

➤ **List of Published papers:**

26. Microwave synthesis of molybdenene from MoS₂.
Tumesh Kumar Sahu, Nishant Kumar, Sumit Chahal, Rajkumar Jana, **Sumana Paul**, Moumita Mukherjee, Amir H. Tavabi, Ayan Datta, Rafal E. Dunin-Borkowski, Ilia Valov, Alpana Nayak & Prashant Kumar; *Nature Nanotechnology*, <https://doi.org/10.1038/s41565-023-01484-2>.
25. Two-dimensional bismuth oxyselenide quantum dots as nanosensors for selective metal ion detection over a wide dynamic range: sensing mechanism and selectivity.
Sumana Paul, Sanju Nandi, Mandira Das, Abhilasha Bora, Md Tarik Hossain, Subhradip Ghosh, PK Giri; *Nanoscale* **15**, 12612-12625 (2023).
24. Ternary Ni–Co–Se Nanostructure for Electrocatalytic Oxidative Value Addition of Biomass Platform Chemicals.
*Souradip Ganguly, † **Sumana Paul**, † Deepak Khurana, Tuhin Suvra Khan, P. K. Giri, Chanchal Loha, Sirshendu Ghosh; ACS Applied Energy Materials* **6**, 5331–5341(2023). († Authors Contributed equally)
23. High β-crystallinity comprising nitrogenous carbon dot/PVDF nanocomposite decorated self-powered and flexible piezoelectric nanogenerator for harvesting human movement mediated energy and sensing weights.
*Debmalya Sarkar, Namrata Das, Md Minarul Saikh, Prosenjit Biswas, Shubham Roy, **Sumana Paul**, Nur Amin Hoque, Ruma Basu, Sukhen Das; Ceramics International* **49**, 5466-5478 (2023).
22. Interfacial Charge Transfer Induced Enhanced Near-Infrared Photoluminescence and Enhanced Visible Photodetection in Two-Dimensional/Zero-Dimensional Bi₂Se₃/CsPbBr₂I Heterojunctions with Type-I Band Alignment.
Sumana Paul, Joydip Ghosh, Md Tarik Hossain, Hiroaki Hasebe, Hiroshi Sugimoto, Minoru Fujii, P. K. Giri; *The Journal of Physical Chemistry C* **126**, 16721-16731 (2022).
21. Quantitative Understanding of the Photoluminescence Modulation and Doping of Monolayer WS₂ by Heterostructuring with Non-van der Waals 2D Bi₂O₂Se Quantum Dots.
*Abhilasha Bora, **Sumana Paul**, Md Tarik Hossain, PK Giri; The Journal of Physical Chemistry C* **126**, 12623-12634 (2022).
20. One-step hydrothermal synthesis of Sb₂WO₆ nanoparticle towards excellent

LED light driven photocatalytic dye degradation.

*Devdas Karmakar, Sujoy Kumar Mandal, **Sumana Paul**, Saptarshi Pal, Manik Pradhan, Sujoy Datta, Debnarayan Jana; **Applied Physics A. 128, 689 (2022).***

19. Ultra-broadband Absorption, Suppressed Negative Photoconductivity and High Performance Photodetection in Europium Doped 2D Topological Insulator Bi₂Se₃ Nanosheets.

Sumana Paul**, Md Tarik Hossain, Abdul Kaium Mia, and P. K. Giri; **ACS Appl. Nano Mater. 4, 12527–12540 (2021).

18. Nitrogenated CQD decorated ZnO nanorods towards rapid photodegradation of rhodamine B: a combined experimental and theoretical approach.

*Sujoy Kumar Mandal, **Sumana Paul**, Sujoy Datta, Debnarayan Jana; **Appl. Surf. Sci. 563, 150315 (2021).***

17. 3D/2D Bi₂S₃/SnS₂ Heterostructures: Superior Charge Separation and Enhanced Solar Light Driven Photocatalytic Performance.

Sumana Paul**, Dulal Barman, Chandra Chowdhury, Pravat Kumar Giri, Subodh Kumar De; **CrystEngComm 23, 2276-2288 (2021).

16. Control Synthesis and Alloying of Ambient Stable Pb-Free Cs₃Bi₂Br_{9(1-x)}I_{9x} (0 ≤ x ≤ 1) Perovskite Nanocrystals for Photodetector Application.

*Sirshendu Ghosh, SankhaSubhra Mukhopadhyay, **Sumana Paul**, Bapi Pradhan, Subodh Kumar De; **ACS Applied Nano Materials 3, 11107-11117 (2020).***

15. Enhanced Photophysical Properties of Bi₂S₃/AgBiS₂ Nanoheterostructures Synthesized via Ag(I) Cation Exchange-Mediated Transformation of Binary Bi₂S₃.

Sumana Paul**, Biswajit Dalal, Rajkumar Jana, Arnab Shit, Ayan Datta, Subodh Kumar De; **The Journal of Physical Chemistry C 124, 12824-12833 (2020).

