

## Curriculum Vitae

**Prof. R. Geetha Balakrishna** PhD, FRSC  
**Director, Centre for Nano and Material Sciences**  
**Founder & CEO, GreenChem Nano Pvt. Ltd. (Startup under JAIN)**  
**JAIN (Deemed-to-be) University, Bangalore 562112, Karnataka, India**  
**Email: [br.geetha@jainuniversity.ac.in](mailto:br.geetha@jainuniversity.ac.in) |**  
**Web: [cnms.jainuniversity.ac.in/Faculty-geetha.htm](http://cnms.jainuniversity.ac.in/Faculty-geetha.htm)**

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### Academic Positions

- 2012-Present : **Professor and Director**, Center for Nano and Material Sciences, Jain (Deemed to be) University, Bangalore, India
- 2010-2012 : Professor and Associate Director, Center for Nano and Material Sciences, Jain (Deemed to be) University, Bangalore, India
- 2008-2010 : Professor and Associate Director, Center for Nanobiosciences, Jain (Deemed to be) University, Bangalore, India
- 2006-2008 : Professor and Head, Center for Nanosciences, Visveswaraiiah Technological University, Bangalore, India
- 2004-2006 : Assistant Professor, Department of Chemistry, Visveswaraiiah Technological University, Bangalore, India

### Research Positions

- 2018 : Visiting Scientist, International Centre for Material Sciences, JNCASR (CNR Rao), India
- 2017 : Fulbright Fellow, Radiation Laboratory, University of Notre Dame (Prashant V. Kamat), USA
- 2013 : Visiting Scientist, Environmental Catalysis Lab (Claude Descorme), IRCELYON, France
- 2012 : Visiting Scientist, Department of Physics, National University of Singapore, (B. V. R. Chowdari), Singapore

### Education

- 2000-2005 : PhD in Chemistry, Department of Chemistry, Bangalore University, Bangalore
- 1993-1995 : M.Sc. in Organic Chemistry, Department of Chemistry, Bangalore University, Bangalore
- 1989-1992 : B.Sc. in Chemistry, Department of Chemistry, Bangalore University, Bangalore

### Awards/Honors/Recognitions/Memberships

- **SERB Power Fellowship 2024 for outstanding women scientists** ,\_SERB\_ Govt of India
- **CRSI Bronze Medal 2023** by Chemical Research Society of India
- **MRSI Medal 2022** by Materials Research Society of India
- **CRS Silver Star Medal 2022** by Chirantan Rasayan Sanstha, India
- Awarded the **Mohammed bin Rashid Al Maktoum Global Water Award (3<sup>rd</sup> Place in collaboration with Maithri Aquatech) 2021** conferred by Prime minister of UAE and Ruler of Dubai
- **Dr Kalpana Chawla State Award 2020**, Conferred by Govt of Karnataka
- Elected as a **Fellow of Royal Society of Chemistry (FRSC)**, UK in 2020
- Awarded the **Fulbright-Nehru Fellowship for Academic and Professional Excellence in 2017** by USIEF
- Recognized **as one of top 2% scientists in the world (2020, 2021, 2022, 2023)** by Stanford University and Elsevier, consequently for the fourth time
- **Editorial Advisory Board Member “ACS Energy Letters”, American Chemical Society**
- **Editorial Advisory Board Member “ACS Applied Engineering Materials”, American Chemical Society**

### Research Projects as PI

1. Photocatalysis of dairy waste scum to its fatty acid methyl ester derivative as a potential biofuel for industrial applications, Department of Science & Technology-SEED, Govt of India, **2021-2024**
2. Hollow fiber-based photocatalytic membrane reactor for liquid-liquid separation in pharmaceutical and fuel industries, Department of Science & Technology, Govt of India, **2020-2023**
3. Design and development of CsAX<sub>3</sub> (A=Pb/Sn; X=Cl, Br, I) perovskite nanocrystals as the emerging class of materials for multiplex biosensing, Science & Engineering Research Board (SERB), **2019-2022**
4. Functional materials for interdisciplinary application, **2020-2022**, Ministry of Saudi Arabia

