Faculty Profile

Name : **Dr. SANGAMESHA M A**
Designation : **Associate Professor**
Department : **Chemistry**
Contact Details: Department of Chemistry,
The National Institute of Engineering,
Manandavadi Road, Mysore.
E-mail : sangamesha.ma@gmail.com
sangamesha.ma@nie.ac.in
Phone : 9900503238

About me: I am **Dr. Sangamesha M A,** Associate Professor, Department of Chemistry, The National Institute of Engineering, Mysore-5700 08. I have a total 12years of teaching,15 years research and nearly 2years of industry experience at Jubilant Life Sciences. I received M.Sc degree in Chemistry from University of Mysore, Mysuru in 2010 and Ph.D degree in Chemistry from Visvesvaraya Technological University, Belagavi, India in 2019. My major research interests are Electrochemical Sensors, Tribo Electric Nano Generator (TENG), Nanocomposites for Opto-electronics applications, Biodegradable polymers for agriculture applications and Crop disease detection using Image processing. Over the past 15 years, I have established research, by securing research grants from various funding agencies, including Vision Group of Science and Technology (VGST) and KSCST. Presently I have 1 ongoing research project worth 40.0 lakhs from VGST. My research productivity is evidenced by 93 peer-reviewed publications in high-impact journals, including Nano Energy and Chemical Engineering. Furthermore, my work has led to the granting of one patent, and another one is published. I am a recognised research supervisor from VTU and actively guiding 3 research scholars for their Ph.D.

I am actively involved in collaborative and interdisciplinary research, who share a passion for innovation in Material sciences. Let's connect and explore opportunities to drive discovery and impact together.

Qualification:

MSc. Chemistry (Mysore Univ.), Ph.D. (VTU, Belagavi)

Courses Taught:

1. Applied Chemistry for CSE stream
2. Applied Chemistry for mechanical Engineering
3. Applied Chemistry for ECE
4. Applied Chemistry for EEE
5. Applied Chemistry for Civil Engineering
6. Biology for Engineers

Publications:

Journal Publications:

