂ Nanosheet Decorated B-TiO₂ / TiO₂ Core Shell Nanorods for Photoelectrochemical Water Splitting** Soumyajit Maitra, Somoprova Halder, Toulik Maitra and Subhasis Roy, 2021 ECS - The Electrochemical Society *Meet. Abstr.* MA2021-02 1432
10. **CdS Sensitized Solvothermal Phase Change Assisted Synthesis of CoTiO₃ @ TiO₂ Nanorods As a Ternary Heterojunction Photoanode for Photoelectrochemical Water Splitting**, Soumyajit Maitra, Toulik Maitra, Subhan Pal and **Subhasis Roy** ECS Meeting Abstracts 2020-11-23 | journal-article DOI: 10.1149/ma2020-02563749mtgabsPart of ISSN: 2151-2043,.
11. **PbS Nanoparticle Sensitized Fe- Doped Mesoporous TiO₂ Photoanodes for Photoelectrochemical Water Splitting** Somoprova Halder, Soumyajit Maitra, **Subhasis Roy**, in Sustainable Energy and Technology conference (ISET India2020) organized by Rajiv Gandhi Institute of Petroleum Technology (RGIT) Dec 03-04, 2020
12. **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.
13. **“Simulated performance studies of thin film perovskite solar cell.”** Shyamal Datta, **Subhasis Roy** Conference: Proc. ICESD 2020_038 , ISBN 978-93-83660-56-8. 2020.
14. **“Optimization of TiO₂/ KMnO₄ 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
15. **“Performance enhancement of Dye-sensitized solar cell using extracted photosensitized 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.
16. **“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.
17. **“Synthesis and Characterization of Nanomaterials for Photoelectrochemical application”** **Subhasis Roy** on 10th 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
18. **“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

19. **“Titanium dioxide and KMnO_4 composite film on FTO glass as a working electrode for solar cell application”** Young. Scientists' conference. **Subhasis Roy** 5-7 NOVEMBER, Indian International Science Festival-2019. BISWA BANGLA CONVENTION CENTRE. KOLKATA. Ministry of Science and Technology, India.
20. **“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 DOI: 10.1149/ma2017-01/30/1426Part of ISSN: 2151-2043
21. **“Fabrication of Lead (Pb) free $\text{CH}_3\text{NH}_3\text{SrICl}_2$ based thin film perov-skite 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
22. **“Synthesis and Characterization of the Organo-Lead Halide- Based Perovskite Solar cell”**, Abhishek Dhar, Argha Dey , **Subhasis Roy**, Sharmistha Paul, 24th West Bengal State Science and Technology Congress, 2017, Presidency Division, NITTTR, Kolkata, India, 28th February/ 1st March, pp-117, 2017 (Awarded first prize).
23. **“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 2nd best prize)
24. **“Fabrication of Environmental Friendly Perovskite Solar Cells by Partial Replacemnet 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.
25. **“Combined Organic-Perovskite Solar Cell Fabrication as conventional Energy substitute”** Argha Dey, **Subhasis Roy**, 2nd 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.
26. **“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).
27. **“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”**. Sk Abdul Moyez, **Subhasis Roy**, 2nd 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.
28. **“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.

29. **"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-155, 2016.
30. **"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.
31. **"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.
32. **"Ferroelectric and Magnetic Behaviors of $\text{CoFe}_2\text{O}_4/\text{Pb}_{0.85}\text{La}_{0.15}\text{TiO}_3$ 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.
33. **"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.
34. **"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.
35. **"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.
36. **"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.
37. **"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.
38. **"Wet chemical synthesis of electro-ceramic thin films"**, **Subhasis Roy** and S.B. Majumder, at National Conference on Recent Advances in Innovative Materials (RAIM-2008), NIT, Hamirpur, February 16-17, 2008.
39. **"Dielectric and Magnetic Properties of Flexible PVDF: CoFe_2O_4 Composites,"** **Subhasis Roy**, and S.B. Majumder at National Seminar on Ferroelectric & Dielectrics (NSFD-15), School

of Physics &
November 6-8, 2008.