5. Development of metal-organic framework nanofibers bare photocatalytic membranes and reactors for multi-polluted water treatment, DST-ASEAN, Govt of India, **2019-2021**
6. Applications of emerging nanomaterials in health, energy and water, DST-Nanomission, Govt of India, **2015-2019**
7. Preparation of an antifouling membrane by wet chemical methods and its performance study for filtration applications, Naval Research Board, **2015-2018**
8. Synthesis and development of fluorimetric/ colorimetric probes for the determination of Cu, Fe and Zn in blood serum and cell lines, Board of Research in Nuclear Sciences, **2014-2017**
9. Development of new nanofiltration membranes for desalination and brackish water, Ministry of Drinking Water and Sanitation, Govt of India, **2012-16**,
10. Exploitation of Unique Properties of Quantum Dots for Efficient Energy Harvesting in Solar Cells, Ministry of New and Renewable Energy, Govt of India, **2012-2017**
11. Property tailoring in Titania through the integration of Nitrogen and Fluorine for a feasible water Disinfection Process, Department of Science & Technology, Govt of India, **2011-2014**

#### **Research Projects as Co-PI**

12. Nano/membrane technology-enabled atmospheric water generator integrated with concentrated solar PV modules, DST Special Call on Technology Development, **2021-2024**, , PI: Dr. Sakar Mohan
13. Ordered Nanoporous Membranes and Functionalized Nanomaterials for Water and Wastewater Treatment, DST-Nano Mission **2019-2022**PI: Prof S. K. Nataraj
14. Design and development of photocatalytic membranes for simultaneous water disinfection and filtration, DST, **2019-2021**, PI: Dr. Sakar Mohan

#### **Research Guidance**

- PhDs Completed : 14
- PDFs Completed : 7

#### **Research Interests**

- Photoactive materials namely Quantum dots, nanostructures, dyes, binary/ternary chalcogenides, perovskites, metal oxides, MOFs **as absorbers in solar cells**
- Photocatalytic membranes for **water treatment**
- Optical sensors for environmental applications
- Photo and electrocatalytic water splitting

### National and International Collaborators

- Prof Aditya Mohite, Rice University
- Prof Jessica Schiffmann, Massachusetts University.
- Prof. Suresh Valiyaveetil, National University of Singapore, Singapore
- Dr. Juhana Jaafar, Universiti Teknologi Malaysia, Malaysia
- Dr. Lau Woei Jye, Universiti Teknologi Malaysia, Malaysia
- Prof. Tamer Zaki Sharara, Egyptian Petroleum Research Institute, Egypt
- Prof. Umapathi, IISC, Bangalore
- Prof. Sushoban Awasti, CeNS, IISc, Bangalore
- Prof. Subi George, JNCASR, Bangalore

### List of Important Research Articles in the last ten 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 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. Altaf Pasha, Patatri Pramanik, Jesna K G, Nishant Dhiman, Hao Zhang, Siraj Sidhik, Faiz Mandani, Sudhir Ranjan, Ahipa TN, Siva Umopathy, 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)
4. 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)
5. 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)
6. 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)
- 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)
  - 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)
  - 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)
  - 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)
  - 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)
  - Shwetharani R, Itika Kainthla, Sumanth Dongre, Laveena D'Souza, **R Geetha Balakrishna\***, Recent Advances of Ecofriendly 2D Monoelemental Bismuthene as a photabsorber for Energy, Catalysis and Biomedical applications, *J. Mater. Chem. C*, 11, 6777-6799, (2023)
  - 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)
  - 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)
  - Aravind R Nesaragi, Chandan Hunsur Ravikumar, Naveen Kumar Kalagatur, Swati R Hoolageri, KM Mussuvir Pasha, R Geetha Balakrishna, Siddappa A Patil, In vitro and in vivo nanomolar Hg<sup>2+</sup> detection in live cells and zebrafish, theoretical studies, *J. Photochem. Photobiol., A*, 445, 115079, (2023)