1. Suresh, Sanjana Madapura, Ravinandana, Deepak Raj Gowdagere, Prasanna, Sanjay Ballur, Basavaraju, Shivaswamy Murudagalli, Basavaraju, Kavyashree Melajipura, Rout, Chandra Sekhar, **Ankanathappa, Sangamesha Madanahalli**, Chung, Ren-Jei, Shivabasappa, Nagendra Prasad Honnegowdanahalli, "Cubic mesoporous Fe–Zn MOF@ CNT hybrid: a high-efficiency bifunctional electrocatalyst for water splitting," Journal of Porous Materials, pp. 1-17, 2026.
2. Veeranapura Lokesh, Yashaswini, Prabhuswamy, Mahadevaswamy Bhogayyanahundi, Sagade Muktar Ahamed, Rumana Farheen, **Madanahalli Ankanathappa, Sangamesha**, Rajanna, Kavya, Sachith, Bhagyashree Mahesha, Sannathammegowda, Krishnaveni, Madhukar, Beejaganahalli Sangameshwar, "Sustainable Triboelectric Nanogenerators: Natural Fillers-PVA Composites for Energy Generation and Chemical Sensing," ACS Applied Polymer Materials, 2026.
3. Sonu, M, Yashashwini, V L, Kavya, R, Kumar, HS Mahendra, **Sangamesha, M. A.**, Madhukar, BS, Madhusudan, Puttaswamy, Prema, NS, Girish, HN, "Synthesis and characterization of polyvinyl alcohol-based ZnGa2O4 nanocomposites: structural, optical, and dielectric properties," Journal of Materials Science: Materials in Electronics, vol. 37.0, no. 4, pp. 334, 2026.
4. Prabhuswamy, Mahadevaswamy Bhogayyanahundi, Lokesh, Yashaswini Veeranapura, Sagade Muktar Ahmed, Rumana Farheen, Rajanna, Kavya, Kendagannaswamy, Beejaganahalli Kendagannaiah, **Madanahalli Ankanathappa, Sangamesha**, Sannathammegowda, Krishnaveni, Madhukar, Beejaganahalli Sangameshwar, "Self-Powered Gesture and Multi-Human Interaction Sensing via Bioactive Compounds-Integrated Triboelectric Nanogenerator," ACS Applied Bio Materials, 2026.
5. S. M, Mizba Tazleem, S. M, Rumana Farheen, V. L, Yashaswini, M, Vinay Kumar, K. M, Kavya, B. S, Madhukar, S, Krishnaveni, **M, Sangamesha A**, "DFT-Guided Design of Bioextract-Based Triboelectric Nanogenerators: A Green Pathway to Self-Powered Electronics," ACS Sustainable Chemistry & Engineering, vol. 13.0, no. 36, pp. 14726-14741, 2025.
6. Shivaswamy, MB, Sanjana, MS, Kavyashree, MB, **Sangamesha, M. A.**, Raj, GR Deepak, Prasad, HS Nagendra, "CuO@ Bi2MoO6 heterojunction nanocomposite-reinforced epoxy coating: Enhanced anti-corrosion performance on low-carbon steel.," Materials Today Communications, pp. 113790, 2025.
7. Lokesh, Yashaswini Veeranapura, Prabhuswamy, Mahadevaswamy Bhogayyanahundi, Sagade Mukthar, Rumana Farheen, Rajanna, Kavya, Sachith, Bhagyashree Mahesha, **Ankanathappa, Sangamesha Madanahalli**, Sannathammegowda, Krishnaveni, Madhukar, Beejaganahalli Sangameshwar, "Polysaccharide-Enriched Natural Gum Based Polymer Biocomposites as Triboelectric Nanogenerators for Enhanced Power Generation," ACS Applied Engineering Materials, vol. 3.0, no. 9, pp. 2894-2906, 2025.
8. Shetty, Shivakumar Jagadish, Nanditha, TK, Amini, Sebghatullah, Farheen, SM Rumana, **Sangamesha, M. A.**, Krishnaveni, S, Gurumurthy, SC, "Exploring the potential of one-dimensional functionalized multi-walled carbon nanotubes in triboelectric nanogenerator for self-powered applications," Journal of Alloys and Compounds, pp. 183837, 2025.
9. Prabhuswamy, Veda Bandigowdanahalli, Ningappa, Kumara Swamy, Sangameshwar, Madhukar Beejaganahalli, Prakash, Bharath Kumar Sobandhar, Rajanna, Kavya, Basavaraju, Mahesh, **Ankanathappa, Sangamesha Madanahalli**, "Enhanced optical and UV shielding performance of CoFe2O4@ GONDs embedded PVA nanocomposites," Polymer, pp. 129137, 2025.
10. Lingaraj, Adarsh Raj, Vaishnavi, Narayan, Ahmed, Rumana Farheen Sagade Muktar, Mohankumar, Kavya Kallahalli, **Ankanathappa, Sangamesha Madanahalli**, Sannathammegowda, Krishnaveni, "Unveiling the role of ionic states of cesium halides for high-

performance triboelectric nanogenerators: Applications in UV-sensitive devices," Sensors and Actuators A: Physical, pp. 117094, 2025.

