

## List of Important Research Articles in the last five years

1. Swathi Divakar, Harini G Sampatkumar, Satish S Naik, Shridhar Malladi, Mahesh Padaki, Siddappa A Patil, R Geetha Balakrishna, Graphitic carbon nitride enriched phytochemicals-based photo active membranes for perilous chromium (VI) ion removal, *Sep. Purif. Technol.*, Volume 334, 125953, (2024)
2. 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)
3. S Akash, S Akhil, V Sanjana, A Chakraborty, R Geetha Balakrishna, Suppressing phase segregation in mixed halide CsPbI<sub>3</sub>-xBr<sub>x</sub> perovskites by dual passivation using sodium dodecyl sulphate, *Sol. Energy*, 324, 112596, (2024)
4. 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)
5. 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, (2024)
6. Altaf Pasha, Patatri Pramanik, Jesna K G, Nishant Dhiman, Hao Zhang, Siraj Sidhik, Faiz Mandani, Sudhir Ranjan, Ahipa TN, 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)
7. 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)
8. 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)
9. 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*, doi.org/10.1039/D3SE00736G, (2023)
10. Dual Vacancy Passivation in CsPbCl<sub>3</sub> Perovskite Nanocrystals: Implications on Optoelectronic Applications, Sumanth Dongre S, E E. Siddharthan, Ranjit Thapa,

- Shwetharani R\* and R. Geetha Balakrishna\*, *ACS Appl. Nano Mater.*, 6, 14, 13227–13237, (2023)
11. 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)
  12. 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)
  13. Basir Maleki, Yatish Kalanakoppal Venkatesh, S Siamak Ashraf Talesh, Hossein Esmaeili, Sakar Mohan, Geetha R 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)
  14. Shwetharani R, Itika Kainthla, Sumanth Dongre, Laveena D'Souza, R Geetha Balakrishna\*, Recent Advances of Ecofriendly 2D Monoelemental Bismuthene as a photoabsorber for Energy, Catalysis and Biomedical applications, *J. Mater. Chem. C*, 11, 6777-6799, (2023)
  15. 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)
  16. Sanjay 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)
  17. Akhil S and R Geetha Balakrishna\*, CuBiSe<sub>2</sub> Quantum dots as ecofriendly photosensitizers for solar cells, *ACS Sustain. Chem. Eng.*, 10, 39, 13176–13184, (2022)
  18. 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)
  19. S. Akhil and R Geetha Balakrishna, AgBiS<sub>2</sub> as a photoabsorber for eco-friendly solar cells, *J. Mater. Chem. A*, 10, 8615-8625, (2022)
  20. 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)
  21. Akhil, S.; Kusuma, J.; Balakrishna, R. G., 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).
  22. 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)