16. Vinothkumar, K., Chandra, L., Mohan, S., **Balakrishna, R. G\***, Nature-Inspired Photoactive Metal–Organic Framework Nanofiber Filters for Oil–Water Separation: Conserving Successive Flux, Rejection, and Antifouling. *Ind. Eng. Chem. Res.*, 62 (2), 1085-1098, (2023)
17. Chandra, L., Vinothkumar K., **Balakrishna R. G\***, MIL-100 (Fe) integrated fibrous polyvinyl alcohol graft on cellulose acetate towards the development of green photo membranes; Application in multi solute rejection, *J. Environ. Chem. Eng.*, 11, 109851, (2023)
18. S Sumanth Dongre, R. Shwetharani, Sk Abdul Moyez, R. Geetha Balakrishna\*, In-situ neodymium ion doping into perovskite nanocrystals over ex-situ and its importance in triclosan sensing, *Mater. Chem. Phy.*, 307, 128221, (2023)
19. Swathi Divakar, Nagaraj S Naik, R Geetha Balakrishna, Mahesh Padaki, Liquid-liquid (Cyclohexanone: Cyclohexanol) separation using augmented tight nanofiltration membrane: A sustainable approach, *Chemosphere*, 355, 141820, (2024)
20. 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)
21. 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)
22. 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)
23. 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)
24. 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)
25. 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).
26. 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)
27. 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)
28. 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> Solar Cells Using Titanium Oxynitride as the electron transport layer, *Energy & Fuels*, 36,14393-14402, (2022)
  29. 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)
  30. 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)
  31. S Akash, R Shwetharani, J Kusuma, S Akhil, **R. Geetha Balakrishna**, highly efficient and durable electron transport layer for QDSSC: An integrated approach to address recombination losses, *J. Alloys Compd.*, 897, 162740, (2022)
  32. MS Jyothi, R Shwetharani, Sabarish Radoor, **R Geetha Balakrishna**, 9 - Switchable photovoltaic effect in solar cells: Architecture, features, and future scope, *Functional Materials Processing for Switchable Device Modulation*, 161-184, (2022)
  33. Chandan Hunsur Ravikumar, Nikhil Maroli, Bhakti Kulkarni, Ponmalai Kolandaivel, **R Geetha Balakrishna**, Heterostructure of CsPbBr<sub>3</sub>-CdS perovskite quantum dots for enhanced stability and charge transfer, *Mater. Sci. Eng. B.*, 275, 115513, (2022)
  34. 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)
  35. 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)
  36. Shwetharani Ramu, Itika Kainthla, Lavanya Chandrappa, Jyothi Mannekote Shivanna, Brijesh Kumaran, R Geetha Balakrishna, Recent advances in metal organic frameworks–based magnetic nanomaterials for waste water treatment, *Environ. Sci. Poll. Res.*, Volume 31, (2024)
  37. Aravind R Nesaragi, Jahir Ahmed, Mabkhoot Alsaiani, 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)