Material Science, Thapar University, Patiala- 147004, India,

40. **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.
41. **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 70th Annual Session of Indian Institute of Chemical Engineers CHEMCON – 2017. Organized 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.
42. **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.
43. **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 LECTURES DELIVERED

Abroad :

1. Invited talk on "**Architecture of inorganic-organic hybrid perovskites for enhanced stable photovoltaic performance**" in **2nd International Conference on Recent Trends in Materials Science & Devices 2023** (ICRTMD 2023), Technical Sat Kabir Institute of Technology and Management, Jhajjar, Haryana, India, 30th Dec, 2023
2. Invited talk on “**Architecture of inorganic-organic hybrid perovskites for enhanced stable photovoltaic performance**” , 2nd International Conference on Recent Trends on Materials Science & Devices 2023 (ICRTMD-2023) 29 - 31 December
3. Invited talk on “**Perovskite Nanomaterials for eco-friendly and stable solar cell applications**” World Summit on Sustainable Materials December 05-06, 2022 London, UK “Latest Innovations in material science for a sustainable world”.
4. Invited talk on “**Thin Films Perovskite Nanomaterials for solar cell applications**” International Online Conference on Energy Sciences (ICES 2021), Organized by, Oman & Wroclaw University of Technology, Wroclaw, Poland, and Mahatma Gandhi University, P.D Hills P.O, Kottayam Kerala, India & National University of Science and Technology December 10, 2021.
5. Speaker of Session—**HYDROGEN GENERATION AND STORAGE Mechanics**, UK Aberdeen 9-12 July, 2018.

6. 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, DOI: 10.1149/ma2017-01/30/1426Part of ISSN: 2151-2043.
7. Invited talk on **Functionalized Nanomaterials and its Applications**, NEFES 2020 November 3-6, 2020, Online Conference, Beijing.
8. 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, 23rd January 2017.
9. Invited talk on “**Functionalized Nanomaterials and its Applications**” (FES2554) Thursday Afternoon, November 5,2020 Beijing in The 5th International Conference on New Energy and Future Energy Systems (NEFES 2020).
10. Invited talk on “**Hybrid Materials**”, Department of Materials Science and Engineering, Seoul National University, South Korea under Professor Ki-Bum Kim group, 12th May, 2013.

India :

11. Invited talk on“**Functionalized Nanomaterials Based Devices for Energy-Related Applications**” International Hybrid Conference on Nano Structured Materials and Polymers (ICNP 2023) May 12-14, 2023, School of Energy Materials (SEM) Mahatma Gandhi University, P.D Hills P.O, Kottayam Kerala, India
12. Invited talk on ‘**Nanomaterials based devices for renewable energy applications**’ One day State Level Seminar “Chemistry for Sustainable Future”11th May, 2013, organized by Department of Chemistry in collaboration with IQAC, Rammohan College,
13. Keynote Lecture on “**Construction and Demolition Waste Management and Recycling: Challenges and Opportunities**” at the National Workshop on "The utilization of local and recyclable waste materials in construction: present scenario and future scope" organized by our institute (JISIASR Kolkata), supported by Accelerate Vigyan Program under Karyashala Scheme, SERB, Govt. of India. The workshop will be held at JISIASR from January 09 to January 15, 2023
14. Invited talk on “**Affordable and Clean Energy**” an International online conference on the **Role of Basic Sciences for Sustainable Development in connection with UNESCO's year of Basic Sciences for Sustainable Development**. ICBSSD – 2022, 16-17 Dec, 2022, Organized by Department of Basic Sciences & Center for Nanoscience and Technology Amal Jyothi College of Engineering, Kanjirappally Koovappally P.O, Kottayam & Mahatma Gandhi University P.D Hills P.O, Kottayam Kerala, India & Gdansk University of Technology Poland.
15. Invited talk on “**Chemical Approaches Toward Eco-friendly and Stable of Perovskite Based Thin Films Solar Cells**” in "International Conference on Recent Trends in Chemical Sciences-2022(RTCS-2022) 59th Convention of Chemists (ACC-2022) of Indian Chemical Society is being organised at the Department of Chemistry &Biology, Indian Institute of Technology (ISM) Dhanbad , Jharkhand during December 16-18, 2022.
- 16.
17. Invited talk on **Perovskite solar cell** in the International Online Conference on Nanomaterials (ICN-

2022) held at Mahatma Gandhi University, Kottayam, Kerala, India. from 12th -14th , August 2022.

