UNIVERSITY OF CALCUTTA

Re : Updating University Website

ACADEMIC DEPARTMENT

FACULTY ACADEMIC PROFILE/ CV

1. **Full name of the faculty member**: DR. DEBARATI MITRA
2. **Designation**: Assistant Professor
3. **Specialization** : Petrochemicals & Petroleum Refinery Engineering
4. **Passport size photograph** :

5. **Contact information** :

Department of Chemical Technology,
University of Calcutta,
92 A P C Road, Kolkata – 700009
e.mail: debarati.che@gmail.com

6. **Academic qualifications**:

College/ university from which the degree was obtained	Abbreviation of the degree
University of Calcutta	B. Tech (Chemical)
University of Calcutta	M. Tech (Petrochem. & Petroleum Ref. Engg)
Jadavpur University	Ph. D. (Engineering)

7. **Research interests**:
   - Bio- based products manufacture and characterization
   - Membrane based Separation Process
   - Ionic liquids

8. **Research guidance**:

Number of researchers awarded M.Phil/ Ph.D degrees: Three

Number of researchers pursuing M.Phil/ Ph.D: Four

9. **Projects**:

Completed projects:

1. Preparation of bio-nano composites and study of their biodegradation behavior, CRNN, University of Calcutta.
2. Production of fatty acid derivatives as components of biolubricants, UGC Major Project.
3. Studies on the removal of polyaromatic hydrocarbons from diesel using

pervaporation technique, DST Fast Track, Government of India.

Current projects:

1. Debezenation of model pyrolysis gasoline using pervaporation technique sanctioned by Science & Technology and Biotechnology Department, Government of West Bengal, vide Memo No. **200(Sanc.)/ST/P/S&T/6G-15/2018,** dated 19/02/2019.

10. **Selected list of publications**:

a) ***Journals:***

i. Influence of chlorite treatment on the fine structure of alkali pretreated sugarcane bagasse, **Biomass Conversion and Biorefinery,** (13)567-581 **(**2023) doi:10.1007/s13399-020-01120-2

ii. Model development, simulation and parameter estimation for pervaporative separation of benzene from model pyrolysis gasoline using insitu(nano)silver/polyvinyl alcohol membrane, **Chemical Engineering Communications, (**2022) https://doi.org/10.1080/00986445.2022.2147835

iii. Immobilization of acetate based ionic liquids on silica gel to fabricate a prospective desulfurizing adsorbent, **Soft Materials,** 20(3)(2022)344-357 https://doi.org/10.1080/1539445X.2022.2049307

iv. Studies on sorption kinetics and sorption isotherm for pervaporative separation of benzene from model pyrolysis gasoline using insitu nano silver/polyvinyl alcohol membrane, **Journal of Environmental Science and Health, Part A,** 56(13) (2021) 1397-1408 https://doi.org/10.1080/10934529.2021.2002094

v. Non-catalytic desulfurization of model diesel using synthesized biodegradable ionic liquid, **Energy Sources, Part A: Recovery, Utilization, and Environmental Effects**, (2021) doi: 10.1080/15567036.2021.1966137

vi. Separation of polyaromatic hydrocarbons from model diesel composition via pervaporation using a fabricated aromatic polyimide membrane and process optimization **Journal of Environmental Progress and Sustainable Energy** (2018) doi:10.1002/ep.12881.

vii. Separation of phenanthrene/n-tetradecane mixtures (model diesel) via pervaporation using an aromatic polyimide membrane **Polymer Engineering & Science** 57,4(2017)392-402.

viii. A kinetic study on the Novozyme 435-catalyzed esterification of free fatty acids with octanol to produce octyl esters, **Biotechnology Progress** 31, 6(2015)1494-1499.

ix. Optimization of the product parameters of octyl ester biolubricant using Taguchi's design method and physico-chemical characterization of the product. **Industrial Crops and Products**.52,01(2014)783–789.

x. Biodegradation Behaviour of PMMA/Cellulose Nanocomposites Prepared by In-situ polymerization and Ex-situ Dispersion Methods, **Polymer Degradation & Stability** 98,2(2013)635-642.

b) ***Books/ book chapters :***

- Biomedical Applications of Biocomposites derived from Cellulose, in the book, **Handbook of Bioplastics and Biocomposites Engineering Applications**, **Scrivener Publishing LLC** (2023)251-274
- Particulate Reinforced Composites (Chap – 5) in the book **Toughened Composites – Micro Macro systems, CRC Press,** 1st edition **(**2023)55-68
- Water pollution and Remediation: Organic Pollutants, in the book, **Treatment of Petroleum Hydrocarbon Pollutants in Water, Springer (**2021)54, 229-275
- Green Chromatographic Techniques, in the book **Green Techniques in Gas Chromatography, Springer** (2014)103-121

c) ***Conference/ seminar volumes***:

a) Preparation and characterization of in-situ nano Ag/PVA membrane for debenzenation of model pyrolysis gasoline using pervaporation, Oral Presentation, ICRACACE, Jawahar Lal Nehru Technological University, Hyderabad, 13-15 Dec., 2022

b) Fabrication and Characterization of polyvinyl alcohol based membrane for pervaporative separationj of benzene from model pyrolysis gasoline, International Online Congress on Membrane and Membrane Assisted Processes, Mahatma Gandhi University, Kerala, 12-14 Feb., 2021

c) Preparation and characterization of in-situ nano-silver/polyvinyl alcohol membrane for pervaporative separation of benzene from model pyrolysis gasoline, Poster Presentation, ICMS, 2020, 4-6 March, Tripura University

d) Pervaporative separation of benzene from replicated pyrolysis gasoline by using fabricated polyvinyl alcohol based membrane, Oral Presentation, **CHEMCON 2019**, 15-19 December, 2019

11. **Membership of Learned Societies**:

a) Indian Institute of Chemical Engineers

b) Indian Chemical Society

c) Indian Science Congress

12. **Patent:**

AQUAPLUS: A HUMIDITY DEPENDENT WATER EXTRACTION METHOD

Inventors

Ramesh Chandra Panda, Sandeepan Saha, Mahuya Das, Nadeem Ahmad Khan, Debayan Mandal, Sudhanshu Singh, Nitesh Singh Rajput, Tanay Pramanik, Moumita Pramanik, Souvik Mondal, Debarati Mitra, Subhojit Kundu, Mohammad Khan, Afzal Husain and Saood Manzar

Publication date 2021/4/21, Patent office Australia, Patent number 2021100831

13. **Invited lectures delivered:**

1. "Pervaporative removal of polyaromatic hydrocarbons from model diesel composition using a fabricated polyimide membrane and process optimization" in 2nd International Conference and Expo on **Separation Techniques,** September 26-28, 2016 Valencia, Spain.

14. **Awards:**

i. **DST Fast Track Young Scientist Award**

Debarati Mitra

Signature of the faculty member

Date:10/02/2023