11. Vidya, Nagarajappa, Gowda, Arsikere Ramesh Anusha, Kavyashree, Melajipura Basavaraju, Prajna, Shivarajappa, **Sangamesha, Madanahalli Ankanathappa**, Prasanna, Sanjay Ballur, Chung, Ren-Jei, Akshay, Mallikarjuna, Prasad, Honnegowdanahalli Shivabasappa Nagendra, Almoyad, Mohammad Ali Abdullah, "Machine learning assisted electrochemical detection and photocatalytic detoxification of 4-aminophenol using a sulfonated graphitic carbon nitride@ yttrium zinc oxide nanocomposite," Inorganic Chemistry Communications, pp. 115707, 2025.
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15. Farheen, SM Rumana, Dadagishiev, DA, Vaishnavi, N, Magomedova, AG, Albert, Merlin, Rabadanova, AA, Pallavi, A, Chaitanya, SP, **Sangamesha, M. A.**, Rabadanov, MK, "Dual-responsive magnesium oxide nanocomposites for coupled catalysis and energy generation," Surfaces and Interfaces, pp. 108361, 2025.
16. Sagade Muktar Ahmed, Rumana Farheen, Kumbarakkara Gangadharan, Abhishek, Amini, Sebghatullah, Belur Mohan, Sankarshan, **Madanahalli Ankanathappa, Sangamesha**, Ankanahalli Shankaregowda, Smitha, Sannathammegowda, Krishnaveni, "Economical Polypropylene-Based Triboelectric Nanogenerator for Self-powered Biomechanical Sensor Application," physica status solidi (a), vol. 220.0, no. 3, pp. 2200878, 2023.
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20. Sagade Muktar Ahmed, Rumana Farheen, Mohan, Sankarshan Belur, **Madanahalli Ankanathappa, Sangamesha**, Shivanna, Manjunatha, Viswanathan, Pramila, Manjunatha, Holaly Chandrashekara Shastry, Vidya, Yalekadakalu Shivanna, Chandrasekhar, Arunkumar, Sannathammegowda, Krishnaveni, "Spinach-mediated green synthesized NiFe2O4 nanoparticle-based triboelectric nanogenerator: a smart tollgate controller," ACS Applied Electronic Materials, vol. 5.0, no. 11, pp. 5885-5897, 2023.
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25. Hemanth, BS, Deviprasad, MJ, Shivaswamy, MB, Sumathi, S, Aswathy, R, **Sangamesha, M. A.**, Ananda, AP, Jayanth, HS, Lohith, TN, "Synthesis of citral-tryptamine fused selenium nanospheres (CT@ SeNP's) and exploration of their anticancer, antibacterial, and electrochemical sensor applications," Journal of Molecular Structure, vol. 1310.0, pp. 138240, 2024.
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36. Deviprasad, MJ, Hemanth, BS, Shivaswamy, MB, Nagendra Prasad, HS, Sumathi, Sundaravadivelu, Aswathy, R, **Sangamesha, M. A.**, Ananda, AP, Jayanth, HS, Lohith, TN, "Multifunctional citral–tryptamine conjugated silver nanoparticles (CT@ AgNPs): antibacterial, cytotoxicity, and sensor application," BioNanoScience, vol. 14.0, no. 5, pp. 5106-5121, 2024.
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Book Chapters

1. M. S. Asha, Zabiulla, Othbert Pinto, S. R. Arjun, Alen Eldose, **M. A. Sangamesha**, Metal(II) Complexes as Potential Anticorrosion and Antifouling Agents—A Review, Chapter 13, 30 August 2024, https://doi.org/10.1002/9781394234318.ch13, book Novel Anti-Corrosion and Anti-Fouling Coatings and Thin Films, https://onlinelibrary.wiley.com/doi/abs/10.1002/9781394234318.ch13.

2. Sebghatullah Amini, Rumana Farheen S. M, Sangamesha M. A., Krishnaveni S. (2024), Flexible Polyvinyl Alcohol-Expanded Graphite-based Triboelectric Nanogenerator: Efficient Energy Harvesting for Self-Powered Electronics. ISBN- 978-81-963171-6-4.