18. Invited talk on **Functionalized hybrid perovskite for energy application** (Invited) One Day webinars on Recent Advances in Renewable Energy and Materials for Sustainable Energy: Future Prospect, organized by The Institution of Engineers (India) Durgapur Local Centre under the aegis of Mechanical Engineering Division Board, 4th August, 2022.
19. Invited talk on **Functionalized hybrid perovskite solar cell** (Invited) Inter/Multidisciplinary Refresher Course Research Methodology in Science and Technology, and Sustainable Development in Science and Technology February 07-22, 2022. Sponsored by UGC- Human Resource Development Centre, and organized by the University of Calcutta.
20. Invited talk on **Functionalized hybrid perovskite-type fascinating nanomaterials for energy applications** (Invited) Webinar Internship Course on Emerging Trends in Nanomaterials for Different Device Architectures (ETNDDA-2021) Indian Chemical Society, 27th Nov, 2021
21. Invited talk on **‘Functional Nanomaterials in Energy Devices’** 6th seminar of Webinar series organized by Calcutta University Chemical Engineering Alumni Association (CUCHEAA) on 31.01.2021
22. Invited talk on **Functionalized Nanomaterials and its Applications for Energy Devices**, Contai Polytechnic, Department of Chemical Engineering India, 14th October, 2020.
23. Invited talk on **“Synthesis and Characterization of Nanomaterials for Photoelectrochemical application”** on 10th 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
24. 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 18th December 2019.
25. 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.
26. Invited talk on **“Characterization of Functionalized Nanomaterials”** Department of Chemical engineering, IIT Kharagpur, 9th October, 2017

ACADEMIC DISTINCTIONS, HONOURS AND AWARDS

International:

1. European Excellence Award 2023- European council for higher education and accreditation
2. **Chairing a** Technical Session at ICRTMD 2023 Technical Sat Kabir Institute of Technology and Management, Jhajjar, Haryana, India, 30th Dec, 2023.
3. **Certificate of Recognition** for the award of excellent Research, European Council of Higher Education and Accreditation (Manchester , UK)

4. **Chairing a session** on International Hybrid Conference on Nano Structured Materials and Polymers (ICNP 2023) May 12-14, 2023, School of Energy Materials (SEM) Mahatma Gandhi University, P.D Hills P.O, Kottayam Kerala, India
5. Recognition of the review contributed Chemical Engineering Journal 2022 Elsevier
6. Recognition of the review contributed Optical Materials Elsevier, July 2022
7. Recognition of the review contributed Diamond and Related Materials 2022 Elsevier
8. Recognition of the review contributed International Journal of Hydrogen Energy May 2022
9. Bharat Vikas Award 2022.
10. Leading educationalist of India, 2023
11. **Chairing a session** on at the International Online Conference on Nanomaterials (ICN-2022) held at Mahatma Gandhi University, Kottayam, Kerala, India, 12th-14th, August 2022.
12. **Chairing a session** Invited talk on “Affordable and Clean Energy” an International online conference on the Role of Basic Sciences for Sustainable Development in connection with UNESCO's year of Basic Sciences for Sustainable Development. ICBSSD - 2022 Organized by Department of Basic Sciences & Center for Nanoscience and Technology Amal Jyothi College of Engineering, Kanjirappally Koovappally P.O, Kottayam & Mahatma Gandhi University P.D Hills P.O, Kottayam Kerala, India & Gdansk University of Technology Poland
13. Acted as the **Judge** for the International Research Scholars’ Meet in the celebration of the 99th Foundation Day Celebration of the Indian Chemical Society in association with the Department of Chemistry, University of Calcutta, Kolkata on May 09, 2022.
14. **Recognition of the review contributed** Materials Chemistry and Physics 2017 **Elsevier**
15. **Recognition of the review contributed** Materials Today: Proceedings 2018 **Elsevier**
16. **Recognition of the review contributed** Environmental Technology & Innovation 2019 Elsevier
17. **INDIA Prime Top 100 Professors & Teachers award 2021**
18. Acted as the **Judge** for the Research Scholars & Faculty Members Competition Session in the Celebration of the 160th Birth Anniversary of Acharya Prafulla Chandra Ray organized by the Indian Chemical Society, Kolkata during, August 01-08, 2021.
19. **Chairing a session** on Renewable Energy Innovations in Sustainable Energy and Technology conference (ISET India2020) organized by Rajiv Gandhi Institute of Petroleum Technology (RGIPT) Dec 03-04, 2020
20. **“Distinguished Scientist Award”** " Elsevier SSRN Research Award 2020"
21. **Venus International Research Awards (VIRA) 2016 Outstanding Scientist for Initiatives,**

Discoveries, and Developments in the discipline of Nanoscience and Nanotechnology.

