

# CURRENT RESEARCH GROUP

## 1. Monisha M



### Research interest

- ❖ Synthesis of biologically active molecules
- ❖ Design of molecules for fluorescence imaging
- ❖ Fabrication of photodynamic bio-materials
- ❖ Nanomaterials for targeted drug-delivery

### Research area

#### **Novel meso-substituted porphyrins for sensing and photodynamic therapy**

- ❖ Synthesis of *meso*-substituted porphyrins
- ❖ Oxygen sensing of porphyrin incorporated polymer films
- ❖ Photodynamic anti-tumour activity of porphyrins
- ❖ Photodynamic antibacterial inactivation of porphyrin containing polymer membranes

### Publications

1. **Monisha Manathanath**, Maichong Xie, Chellaiah Arunkumar, Zhonggang Wang, Jianzhang Zhao and Subramaniam Sujatha, “Synthesis, Photophysical, Electrochemical *Pigments*, 165, 2019, 117-12
2. **Monisha Manathanath**, Santanu Sasidharan, Prakash Saudagar, Unnikrishnan Gopalakrishna Panicker and Subramaniam Sujatha, “Photodynamic Evaluation of Triazine Appended Porphyrins as Anti-Leishmanial and Anti-tumor Agents”- *Polyhedron*, 217, 2022, 115711

## 2. Jasmin Joseph



### Research interest

- ❖ Preparation and characterization of polymers for biomedical applications
- ❖ Electrospinning of polymers and polymer composites
- ❖ Mechanical characterization of polymeric materials
- ❖ Degradation studies of polymers

### Research area

#### **Preparation and characterisation of polymer based scaffold for tympanic membrane repair**

- ❖ Synthesis of polymer blends
- ❖ Fabrication of electrospun scaffold using natural/synthetic polymers or polymer blends
- ❖ Effect of reinforcing agents on the mechanical properties of scaffold
- ❖ Physico chemical characterization of polymers and scaffolds
- ❖ Preparations of polymer scaffold using other fabrication techniques such as freeze-drying, solvent casting etc and its comparison with electrospun scaffold

## 3. Mekha Mariam Mathew



### Research Interest

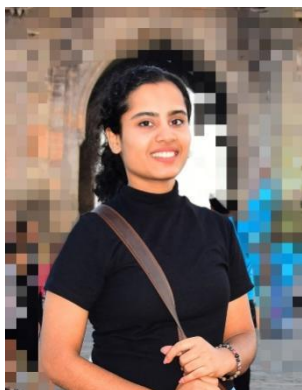
- ❖ Bio-composites
- ❖ Synthesis of biological nanofillers
- ❖ Conductive polymers
- ❖ Electrospun membranes
- ❖ Rheology & colloidal stability of natural rubber latex

### Research Area

#### **Physico-chemical modification of natural rubber latex for biomedical applications**

- ❖ Development and optimization of novel natural rubber latex-based bio-composites
- ❖ Synthesis, characterization and incorporation of biological nanofillers into natural rubber latex
- ❖ Synthesis and characterization of conductive polymers and study of optoelectronic applications
- ❖ Development and optimization of electrospun natural rubber latex membranes for biomedical and purification applications
- ❖ Study of factors affecting rheology and colloidal stability of natural rubber latex

## **4. Gopika M**



### Research Interest

- ❖ Polymer blends and composites
- ❖ Biocompatible polymer nanocomposites
- ❖ Reinforced polymer nanocomposite fibres in biomedical and industrial applications
- ❖ Piezoelectric polymer nanocomposites

### Research Area

#### **Functional Modifications of Millable Polyurethane for Biomedical Applications**

- ❖ Preparation of millable polyurethane (MPU) based blends

- ❖ Development of nanofiller loaded MPU systems
- ❖ Evaluation of spectroscopic, thermal and morphological analysis of prepared polymer blend systems and composites
- ❖ Biocompatibility evaluation
- ❖ Fabrication of suitable devices for biomedical

## 5. Amina Hamnas K M.



### Research Interest

- ❖ Polymer Synthesis and Characterization
- ❖ Synthesis of Polymer Composites
- ❖ Organic Synthesis
- ❖ Rheological Studies on Modified Lubricating Oils.
- ❖ Synthesis of Polymer Modified Bio-lubricants

### Research Area

#### **Novel Biolubricants**

- ❖ Development and Characterization of Novel Bio-lubricants with Vegetable Oils
- ❖ Extraction of Monomers from Vegetable Oils
- ❖ Polymerization of Extracted Monomers
- ❖ Synthesis of Polymer Modified Bio-lubricants
- ❖ Chemical Modification of Lubricants for Better Industrial Applications
- ❖ Synthesis and Characterisation of Nano dispersed Lubricants