23. Karthikeyarajan Vinothkumar, Mannekote Shivanna Jyothi, Chandra Lavanya, Mohan Sakar, Suresh Valiyaveetil, **R Geetha Balakrishna\***, Strongly co-ordinated MOF-PSF matrix for selective adsorption, separation and photodegradation of dyes, *Chem. Eng.J.*, 428, 132561, (2022)
24. Akhil S, Mithun Prakash Ravikumar, Mohammed Jalalah, Mabkhoot Alsaiari, Farid A Harraz, **R. Geetha Balakrishna**, Manifestation of the enhanced photovoltaic performance in eco-friendly AgBiS<sub>2</sub> Solar Cells Using Titanium Oxynitride as the electron transport layer, *Energy & Fuels*, 36,14393-14402, (2022)
25. Pranav Kulkarni, Hyunyong Jung, Debasis Ghosh, Mohammed Jalalah, Mabkhoot Alsaiari, 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)
26. Sumanth Dongre S, Chandan Hunsur Ravikumar, **R. Geetha Balakrishna**, Review on 2D Arsenene and Antimonene: Emerging Materials for Energy, Electronic and Biological Applications, *Adv. Mater. Interfaces*, 9, 23, 2200442, (2022)
27. 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)
28. 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)
29. 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)
30. CG Sanjayan, MS Jyothi, M Sakar, R Geetha Balakrishna, Multidentate ligand approach for conjugation of perovskite quantum dots to biomolecules, *J. Colloid Interface Sci.*, 758-770, (2021)
31. S Akhil, J Kusuma, S Akash, **R Geetha Balakrishna**, Perovskite-like ceramic hole transport material for quantum dot sensitized solar cells, *Solar Energy*, 224, 355-360, (2021)
32. S Akash, **R** Shwetharani, J Kusuma, **R Geetha Balakrishna**, Insights and future perspectives for constructing efficient electron pathways in photoanodes of QDSSCs, *Solar Energy*, 224, 650-665, (2021)
33. 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, (2021) 110138
34. 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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36. Halali V. Vishaka, George K. Jesna, Pasha Altaf, K. Sarina and Balakrishna R. Geetha, 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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38. Kusuma and R Geetha Balakrishna, Ceramic grains: Highly promising hole transport material for solid state QDSSCs, *Sol. Energy Mater Sol. Cells.*, 10.1016/j.solmat.2020.110445, (2020)
39. Shwetharani R. Halali, V. Vishaka, Kusuma J, R. Geetha Balakrishna, Green to blue light emitting CsPbBr<sub>3</sub> perovskite by ligand exchange and its encapsulation by TiO<sub>2</sub> for tandem effect in photovoltaic applications, *ACS Appl. Nano Mater.*, 3, 6, 6089-6098, (2020)
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42. R Shwetharani, Sakar Mohan, C. A. N. Fernando, Vassilios Binas and R Geetha Balakrishna, Recent Advances and Strategies Applied to Tailor Energy levels, Active Sites and Electron Mobility in Titania and its Doped/Composite Analogues for Hydrogen Evolution in Sunlight, *Catal. Sci. Technol.*, 9, 12, (2019)
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49. Chandan H. R, Jessica Schiffman and **Geetha R. Balakrishna**, Quantum dots as fluorescent probes: synthesis, surface chemistry, energy transfer mechanism and applications, *Sens. Actuators B Chem.*, 258, 1191–1214, (2018)

#### **Full Publications other than listed above**

50. K Gayathri, K Vinothkumar, Sakar Mohan, R Geetha Balakrishna, Manifestation of UiO-66-Zr MOF-enabled photocatalytic membranes for successive separation and degradation of dye mixtures in water remediation, *Journal of Environmental Chemical Engineering*, 12, 112490, (2024)
51. Praveen Kumar Gopi1, Sanjayan C. G, Akhil. S, Chandan Hunsur Ravikumar, Siripong Thitamadee, Supornchai Kongpatanakul1, R. Geetha Balakrishna\*, Werarak Surareungchai, Silver Bismuth Sulphide (AgBiS<sub>2</sub>)-MXene Composite as High Performance Electrochemical Sensing Platform for Sensitive Detection of Pollutant 4-Nitrophenol, *Electrochim acta*, 498, 144616, (2024).
52. Sumanth Dongre, Rohit Kumar, Bhubaneswar Paswan, Itika Kainthla, Amitava Banerjee, Jari S Algethami, Mabkhoot Alsaiari, Farid A Harraz, R Shwetharani, R Geetha Balakrishna\*, Synergistic electrocatalytic activity unveiled: Cu–Mo bimetal sulfo-selenide nanocomposite for hydrogen evolution reaction, *Mater Today Sustain*, 27, 100894, (2024)
53. Swathi Divakar, Prajwal Sherugar, KK Nagaraja, R Geetha Balakrishna, Mahesh Padaki, Elevating oil-in-water emulsion separation: Unleashing the power of exfoliated graphitic carbon nitride composite membranes, *Chem. Eng. J. Adv*, Volume 17, 100580, (2024)
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55. Aravind R Nesaragi, Jahir Ahmed, Mabkhoot Alsaiari, Lohit Naik, Naveen Kumar Kalagatur, HR Chandan, Swati R Hoolageri, Farid A Harraz, R Geetha Balakrishna, Siddappa A Patil, Fluorescent imidazole derived sensor for selective in vitro and in vivo Fe<sup>2+</sup> detection and bioimaging in zebrafish with DFT studies, *Opt. Mater.* Volume 148, 114850, (2024)
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  58. Hemanth Kumar Beere, KV Yatish, K Aravind, Debasis Ghosh, R Geetha Balakrishna, K Pramoda, Unveiling favorable synergy of tubules-like NiMoSe<sub>2</sub> with defect-rich borocarbonitride over graphene or MXene for efficient hydrogen evolution reaction electrocatalysis, *Int. J. Hydrogen Energy*, Volume 54, (2024)
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