22. **Chairing sessions** ” International Online Conference on Energy Sciences (ICES 2021), Organized by Mahatma Gandhi University, P.D Hills P.O, Kottayam Kerala, India & National University of Science and Technology, Oman & Wroclaw University of Technology, Wroclaw, Poland December 10, 2021
23. **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.
24. **Honorable Jury**, South Asian Education Awards-2018
25. **Membership** of Royal Society of Chemistry for the Year 2018 (655023)(MRSC)
26. **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.
27. **Recognized Reviewer** status in Environmental Technology & Innovation, Elsevier 2019.
28. **Outstanding reviewer** status in Material Chemistry and Physics journal,Elsevier 2017.
29. **Recognized Reviewer** status Materials Today: Proceedings, 2019
30. "**Best Faculty Award (Male)**" by "International Academic and Research Excellence Awards”
31. **Recognized Reviewer** status in Material Science Research India (MSRI) journal, 2017.
32. **Certificate of Recognition** valued reviewer & has contributed to the quality and success of the International Journal of Engineering Research & Technology (IJERT) during the year 2017.
33. **Certificate of Recognition** -Certified Microsoft Innovative Educator 2021
34. **Fellow, Indian Chemical Society**
35. **Fellow**, International Society for Research and Development (ISRDR) 2017
36. **International Research Excellence Awards** 2021 - CPACE (Center for Professional Advancement) -Materials Science –
37. International Awards - 2021. **Distinguished Assistant Professor**

National :

38. Best-Papers-Recommended_ISET2020 “PbS Nanoparticle Sensitized Fe-Doped Mesoporous

TiO₂ Photoanodes for Photoelectrochemical Water Splitting in Sustainable Energy and Technology” conference (ISET India2020) organized by Rajiv Gandhi Institute of Petroleum Technology (RGIPT) Dec 03-04, 2020

- 39.
40. Acted as the Judge for the Research Scholars & Faculty Members Competition Session in the Celebration of the 160th Birth Anniversary of Acharya Prafulla Chandra Ray organized by the Indian Chemical Society, Kolkata during August 01-08, 2021.
41. Acted as judge in International Conference on Recent Trends in Chemical Sciences-2022(RTCS-2022) 59th Convention of Chemists (ACC-2022) of Indian Chemical Society is being organised at the Department of Chemistry & Biology, Indian Institute of Technology (ISM) Dhanbad , Jharkhand during December 16-18, 2022
42. **Teachers Associateship for Research Excellence (TARE)** by the Science and Engineering Research Board, 2018.
43. **Innovation Ambassador**, MHRD IIC Council, Calcutta University
44. **Teaching Excellence Awards 2019**
45. **Membership** of The National Academy of Sciences, India (NASI) for the Year 2019(MASc)
46. **UGC-Raman** Post-Doctoral Fellowship for 2015-16.
47. **Fellow**, Indian Chemical Society 2019
48. Certificate of appreciation **TEACHER INNOVATION AWARD (ZIIIEI)**, 30th September 2019
49. „**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.
50. **Recognized Reviewer** status in “Construction and Building Materials”, Elsevier, 2016.
51. Awarded 2nd prize on a 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
52. 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**” .
53. **Recognized Reviewer** status in “Construction and Building Materials”, Elsevier, 2014.
54. **DST Young Scientist** awarded in Fast Track scheme 2013.

55. **Postdoctoral fellowship**, Sungkyunkwan University, South Korea, 2012.

56. **MHRD** Scholarships for M.Tech study.

57. Qualified GATE 2003 and 2005 in Chemical Engineering.

Extension and dissemination activities (public / popular lectures/ talks/ seminars etc organized

1. Course coordinator Inter/Multidisciplinary Refresher Course on Research Methodology in Science and Technology, and Sustainable Development in Science and Technology February 07-22, 2022, sponsored by UGC- Human Resource Development Centre, and organized by the Department of Chemical Engineering, University of Calcutta.
2. Course coordinator of 40 lectures on Webinar Internship Course on Emerging Trends in Nanomaterials for Different Device Architectures (ETNDDA-2021) Indian Chemical Society, 15 Sep.-28th Nov,2020.
3. Coordinator Webinar on “IoT based Smart System for Protection of Green Environment and Sustainable Agriculture” November 3, 2020, MHRD-IIC, University College of Science and Technology, University of Calcutta