14. Enhanced Magnetic Properties of In–Mn-Codoped Plasmonic ZnO Nanoflowers: Evidence of Delocalized Charge Carrier-Mediated Ferromagnetic Coupling.

Sumana Paul**, Biswajit Dalal, Moumita Das, Prabhat Mandal and Subodh Kumar De; **Chemistry of Materials 31, 8191-8204 (2019).

13. Visible LED-Assisted Effective Charge Separation in Ruthenium-Doped ZnS System for Efficient Photodegradation of Organic Dye.

*Sujoy K. Mandal, Devdas Karmakar, Supriya Ghoshal, **Sumana Paul** and Debnarayan Jana; **Chemistry Select 4, 9102-9111(2019).***

12. Cu₃N Nanocrystals Decorated with Au Nanoparticles for Photocatalytic

Degradation of Organic Dyes.

Dulal Barman, † **Sumana Paul**, † Sirshendu Ghosh and Subodh Kumar De; *ACS Appl. Nano Mater.* **2**, 5009–5019(2019). († Authors Contributed equally)

11. Visible transparent white light emitting ink from Ce³⁺ sensitized monodispersed Tb, Sm co- doped LaF₃@C-dots nanocomposite.

Sirshendu Ghosh, Chandrani Pal, **Sumana Paul**, Manas Saha, Dulal Barman and Subodh Kumar De; *Chemical Communications* **54**, 14124-14127(2018).

10. Cation exchange-mediated synthesis of library of plasmomagnetic nanoheterostructures: transformation of 2-dimensional-shaped Fe₇S₈ nanoplates to Cu–Fe–S-based ternary compound.

Dulal Barman, Sirshendu Ghosh, **Sumana Paul**, Biswajit Dalal, Subodh Kumar De; *Chemistry of Materials* **30**, 5550-5560 (2018).

9. Cation Exchange Mediated Synthesis and Tuning of Bimodal Plasmon in Alloyed Ternary Cu₃BiS_{3-x}Se_x Nanorods.

Sumana Paul, Sirshendu Ghosh, Biswajit Dalal, Pousali Chal, Biswarup Satpati, S. K. De; *Chemistry of Materials* **30**, 5020-5031 (2018).

8. Control Synthesis of Air-Stable Morphology Tunable Pb-Free Cs₂SnI₆ Perovskite Nanoparticles and Their Photodetection Properties.

Sirshendu Ghosh, **Sumana Paul**, S. K. De; *Particle & Particle Systems Characterization* **1800199-1800205** (2018).

7. Nb-Dopant-Induced Tuning of Optical and Electrical Property of Anatase TiO₂ Nanocrystals.

Manas Saha, Sirshendu Ghosh, **Sumana Paul**, Biswajit Dalal, S. K. De; *Chemistry Select* **3**, 6654–6664 (2018).

6. Efficient Charge Separation in Plasmonic ZnS@Sn:ZnO Nanoheterostructure: Nanoscale Kirkendall Effect and Enhanced Photophysical Properties.

Sumana Paul, Sirshendu Ghosh, S. K. De; *Langmuir* **34**, 4324–4339 (2018).

5. Maximization of photocatalytic activity of Bi₂S₃/TiO₂/Au ternary heterostructures by proper epitaxy formation and plasmonic sensitization.
Sumana Paul, Sirshendu Ghosh, Dulal Barman, S. K. De; *Applied Catalysis B: Environmental* **219**, 287-300 (2017)

4. Shape Controlled Plasmonic Sn Doped CdO Colloidal Nanocrystals: A Synthetic Route to Maximize the Figure of Merit of Transparent Conducting Oxide.
Sirshendu Ghosh, Manas Saha, **Sumana Paul**, and S. K. De; *small* **13**, 1602469-1602476 (2017).

3. Enhanced photophysical properties of plasmonic magnetic metal-alloyed semiconductor heterostructure nanocrystals: a case study for the Ag@Ni/Zn_{1-x}Mg_xO system.
Sumana Paul, Sirshendu Ghosh, Manas Saha and S. K. De; *Physical Chemistry Chemical Physics* **18**, 13092-13107 (2016)

2. Core-shell ZnO@CuInS₂ hexagonal nanopyramids with improved photo-conversion efficiency.
KajariDas, Sirshendu Ghosh, Kaushik Chakrabarti, **Sumana Paul**, Godhuli Sinha, J. Lahtinen, D. Jana, S. K. De; *Solar Energy Materials & Solar Cells* **143**, 326-334 (2015).

1. Maximizing the photo catalytic and photo response properties of multimodal plasmonic Ag/WO_{3-x} heterostructure nanorods by variation of the Agsize.
Sirshendu Ghosh, Manas Saha, **Sumana Paul** and S. K. De; *Nanoscale* **7**, 18284-18298 (2015).