38. 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)
39. Basir Maleki, Yatish Kalanakoppal Venkatesh, Hossein Esmaeili, Masoumeh Haddadi, Ravikumar Mithun Prakash, Geetha R Balakrishna, Novel Co<sub>3</sub>O<sub>4</sub> decorated with rGO nanocatalyst to boost microwave-assisted biodiesel production and as nano-additive to enhance the performance-emission characteristics of diesel engine, *Energy*, Volume 289, 129944, (2024)
40. Yatish Kalanakoppal Venkatesh, Mithun Prakash Ravikumar, Shwetharani Ramu, Chandan Hunsur Ravikumar, Sakar Mohan, R Geetha Balakrishna, Developments in Titanium-Based Alkali and Alkaline Earth Metal Oxide Catalysts for Sustainable Biodiesel Production: A Review, *Chem. Rec.*, e202300277 (2023)
41. Veeranna R Kattimani, KV Yatish, K Pramoda, M Sakar, R Geetha Balakrishna\*, Acacia furnesiana plant as a novel green source for the synthesis of NiFe<sub>2</sub>O<sub>4</sub> magnetic nanocatalyst and as feedstock for sustainable high quality biofuel production, *Fuel*, 348, 128549, (2023)
42. P. Manikanta, Mounesh, Rohit Rangnath Nikam, Jubate Mohantay, **R. Geetha Balakrishna\***, S Sandeep and Bhari Mallanna Nagaraja, CdO Decorated with Polypyrrole Nanotube Heterostructure: Potent Electrocatalyst for the Detection of Antihistamine Drug Promethazine Hydrochloride in Environmental Samples, *Langmuir*, 39, 31, 11099–11107 (2023)
43. KN Brinda, Zhoveta Yhobu, Jan Grzegorz Małeck, Rangappa S Keri, **R Geetha Balakrishna**, DH Nagaraju, Srinivasa Budagumpim, Novel coumarin substituted Neheterocyclic carbene Ag(I), Au(I) and Ni(II) complexes as electrocatalysts in hydrogen evolution reactions from water. *Inter. J. Hyd. Energy*. 48, 10911-10921, (2023)
44. Yatish, K. V., Omkaresh B. R., Kattimani, V. R., Lalithamba, H. S., Sakar, M., **Balakrishna R. G\***, Solar energy-assisted reactor for the sustainable biodiesel production from Butea monosperma oil: Optimization, kinetic, thermodynamic and assessment studies, *Energy*, 263, 125768, (2023)
45. Shwetharani, R., Pratheeksha, M., Sumanth Dongre, S., **Geetha Balakrishna R\***, Functionalized 2D materials F-MoS<sub>2</sub> and F-g-C<sub>3</sub>N<sub>4</sub> with TiO<sub>2</sub> as Composite Electrocatalysts for Electrochemical Hydrogen Evolution. *Int. J. Hydrog. Energy*, 48 (14), 5438-5446, (2023)
46. SB Arun, BM Karthik, KV Yatish, KN Prashanth, **Geetha R Balakrishna\***, Green synthesis of copper oxide nanoparticles using the *Bombax ceiba* plant: Biodiesel



- production and nano-additive to investigate diesel engine performance-emission characteristics, *Energy*, 274, 12734, (2023)
47. Kulkarni, B., Suvina, V., Pramoda, K., **Balakrishna, R. G\***, Picomolar, Electrochemical Detection of Paraoxon Ethyl, by Strongly Coordinated NiCo<sub>2</sub>O<sub>4</sub>-SWCNT Composite as an Electrode Material. *J. Electroanal. Chem.*, 931, (2023)
  48. 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)
  49. Vignesh Nayak, Jyothi Mannekote Shivanna, Shwetharani Ramu, Sabarish Radoor, **R. Geetha Balakrishna**, Efficacy of electrospun nanofiber membranes on fouling mitigation: A review, *ACS Omega*, 7, 48, 43346-43363, (2022)
  50. Swathi Divakar, Mahesh Padaki, **R. Geetha Balakrishna**, Review on Liquid-Liquid Separation by Membrane Filtration, *ACS omega*, 7, 49, 44495-44506, (2022)
  51. Vishal Kandathil, Akshay Moolakkil, Pranav Kulkarni, Alaap Kumizhi Veetil, Manjunatha Kempasiddaiah, Sasidhar Balappa Somappa, R. Geetha Balakrishna, Siddappa A. Patil, Pd/Fe<sub>3</sub>O<sub>4</sub> supported on bio-waste derived cellulosic-carbon as a nanocatalyst for C-C coupling and electrocatalytic application, *Front. Chem. Sci. Eng.*, 16, 1514-1525, (2022)
  52. Pranav Kulkarni, Hemanth Kumar Beere, Mohammed Jalalah, Mabkhoot Alsaiari, **R. Geetha Balakrishna**, Farid A Harraz, Debasis Ghosh, Developing a high-performance aqueous zinc battery with Zn<sup>2+</sup> pre-intercalated V<sub>3</sub>O<sub>7</sub>·H<sub>2</sub>O cathode coupled with surface engineered metallic zinc anode, *J. Electroanal. Chem.*, 924, 116851, (2022)
  53. K Gayathri, K Vinothkumar, YN Teja, Badria M Al-Shehri, Manickam Selvaraj, M Sakar, **R. Geetha Balakrishna**, Ligand-mediated band structure engineering and physiochemical properties of UiO-66 (Zr) metal-organic frameworks (MOFs) for solar-driven degradation of dye molecules, *Colloids Surf. A: Physicochem. Eng. Asp.*, 653, 129992, (2022)
  - 54.
  55. 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
  56. 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)