3. L Adarsh Raj, Sebghatullah Amini, Rumana Farheen S. M, Sangamesha M. A., Krishnaveni S. (2024), Design, fabrication, and application study of polyvinyl chloride multiwall carbon nanotubes based triboelectric nanogenerators. ISBN- 978-81-963171-6-

Patent

- Patent Granted on "A device to tap black carbon and other particulate matter from diesel engine vehicles" – **372428.**

- Patent published on **"Self-Powered Triboelectric Chemical Sensor Fabricated from Renewable Agro -Waste Materials" -** Application Number: 202441098917, Journal Number: 51/2024, Journal Date: 20-12-2024

Granted Projects

1. Research topic entitled "**Recent Developments in Energy Harvesting and Sustainable Developments"**, sponsored by AICTE Training and Learning (ATAL) for conducting Faculty Development Programme (FDP), Grant amount Rs.**3 Lakhs, Role: Co-PI**.
2. Research topic entitled e-waste to energy: '**Low- cost and environment friendly nanogenerators from e-waste for energy harvesting**', sponsored by Vision Group on Science and Technology, Grant for Research Excellence, Government of Karnataka, India, (GRE/GRDNo.1122/2022-23/643 dated 5th Feb 2024) Grant amount Rs.40 Lakhs, **Role: Co-PI**
3. Research topic entitled "**Biodegradable plastic mulch films from agriculture waste for sustainable**", sponsored by Vision Group on Science and Technology, Research Grant for Scientists/Faculty-(RGS/F)-2021, Government of Karnataka, India Grant amount 3.0Lakhs (Ref: RGS-F/GRD No.968/40/2020-21/917 dated Nov 18,2021), **Role: PI**
4. Research topic entitled "**Synthesis of novel N_2, O_2 schiff base zinc (ii) complexes and their effect on germination, seedling growth of plants**", sponsored by Karnataka State Council for Science and Technology (KSCST), Government of Karnataka, India under "Student Project Programme- 45th Series", **Role: Co-PI**
5. Research topic entitled "**Biodegradable mulching sheet for sustainable agriculture**" sponsored by Karnataka State Council for Science and Technology (KSCST), Government of Karnataka, India, under "Student Project Programme- 44th Series". **(Co-PI)**

6. Research topic entitled "**Economic and energetic device to trap black carbon from diesel engine exhaustion**"- sponsored by Karnataka Biotechnology and Information Technology Services (*KBITS*) Department of IT, BT, Govt. of Karnataka- 2019. Grant Amount Rs2.8Lakhs, Role: **Co-PI.**

PhD SUPERVISION DETAILS:

Sl. No	Student Name	Title	Year of Provisional Registration	Present Status
1	**Poornima S** 4NI20PCY01	Fabrication and Characterization of Polymer Green Composites for Agriculture Applications	December 31, 2021	Comprehensive viva completed
2	**Mizba Tazleem S M** 4NI23PCY01	Synthesis and Characterization of Polymer-based Composite materials for Triboelectric Energy Harvesting	August 2024	
3	**Bhoomika B** 4NI24PCY01	Development of Novel Polymer Composites based triboelectric energy harvester for mechanical energy harvesting applications	May 2025	

Invited Talk delivered

1. Delivered Invited talk on "Preparation of Thin film by non-vacuum method and its characterization" in 13th refresher course in Material Science organized by UGC-Human Resource Development Centre, UOM on 29.09.21.
2. Resource person to 13th refresher course in Material Science organized by UGC-Human Resource Development Centre, UOM on 28.09.21.
3. Delivered Invited talk on carrier guidance to Sri Gurumahantheshwara English Medium School, Hoskote, Mysore on 6th Jan 2024.

Professional Body membership

1. Indian Nuclear Society

Academic Board Membership

1. Member of Board of Examination, Department of Chemistry, and Department of Polymer Science, JSSSTU, Mysore
2. BOS member at Post Graduate studies in chemistry, St. Philomenas College, Mysore
3. Research committee Advisory member to Post Graduate studies in chemistry, St. Philomenas College, Mysore. (2019- till date)

Membership of Editorial Committees of Journals/ Conference

- Reviewer for Journal of Biomedicine & Pharmacotherapy,

- Polymers for Advanced Technologies
- Reviewer for materials today, Proceedings
- Reviewer for International Journal of Nano Dimension
- Reviewer for International Conference on Smart and Sustainable Developments in Materials, Manufacturing and Energy Engineering (SME 2020) (SME-2021)

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