ATTENDED WORKSHOPS/SHORT TERM COURSES

1. Inter/Multidisciplinary Refresher Course in Environmental Studies, organized Online by the UGC-Human Resource Development Centre (HRDC/MMTTC), University of Calcutta, in the Department of Home Science, University of Calcutta during December 08-21, 2023
2. Three Day International Virtual Workshop On Research writing, grant writing and impact publications in the age of artificial intelligence, Jointly Organized by Lavender Literary Club, India, Cape Comorin Trust, India, Malaysian Industrial Relations & Human Resource Association (MIRHA), Malaysia from 29 – 31 October 2023
3. 7 days workshop on Artificial Intelligence (AI) Tools for research papers and thesis writing, Aug 20- Sep 24, 2023.NEHUS, Ministry of MSME, India
4. Two-Week Online National Faculty Development Program on "Possibilities and Potentials of National Education Policy 2020 (NEP 2020)" organized by Internal Quality Assurance Cell (IQAC), The Neotia University in collaboration with Guru Angad Dev Teaching Learning Centre, a Centre under PMMMNMTT, Ministry of Education, Government of India held from 20th June to 03rd July 2023.
5. Participate in conference 10th international Conference on multidisciplinary Research and Modern education.28th May, 2023.
6. One Week Online Workshop on Statistical Data Analysis using R during April 21-27,2023, organised by Science Tech Institute (Run by MKS Educational Society), Lucknow, UP India. During the live class his/her attendance was 75-100 percent and whose Credit Hours is 3.5.
7. IP Awareness/Training program under NATIONAL INTELLECTUAL PROPERTY AWARENESS MISSION on April 06,2023.
8. “National Science Day ” theme “Global Science for Global Wellbeing” on 20th – 22nd February,

2023 organized by Department of Physics, Chemistry, Mathematics & Bio-technology Koneru Lakshmaiah Education Foundation (KLEF), Guntur, Andhra Pradesh, India- 522302

9. International Conference on Chemical Engineering Innovations & Sustainability, Jadavpur University (ICEIS2023) February 26- 27, 2023
10. Participated in a Five-Day International Faculty Development program (online) on Engineering Materials & Catalysis during 26th - 30th December, 2022 organized by Chemistry Division, Department of Basic Science and Humanities, GMR Institute of Technology, Rajam.
11. Participation in 7-Days FDP on Computational Chemistry of Materials: Molecule, Solids, Nanoparticles and Biological Activity starting from 21th November 2022.
12. One week Training Program on “Petroleum Rock-fluid characterization and its application: Theoretical and experimental approach” 20th-26th June 2022, organised by Department of Petroleum Engineering IIT(ISM) Dhanbad
13. Participated in the Pacific Rim International Conference on Superconducting Materials: Fundamentals and Applications – PRISM held on September 22-23, 2022
14. Five day Online National Conference on “Emerging Trends in Physical Sciences” (ETPS-2021) organized by the Department of Physics, ICFAI University Tripura, Date: 27th September to 01st October, 2021.
15. FDP , KEYWAY RESEARCH, 13/05/2020
16. Attend the exciting AICTE Sponsored Online Short Term Training Programme on 'Recent Trends in Emerging Devices and Nnaotechnology'-Phase I (RTEDN1-21), being organised by the Department of Physics, National Institute of Science and Technology Berhampur from 1 Jun to 6th Jun 2021.
17. RSC Desktop Lectureship series March 25, 2021
18. "Virtual InternshipProgram on Spectroscopy" from 23.08.2021 to 27.08.2021. Organized by Department of Analytical Chemistry, University of Madras, Guindy Campus, Chennai & Abinnovus Consulting Pvt. Ltd
19. Participated in Online One Week Faculty Development Program on “Innovations in Applied Research for Science and Technology” organized by Department of Basic Science And Humanities, KDKCE Nagpur in association with Indian Association for Radiation Protection (IARP), Luminescence Society of India (LSI) & Society for Technologically Advanced Material of India (STAMI) from 11th to 18th October 2021.
20. Indo-Korean Joint Online International Workshop on “Advanced Functional Materials” (July 15-16, 2021)
21. 5-day online FDP on the theme “Inculcating Universal Human Values in Technical Education” organized by All India Council for Technical Education(AICTE) from 20 th December, 2021 to 24 th December, 2021
22. Webinar design patent, 20/05/2022
23. webinar conducted by NBA jointly with MAKAUT, WB on “Outcome Based Education

and Accreditation” for the Engineering Colleges of West Bengal on 15th December, 2020

24. IIC Innovation Ambassador Training Program on 6-7th March 2020 at IISER, Kolkata.
25. TEQIP-III Sponsored Short-Term Online Course on Nanostructured Materials for Energy, Environment and Healthcare Applications” IIT Delhi, New Delhi. 9th – 13th November 2020
26. 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.
27. Elite Certificate of Swayam CBT proctored examination on Academic Writing course
28. 5 days International E-Workshop on Principles and Applications of Analytical Instruments for Analysis of Organic/Inorganic molecules from 25 to 29th August 2020 jointly organized by Department of Chemistry & Department of Botany, Govt. R. R. M. P.G. College, Surajpur (C.G.) and Department of Chemistry, Govt. Shivnath Science College, Rajnandgaon (C.G.), India 25-08-2020 to . 29-08-2020
29. Webinar on “Indian Citation Index” on 13-05-2020.
30. 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 12-14 May,2020
31. Virtual Conference on “Materials for Energy Harvesting and Catalysis”
1st- 3rd May 2020
32. Two Days Online International Training on Research Manuscript Drafting and Publishing TORMP 2020 May 16-17, 2020
33. Webinar on Research Publication: Skills, Ethics, and Misconducts on 15.05.2020 organized by Department of Chemistry, Kumaraguru College of Technology, Coimbatore.
34. 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.
35. Online faculty development IPR AWARENESS PROGRAM 13th May 2020
36. 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.
37. 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.

