

### Selected Publications in the last 10 years

1. Altaf Pasha and R. Geetha Balakrishna\*, Conquering Iodide Migration to Unlock Perovskite Commercialization, *ACS Energy Lett.*, 11, 1, 15-20, (2025)
2. Gayathri Karthikeyan, Sakar Mohan, P. Muthu Austeria, R. Geetha Balakrishna\*, Surface-Engineered 2D Bimetallic FeNi-MOFs Derived from Layered Double Hydroxides for Photocatalytic Membranes with Enhanced Dye Fixation in Wastewater Treatment, *Small*, 21, 2409133, (2025)
3. Kaveramma, A. B. and Chakraborty Abhisek and R. Geetha Balakrishna\*, Managing Film Crystallization via Low Toxic Antisolvents: Stabilizing Ag<sub>3</sub>BiI<sub>6</sub> Perovskite-like Solar Cells under Ambient Conditions, *J. Mater. Chem. A.*, 13, 3811-3824, (2025)
4. Sanjayan C. G., Leelavathi Gokavi, Chandan Hunsur Ravikumar, R. Geetha Balarkishna\*, Antibody-modified 2D MXene Nanosheet Probes for Selective, Picolevel Detection of Cancer Biomarkers, *Biosens. Bioelectron.*, 271, 117028, (2025)
5. Altaf Pasha, Shubhangi Bhardwaj, Andrew Torma, Kaveramma A. B., Nagaraj S. Naik, Isaac Metcalf, Mukaddar S. K., Hao Zhang, Mahesh Padaki, Suman Kalyan Sahoo, Aditya D. Mohite, Sushobhan Avasthi, R. Geetha Balakrishna\*, Ionic Lockdown: Sealing Migration Channels Across Device Interfaces in Mixed Halide Perovskite Solar Cells, *ACS Energy Lett.*, 9, 6002–6010, (2024)
6. S. Akhil, Dong-Won Kang, Hyosung Choi, R. Geetha Balakrishna\*, Emerging Bi-Based Multicationic Ternary Chalcogenides as Promising Photoabsorbers for Solar Cells, *Sol. RRL*, 2400662, (2024)
7. Abhisek Chakraborty, Giulia Lucarelli, Jie Xu, Zeynab Skafi, Seezrgio Castro-Hermosa, A. B. Kaveramma, R. Geetha Balakrishna, Thomas M. Brown, Photovoltaics for Indoor Energy Harvesting, *Nano Energy*, 128, 109932, (2024)
8. Abhishek Narayanan, Nagaraj S. Naik, Samadhan Kapse, Ranjith Thapa, R. Geetha Balakrishna, Chandra Sekhar Rout, Mahesh Padaki, In Situ Cascade Steric Stabilization of Poly (Ionic Liquid) Mediated Hexagonal Nickel Hydroxide Morphogenesis for High-Performance Flexible Super Capacitors, *J. Mater. Chem. A.*, 12, 24508-24518, (2024)

9. Jesna George, Altaf Pasha, R. Geetha Balakrishna\*, Creating Energy Transfer Pathways in Lead-Free Perovskite Nanocrystals via Dopant Emission Centers for Optical Sensing, *ACS Appl. Nano Mater.*, 17, 19774- 19783, (2024)
10. Swathi Divakar, Harini G. Sampatkumar, Satish S. Naik, Shridhar Malladi, Mahesh Padaki, Siddappa A. Patil, R. Geetha Balakrishna\*, Graphitic Carbon Nitride Enriched Phytochemicals-based Photoactive Membranes for Perilous Chromium (VI) Ion Removal, *Sep. Purif. Technol.*, 334, 125953, (2024)
11. Karthikeyarajan Vinothkumar, R. Geetha Balakrishna\*, One-pot Synthesis of NH<sub>2</sub>- MIL-101(Fe) and  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> Composite as Efficient Heterojunction for Multifunctional Photocatalytic Membranes: Towards Zero Waste Generation, *Appl. Cat., B: Environ.*, 340, 123199, (2024)
12. S. Akash, S. Akhil, V. Sanjana, A. Chakraborty, R. Geetha Balakrishna\*, Suppressing Phase Segregation in Mixed Halide CsPbI<sub>3-x</sub>Br<sub>x</sub> Perovskites by Dual Passivation Using Sodium Dodecyl Sulphate, *Sol. Energy*, 324, 112596, (2024)
13. Jomy Jose Philip, Gouranga H. Debnath, David H. Waldeck, R. Geetha Balakrishna\*, Halide Exchange Mediated Cation Exchange Facilitates Room Temperature Co-doping of d-and f-block Elements in Cesium Lead Halide Perovskite Nanoparticles, *Nanoscale*, 16, 9558, (2024)
14. Sumanth Dongre S., Asif Iqbal, Ranjit Thapa, Pratheeksha M., Shwetharani Ramu, and R. Geetha Balakrishna\*, Synergistic Catalyst Design for Enhanced Electrochemical Hydrogen Evolution: Fe<sub>2</sub>O<sub>3</sub>/MoS<sub>2</sub>/Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene Ternary Composite, *ACS Appl. Eng. Mater.*, 2, 4, 943–954, (2024)
15. Altaf Pasha, Patatri Pramanik, Jesna K. G., Nishant Dhiman, Hao Zhang, Siraj Sidhik, Faiz Mandani, Sudhir Ranjan, Ahipa T. N., Siva Umapathy, Aditya D. Mohite and R. Geetha Balakrishna\*, Cationic and Anionic Vacancy Healing for Suppressed Halide Exchange and Phase Segregation in Perovskite Solar Cells, *ACS Energy Lett.*, 8, 3081–3087, (2023)