57. P. Kulkarni, D Ghosh, R Geetha Balakrishna, Recent Progress in 'Water-in-Salt' and Water-in-Salt'-Hybrid Electrolytes Based High Voltage Rechargeable Batteries, *Sustain. Energy Fuel.*, **5**, 1619-1654, (2021)
58. Rangaswamy Puttaswamy, Radha Nagaraj, Pranav Kulkarni, Hemanth Kumar Beere, Shrish Nath Upadhyay, R Geetha Balakrishna, Nataraj Sanna Kotrappanavar, Srimanta Pakhira, Debasis Ghosh, Constructing a High-Performance Aqueous Rechargeable Zinc-Ion Battery Cathode with Self-Assembled Mat-like Packing of Intertwined Ag(I) Pre-Inserted V<sub>3</sub>OH<sub>2</sub>O Microbelts with Reduced Graphene Oxide Core, *ACS Sustain. Chem. Eng.*, **9**, 11, 3985–3995, (2021)
59. 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)
60. 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)
61. K. Sunil, Prajwal Sherugar, Srilatha Rao, C. Lavanya, **Geetha R. Balakrishna**, G. Arthanareeswaran, Mahesh Padaki, Prolific approach for the removal of dyes by an effective interaction with polymer matrix using ultrafiltration membrane, *J. Environ. Chem. Eng.*, **9**, 6, 106328, (2021)
62. 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)
63. RDAA Rajapaksha, CAN Fernando, **R. G. Balakrishna**, V Kumar, P See, An insight in photocurrent generation mechanism on Cu<sub>2</sub>O quantum dot sensitized Cu/p-CuI photo-electrochemical cell and efficient H<sub>2</sub> generation at Cu/p-CuI/Cu<sub>2</sub>O electrolyte interface, *Mater. Sci. Eng. B.*, **270**, 115205, (2021)
64. Bhakti Kulkarni, V Suvina, **R Geetha Balakrishna**, DH Nagaraju, J Kusuma, 1D GNR-PPy Composite for Remarkably Sensitive Detection of Heavy Metal Ions in Environmental Water, **9**, 2, e202101269, *Chem Electro Chem.*, (2021)
65. Chandan Hunsur Ravikumar, Vishnu Nair, MP Raghavendra, Werusak Surareungchai, Archana Thakur, **R Geetha Balakrishna**, Biomass derived carbon dot decorated ssDNA for a 'turn-on' fluorescent assay for detection of *Staphylococcus aureus* MNase, *New Journal of Chemistry*, **45**, 5890-5896, (2021)
66. Pranav Kulkarni, **R. Geetha Balakrishna**, Debasis Ghosh, R.S. Rawat, Rohit Medwal, B.V.R. Chowdari, Zaghbir Karim, M.V. Reddy, Molten salt synthesis of CoFe<sub>2</sub>O<sub>4</sub> and its energy storage properties, *Mater. Chem. Phys.*, **257**, 123747, (2021)

67. Soumya Nagashri Manjunath, M. Sakar, Manmohan Katapadi, **R. Geetha Balakrishna**, Photochemistry of ozone to combat coronavirus: Problems and perspectives, *Environ. Technol. Innov.*, 21, 10131, (2021)
68. K.V.Yatish, R. Mithun Prakash, C. Ningaraju, M. Sakar, **R. Geetha Balakrishna**, H.S. Lalithamba, Terminalia chebula as a novel green source for the synthesis of copper oxide nanoparticles and as feedstock for biodiesel production and its application on diesel engine, *Energy.*, 215, 119165, (2021)
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