38. Taking research forward during the pandemic, 20th May 2020.
39. Online FDP IPR awareness 13th May 2020.
40. International Webinar on "Nano-Structured thin films for Multifunctional Applications" organised by the Departments of Chemistry, Physics & Electronics, on 11th June 2020.
41. Webinar on „Research Paper Development for Quality Journals“ held on 14 June, 2020.
42. Webinar on Recent Advance of Chemical Science, JB Institute of Engineering and Technology 25-26 June 2020
43. 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.
44. Online workshop on "Materials Processing and Technology" conducted by Department of Physics and Chemistry, Mahatma Gandhi Institute of Technology (MGIT), Hyderabad 27 June 2020.
45. 5 day webinar on Nanotechnology Driven Engineered Materials (NDEM-2020) 29 June 03 July 2020.
46. 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.
47. One day e-Conference on Perovskite Solar Cell , 30.06.2020.
48. 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.
49. 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.
50. UGC-HRDC Refresher Course(Inter-Disciplinary) in Chemical sciences, Engg. & Technology University of Calcutta, during Aug. 26- Sep 9, 2019
51. Summer School Titled “Advanced School on Nanoscience and Nanotechnology” at CRNN University of Calcutta during July 07-13, 2019

52. Attend Half day awareness program on Chemical Weapon Convention 28th January 2019 at Dr. HL Roy Bulding, IICHE auditorium, Jadavpur.
53. Attend stakeholder's Workshop on 12th February 2020 - AICTE Auditorium, New Delhi
54. One day National Seminar “Advanced Materials and Devices with emphasis on nanotechnology for green Energy” organized by Bidhan Chandra College, Rishra, January 31st, 2019.
55. “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.
56. Three weeks Refresher Course on ICT , Academic Staff College, UGC-Human Resource Development Centre Jadavpur University , December 1, 2017 to December 22, 2017
57. 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.
58. 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.
59. Faculty Development Programme on “Pedagogy Accreditation Research and Entrepreneurship” 25th -27th May, 2016, held at CSDEC, IEI, Shimla-02
60. “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.
61. “Orientation Programme 112”, Academic Staff College, University of Calcutta December 01-30, 2015
62. Short Term Course on "Bioremediation of Industrial Wastes for a Greener World" December 8-12, 2014, at NIT Durgapur.
63. “Author Wokshop jointly organized by Spinger and University of Calcutta”, 20th November,2014, at University of Calcutta.
64. “Industrial Academia workshop on Recent Trend in Petroleum Exploration Technology” organized by ONGC Academy oil and natural Gas corporation Limited, 10th Februry to 14th February, 2014 at Kolkata.
65. Nano-materials and Devices for Energy Application” at “International Conference on nano Nano Science and Technology 2010” at I.I.T. Bombay, Mumbai, INDIA , 17th February, 2010.
66. “Mechatronics using LabVIEW” under Technical Education Quality Improvement Programme(TEQIP), at Bengal Engineering & Science University, Shibpur,27-28 th March 2009.

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 (PI) (Sole)	Science and Engineering Research Board (SERB) under DST Fast Track scheme	3 years	2014-2017
Multidimensional Hematite Structure for Efficient Hydrogen Generation (PI) (Sole)	UGC under Raman Fellowship scheme	1 year	2016-2017
Synthesis, characterization, and structure-property correlation of functional nanomaterials based QD hybrid solar cells (mentor)	MANF, UGC	5 years	2015-2019
Optical Spectroscopy to Optimize the Composition of Hybrid Perovskite for Photoluminescence, Photovoltaic and Photocatalysis Applications (PI) with collaboration of the Bose Institute, Kolkata	Science and Engineering Research Board (SERB) under Teachers Associateship for Research Excellence (TARE)	3.5 years	2018-2022