16. Sanjayan C. G., R. Geetha Balakrishna\*, Ratiometric Probe of PQDs/R6G: Achieving High Sensitivity and Precision in Contaminant Detection, *Sens. Actuators B Chem.*, 397, 134626, (2023)
17. Bhavya M. Basavaraja, Ramya Prabhu Bantwal, Anjana Tripathi, Gautam Hegde, Neena Susan John, Ranjit Thapa, Gopalkrishna Hegde, R. Geetha Balakrishna, Manav Saxena, Ali Altaee, Akshaya K. Samal, Functionalized Silver Nanocubes for the Detection of Hazardous Analytes through Surface-Enhanced Raman Scattering: Experimental and Computational Studies, *ACS Sustain. Chem. Eng.*, 11, 29, 10605–10619, (2023)
18. Hemanth Kumar Beere, Pranav Kulkarni, Uday Narayan Maiti, R. Geetha Balakrishna, Priyam Mukherjee, Hyun Young Jung, Ketaki Samanta, and Debasis Ghosh, Realizing Favourable Oxygen Electrocatalytic Activity with Compositionally Complex Metal Molybdates, *Sustain. Energy Fuels*, 7, 4303-4316, (2023)
19. Sumanth Dongre S., E. Siddharthan, Ranjit Thapa, Shwetharani R, and R. Geetha Balakrishna\*, Dual Vacancy Passivation in CsPbCl<sub>3</sub> Perovskite Nanocrystals: Implications on Optoelectronic Applications, *ACS Appl. Nano Mater.*, 6, 14, 13227–13237, (2023)
20. Akhil S. and R. Geetha Balakrishna\*, CuBiS<sub>2</sub> Ternary Quantum Dots: Tuning the Deposition Techniques for Enhanced Photovoltaic Performance, *ACS Appl. Energy Mater.*, 6, 14, 7487–7496, (2023)
21. Jesna K. George, Altaf Pasha, Sakar Mohan, R. Geetha Balakrishna\*, Binding of CsPbBr<sub>3</sub> Nanocrystals to MOF-5 for the Detection of Cadmium Ions in Aqueous Media, *ACS Appl. Nano Mater.*, 2023, 6, 11, 9464–9474, (2023)
22. Basir Maleki, Yatish Kalanakoppal Venkatesh, S. Siamak Ashraf Talesh, Hossein Esmaeili, Sakar Mohan, R. Geetha Balakrishna, A Novel Biomass-Derived Activated Carbon Mediated AC@ZnO/NiO Bifunctional Nanocatalyst to Produce High-Quality Biodiesel from Dairy Industry Waste Oil: CI Engine Performance and Emission, *Chem. Eng. J.*, 467, (2023)
23. Shwetharani R., Itika Kainthla, Sumanth Dongre, Laveena D'Souza, R. Geetha Balakrishna\*, Recent Advances of Ecofriendly 2D Monoelemental Bismuthene as a

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24. Sanjayan C. G., Chandan Hunsur Ravikumar, R. Geetha Balakrishna\*, Perovskite QD-based Paper Microfluidic Device for Simultaneous Detection of Lung Cancer Biomarkers – Carcinoembryonic Antigen and Neuron-Specific Enolase, *Chem. Eng. J.*, 464, 142581, (2023)
  25. Sanjayan C. G., and R. Geetha Balakrishna\*, Phase Transferred and Non-Coated, Water-Soluble Perovskite Quantum Dots for Biocompatibility and Sensing, *J. Mater. Chem. B*, 11, 2184-2190, (2023)
  26. Akhil S., and R. Geetha Balakrishna\*, CuBiSe<sub>2</sub> Quantum Dots as Eco-Friendly Photosensitizers for Solar Cells, *ACS Sustain. Chem. Eng.*, 10, 39, 13176–13184, (2022)
  27. Sanjayan C. G., Jyothi Mannekote Shivanna, Jessica D. Schiffman, Sakar Mohan, Srinivasa Budagumpi, and R. Geetha Balakrishna\*, Aqueous, Non-Polymer-Based Perovskite Quantum Dots for Bioimaging: Conserving Fluorescence and Long-Term Stability via Simple and Robust Synthesis, *ACS Appl. Mater. Interfaces*, 14 (34), 38471-38482, (2022)
  28. S. Akhil and R. Geetha Balakrishna\*, AgBiS<sub>2</sub> QDs as a Photoabsorber for Eco-friendly Solar Cells, *J. Mater. Chem. A.*, 10, 8615-8625, (2022)
  29. S. Akash, Altaf Pasha, R. Geetha Balakrishna\*, Dissipation of Charge Accumulation and Suppression of Phase Segregation in Mixed Halide Perovskite Solar Cells via Nanoribbons, *ACS Appl. Energy Mater.*, 5, 3, 2727–2737, (2022)
  30. Akhil S., Kusuma J., R. Geetha Balakrishna\*, Green AgBiSe<sub>2</sub>/AgBiS<sub>2</sub> Core Shell Quantum Dots for Stable Solar Cells by Robust SILAR Method, *J. Clean. Prod.*, 366,132760, (2022)
  31. Sanjayan C. G., Jyothi M. S., and R. Geetha Balakrishna\*, Stabilization of CsPbBr<sub>3</sub> Quantum Dots for Photocatalysis, Imaging and Optical Sensing in Water and Biological Medium; A Review, *J. Mater. Chem. C.*, 10, 6935-6956, (2022)

