

AISWARYA ANIL

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RESEARCH INTERESTS

Polymer Chemistry, 2D materials, Polymer nanocomposite

RESEARCH EXPERIENCE

Project Assistant, School of Energy Materials, Mahatma Gandhi University (2023- 2025)

Industrial project on Polymer Nanocomposites

Project Title: "Reinforcement of mechanical properties of Natural Rubber and Styrene-Butadiene Rubber by incorporating with nanofillers- Experimental and Theoretical approach through material modelling."

- Enhancing the mechanical properties of Natural Rubber and Styrene-butadiene rubber by incorporating reduced graphene oxide and graphene oxide.
- Theoretical analysis of molecular-level interactions and behaviors of rubber nanocomposites.

P.I: Prof. (Dr.) Sabu Thomas, Director, School of Energy Materials, Mahatma Gandhi University, Kottayam, Kerala, India.

Lab Chemist (Trainee), Carborundum Universal Limited, Kerala, India (2023(January-July))

- Graphene production and its chemical exfoliation through modified Hummer's Method.
- Research works on conductive inks with graphene.
- Worked on enhancing the tensile strength of natural rubber, epoxy, and PF-resins by incorporating it with graphene and graphene oxide.
- Investigations on Graphene to improve mechanical, electrical, and thermal characteristics of polypropylene, polyethylene, phenol formaldehyde, etc.

Chegg Q&A Expert (2021 (Part-Time))

(Chegg experts work as online tutors for students across the world.)

EDUCATION

Master of Science(Polymer Chemistry) – (2020 –2022)

Percentage: 91

St. Berchman's College, Changanassery, Kerala, India. Degree awarded by M.G University, Kerala, India

Thesis Title: "***Short Coir Fibre Reinforced Epoxy Composites***".

- Fabrication of short coir fiber reinforced epoxy composites
- Investigation of mechanical properties of the composites.
- Investigation of thermal stability of the composites.

Advisor: Dr. Bejoy Francis, Assistant Professor, Department of Chemistry, St. Berchman's College (Autonomous), Kerala, India.

Bachelor of Science(Chemistry) – (2017 – 2020)

Percentage: 89

St. Dominic's College, Kanjirapally, Kerala, India. Degree awarded by M.G University, Kerala, India.

Intermediate Education (Mathematics, Physics & Chemistry) – (2015 – 2017)

Distinction (95%)

PUBLICATIONS

1. J. Tizhe, **A. Anil**, S. James, M. Joseph, and R. U. Ijimdiya, *Harnessing the potential of nanostructured materials for sustainable development*," Nano-Structures & Nano-Objects, 38 (2024), 101216, doi: 10.1016/j.nanoso.2024.101216.
2. Book Chapter - KE, M. R., **Anil, A.**, Maria, H. J., Nzihou, A., & Thomas, S. (2024). Recent Advances in the Application of Engineered Biochar for Wastewater Treatment. *Catalytic Applications of Biochar for Environmental Remediation: A Green Approach Towards Environment Restoration (Vol 1)*, 45-69.
3. Indian Patent (Filed) Application No: **202441069820** dated 16/09/2024 bearing the title, "*Spray Coagulated Natural Rubber Latex Nanocomposite and Method Thereof*".

CONFERENCES

1. Poster presentation on "**Rubber Nanocomposites with Hybrid Graphene Oxide and Bio-Based Filler for Sustainability: A Review**". National Conference on "Recent Trends in Materials Science and Technology" – 2024, 25-27 June 2024, Department of Chemistry, Indian Institute of Space Science and Technology, Kerala, India.
2. **Researcher Coordinator** of International Conference on "Macromolecules: Synthesis, Morphology, Processing, Structure, Properties, and Applications"-2024, 12-14 January 2024, Mahatma Gandhi University, Kerala, India. Jointly organized by Mahatma Gandhi University, Kerala, India & Universidade de Federal do Rio de Janeiro, Rio de Janeiro, Brazil & Gdansk University of Technology, Gdansk, Poland & Wroclaw University of Technology, Wroclaw, Poland.
3. Oral presentation on "**Processing Morphology-Property Relationships of Reduced Graphene Oxide Rubber Nanocomposites**". International Conference on "Polymers, Composites, Nanocomposites, and Biocomposites" – 2023, 13 December 2023, Mahatma Gandhi University, Kerala, India.

INTERNSHIPS/ TRAINING

- National Institute for Rubber Training, Kottayam– Short-term training on rubber products manufacture and testing, 22 - 26 November 2021.
- CIPET, Kerala, India – Fundamentals of polymer synthesis and characterization techniques, 8 -18 November 2021.
- National Service Scheme(NSS) – Volunteered for NSS during the academic year 2017 – 2019

TECHNICAL SKILLS / EXPERTISE

- Mechanical testing instruments (UTM, Impact tester)
- Microscopic techniques (Optical, SEM, TEM, AFM)
- Thermal analytical techniques (DSC, DMA)
- Spectroscopy (FTIR, UV-Vis, XRD)
- Processability testers (Rubber Process Analyzer, Haake Rheocord, Mooney Viscometer)
- Processing equipment (Two-roll mill, Miniature Internal Mixers: Haake and Brabender, Hydraulic Press for Compression Moulding, Micro Injection Moulding, Twin Screw Extruder)
- Contact Angle measurements, Conductivity measurements, Dielectric measurements, Freeze Drying, Gas Permeability Tester

LANGUAGE SKILLS

- English (IELTS – 6.5)
- Malayalam (Native language)

REFEREES

- Prof (Dr.) Sabu Thomas, Director, School Of Energy Materials, Mahatma Gandhi University, Kottayam Kerala, India
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- Dr. Bejoy Francis, Assistant Professor, Chemistry, St. Berchmans College (Autonomous), Kerala, India
bejoy@sbcollege.ac.in
- Dr. Renjini Joseph, Assistant Professor, Chemistry, St. Dominic's College, Kerala, India
renjinijoseph@sdck.in