ACADEMIC/ ADMINISTRATIVE ACTIVITIES

1. Invigilator SET' 23, 17th December, 2023
2. PhD admission Committee member, Department of Chemical Engineering, University of Calcutta
3. Convener of Departmental Committee, Chemical Engineering, University of Calcutta, 2022 and 2013
4. DSC member, Center for Interdisciplinary Sciences, JIS Institute of Advanced Studies and Research (JISIASR), JIS University.
5. PEPSC 2023 Technical Program Committee held in Hangzhou, China during Nov. 24-26, 2023
6. TPC member of the 2024 Asia Conference on Electrical and Power Engineering (ACEPE 2024) in Suzhou, China during July 19-21, 2024.
7. TPC member of 2024 International Conference on Power Electronics and Energy System (ICPEES 2024) will take place in Kuala Lumpur, Malaysia during March 1-3, 2024.
8. TPC member of 2023 Power Electronics and Power System Conference (PEPSC 2023), in

- Hangzhou, China during Nov. 24-26, 2023 PEPSC 2023 Technical Program Committee
9. TPC member of The 12th Spring World Congress on Engineering and Technology (SCET 2023) will be held on April 21-23, 2023 in Kunming, China
 10. TPC member of 3rd International Conference on New Energy Research and Applications (ICNERA 2022) will take place in Shanghai, China from May 27 to 29, 2022.
 11. Organizing Committee member ICAIES-2021 International Conference on Artificial Intelligence and Energy System 12-13 June, 2021 Jaipur, India.
 12. External Expert member for DSC committee JIS UNIVERSITY for PhD scholars
 13. External Expert member for the SkillX and practical viva voce end-examination held in online mode on JIS UNIVERSITY, July 19, 20, and 22 -2021
 14. External Expert member for the practical viva voce examination held in online mode on April 09-2021 from 11.30 am as Introduction to Polymer Science and Technology, and Basic Polymer Chemistry
 15. International Scientific Committees member 6th International Conference on Education Reform and Modern Management (ERMM2021), Beijing, China, April-11-12, 2021.
 16. Organized Webinar on “IoT based Smart System for Protection of Green Environment and Sustainable Agriculture” November 3, 2020 from MHRD-IIC-Section of University College of Science and Technology, University of Calcutta
 17. Program Committee member 3rd International Conference on Metal Material Processes and Manufacturing (ICMMPM2020) held in Singapore 22-23 June 2020.
 18. Convener of Departmental Committee, Chemical Engineering, University of Calcutta, 2014-2016.
 19. Expert for Poster Evaluation at “International Conference on Emerging Technologies for Sustainable Development- ICETSD 19; 5th & 6th March 2019; GCELT, Kolkata, India
 20. TPC member of International Conference on New Energy Research and Applications (ICNERA 2021) will take place in Sanya, China during July 8-10, 2021
 21. TPC member of 6th International Conference on Education Reform and Modern Management (ERMM2021), which will be held on April 11-12, 2021 in Beijing, China
 22. 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.
 23. IGEN NLL Campaign Ambassador 2020
 24. 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.
 25. 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).

26. Technical program committee (TPC) member of The 12th Asia-Pacific Power and Energy Engineering Conference (APPEEC 2020) April 24-26, 2020 Xi'an, China
27. 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.
28. MoE-Stars Grant writing , Dec 8, 2020.
29. Technical program committee (TPC) member of 2019 International Conference on Management, Economics and Social Science (ICMESS2019) during August 30- 31, 2019, in Changsha, China.
30. Technical program committee (TPC) member of 5th International Conference on Science, Engineering and Environment SEE-Bangkok 2019, Thailand, November 11-13, 2019
31. 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.
32. 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
33. 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.
34. 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.
35. Technical program committee (TPC) member of 4th International Conference on Science, Engineering and Environment during November 12-14, 2018 in SEE-NAGOYA 2018, Japan.
36. Technical program committee (TPC) member of International Conference on Materials, Sensors and Smart Manufacturing (MSSM2018) September 16th and 17th 2018 in Xiamen China.
37. Technical program committee (TPC) member of 8th International Conference on Advanced Computer Control (8th ICACC2018) during May 17-18, 2018 in Bangkok, Thailand.
38. 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.
39. Technical program committee (TPC) member of 3rd International Conference on Chemistry and Biochemical Engineering (CHEMBIO2018) May 29-31, 2018 Hangzhou, China

40. Acted as a reviewer for the 3rd International Conference on New Energy and Future Energy System (NEFES 2018), August 21st - 24th, 2018, Shanghai, China
41. Acted as a reviewer for the 3rd Renewable Energy Sources - Research and Business (RESRB-2018), June 18-20 2018, Brussels, Belgium
42. 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.
43. 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.
44. Technical program committee (TPC) member of 9th International Conference on Environmental Pollution and Public Health (EPPH 2017), Hangzhou, China, Jun. 16-18, 2017.
45. Technical program committee (TPC) member of 3rd Annual 2017 International Workshop on Material Science and Engineering (IWMSE2017), Guangzhou, Guangdong, China, September 8-10, 2017.
46. 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
47. 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
48. Working as a member of departmental sub-committees of Calcutta University.
49. Ph.D Scholar's Representative in Materials Science Centre, IIT Kharagpur, 2009-2012.
50. Editor, Research Scholar's magazine, Materials Science Centre, IIT Kharagpur, 2009-2011.
51. Research Programme Advisory Committee Member, IIT Kharagpur, 2009-2012.
52. Department Academic Advisory Committee member, IIT Kharagpur, 2009-2012.