32. Karthikeyarajan Vinothkumar, Mannekote Shivanna Jyothi, Chandra Lavanya, Mohan Sakar, Suresh Valiyaveetil, R. Geetha Balakrishna\*, Strongly Coordinated MOF-PSF Matrix for Selective Adsorption, Separation and Photodegradation of Dyes, *Chem. Eng. J.*, **428**, 132561, (2022)
33. Akhil S., Mithun Prakash Ravikumar, Mohammed Jalalah, Mabkhoot Alsaiani, Farid A Harraz, R. Geetha Balakrishna\*, Manifestation of the Enhanced Photovoltaic Performance in Eco-Friendly AgBiS<sub>2</sub> QD Solar Cells Using Titanium Oxynitride as the Electron Transport Layer, *Energy & Fuels*, **36**, 14393-14402, (2022)
34. Pranav Kulkarni, Hyunyoung Jung, Debasis Ghosh, Mohammed Jalalah, Mabkhoot Alsaiani, Farid A. Harraz, R. Geetha Balakrishna\*, A Comprehensive Review of Pre-Lithiation/Sodiation Additives for Li-ion and Na-ion Batteries, *J. Energy Chem.*, **76**, 479-494, (2022)
35. Sumanth Dongre S., Shwetharani R., Chandan Hunsur Ravikumar, Lavanya C., R. Geetha Balakrishna\*, Review on 2D Arsenene and Antimonene: Emerging Materials for Energy, Electronic and Biological Applications, *Adv. Mater. Interfaces*, **9**, 23, 2200442, (2022)
36. Jesna K. George, Shwetharani Ramu, Vishaka V. Halali, R. Geetha Balakrishna\*, Inner Filter Effect a Boon in Perovskite Sensing Systems to Achieve Higher Sensitivity Levels, *ACS Appl Mater Interfaces*, **13**, 48, 57264–57273, (2022)
37. Altaf Pasha, S. Akhil, and R. Geetha Balakrishna\*, Reliability of Cs<sub>2</sub>M<sup>+</sup>M<sup>3+</sup>X<sub>6</sub> type Perovskites for Solar Cells: Assessing the Figures of Merit. *J. Mater. Chem. A*, **9**, 17701-17719, (2022)
38. Sakar M., Ningaraju C., Yatish K. V., Mithun Prakash R., R. Geetha Balakrishna\*, Simultaneous Refining of Biodiesel-Derived Crude Glycerol and Synthesis of Value-Added Powdered Catalysts for Biodiesel Production: A Green Chemistry Approach for Sustainable Biodiesel Industries, *J. Clean. Prod.*, **363**, 132448, (2022)
39. C. G. Sanjayan, M. S. Jyothi, M. Sakar, R. Geetha Balakrishna\*, Multidentate Ligand Approach for Conjugation of Perovskite Quantum Dots to Biomolecules, *J. Colloid Interface Sci.*, **758-770**, (2021)

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41. S. Akash, R. Shwetharani, J. Kusuma, R. Geetha Balakrishna\*, Insights and Future Perspectives for Constructing Efficient Electron Pathways in Photoanodes of QDSSCs, *Sol. Energy*, 224, 650-665, (2021)
42. S. Akhil, S. Akash, Altaf Pasha, Bhakti Kulkarni, Mohammed Jalalah, Mabkhoot Alsaiari, Farid A. Harraz, R. Geetha Balakrishna\*, Review on Perovskite Silicon Tandem Solar Cells: Status and Prospects 2T, 3T and 4T for Real World Conditions, *Mater. Des.*, 211, 110138, (2021)
43. C. Lavanya, J. Kusuma, R. Geetha Balakrishna\*, Pyrochlores: Oxygen-Rich Moieties as Ceramic Fillers in Uplifting the Antifouling Property and Dye Removal Capacity of Polymeric Membranes, *Sep. Purif. Technol.*, 272, 118946, (2021)
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45. Halali V. Vishaka, George K. Jesna, Pasha Altaf, K. Sarina, and R. Geetha Balakrishna\*, Lattice Constriction and Trapped Excitons: A Structure–Property Relationship Unveiled in CsPbBr<sub>3</sub> Perovskite QDs, *J. Mater. Chem. C.*, 8, 17090-17098, (2020)
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