COLLABORATIONS

- Department of Chemistry University of British Columbia, Canada
- University of Namur, Namur, Belgium
- Ohio University (USA), Center for Electrochemical Engineering Research (CEER), USA :
- Sungkyunkwan University, School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU), Suwon, Korea (South Korea)
- Department of Materials Engineering, KU Leuven, Kasteelpark Arenberg 44 Bus 2450, 3001

Heverlee-Leuven, Belgium.

- Department of Mechanical Engineering, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi 110016, India.
- School of Chemical Engineering, Fuzhou University, Fuzhou-350116, China.
- Department of Science and Technology, Government of West Bengal, Vigyan Chetana Bhaban, Saltlake, Kolkata.
- Department of Physics, Jadavpur University, Jadavpur, Kolkata 700032, India
- Material Science Centre, IIT Kharagpur
- Chemical Engineering, Jadavpur University, Jadavpur, Kolkata 700032
- 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 :

Theory Subject:

- Material Science & Material of Construction (BChE-106)
- Energy Sources & Utilization (BChE-105)
- Chemical Technology I (BChE-104 &204)
- Chemical Technology II (BChE-204)
- Polymer Engineering (BChE-601)
- Separation Processes II (ChE 502)
- Nanotechnology (BChE 804)
- Petroleum Refinery (PECE 603)

Laboratory:

- Mass transfer lab (BChE-407)
- Fluid Mechanics lab (BChE-207)
- Fuel Technology lab (BChE-109)
- Instrumentation & Control and Mechanical Operation Laboratory (PCIM 802)
-

Graduate :

Theory Subject:

- Petrochemicals and Petroleum Refining (MChE 142)
- Specialization - Petrochemicals and Petroleum Refinery Engineering: Petroleum Geology,

Petroleum Economy, Safety and Environment (MChE-152)

- Petrochemicals and Petroleum Refinery Engineering: Refinery Engineering (MChE-232)

Laboratory:

- 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)
- Electrochemical water splitting (CU)
- Photocatalysis reactor

Research Guidance as Supervisory

Total B.Tech project completed : 25

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	Fabrication of Lead-Less Halide Perovskite Solar Cells	Completed	2021
7	Arnab Biswas	Synthesis and characterization of lead-free methylammonium (MA) iodide based electroactive materials for renewable energy systems	Completed	2022
8	Sowmik Maji	Cellulose paper based flexible symmetrical supercapacitor	Completed	2023
9	Rituparna Roy	Fabrication of perovskite solar cell with extracted indium tin oxide from the waste mobile screen in replacement of FTO glass	Completed	2023

10	Suman Das	Fabrication and Characterization of Flexible Solar Cells Utilizing ITO-PET Substrates	Completed	2024
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Ongoing / Submitted Ph. D. Thesis

Sl. No	Scholar Name	Ph.D. Registration Number	Thesis Title	Status	Complete in Year
1	Argha Dey, (Principal Supervisor)	4822 / Ph.D. (Tech.) Proceed / 2016 Dated : 14 / 07 / 2016	Fabrication of Solid-State Dye-Sensitized Solar Cells and Study of their performance	Awarded	2023
2	Sk. Abdul Moyez (Principal Supervisor)	4824/ Ph.D.(Tech)Proceed/2 016	Analysis of Perovskite Based Thin Films for Solar Cells Application	Awarded	2022
4	Madhushree Mitra (Principal Supervisor)	(Ph.D. Registration No.: 03482/Ph.D.(Tec h.)Proceed/2020 Dated 14th October 2020)	“C–C/ N–C/ O–C Coupled Synthesis of Advanced Multifunctional Multipolymers for Sensing and Pollutant Removing Applications”.	Awarded	2023
3	Joy Sankar Deb Roy (Principal Supervisor)	(Ph.D. Registration No.: 03541/Ph.D. (Tech.) Proceed/2020 Dated 14th October 2020)	“Solution Phase Synthesis of Multifunctional Fluorescent Polymers for Sensing and Exclusion of Pollutants”.	Awarded	2024