

dr. Dibyendu Mondal

Institute of Plant Genetics of the Polish Academy of Sciences

ACADEMIC AND RESEARCH CAREER

The main research areas of dr. Mondal focus on the sustainable processes for the value addition of bio resources within the bio refinery concept. Other research activities in his group include green solvent mediated extraction and purification and packaging of biomolecules. He is also fascinated with the design of bioinspired materials for targeted applications including, bioenergy, biocatalysis, biofertilizers, water purification, and protein packaging.

- ERA chair (September 2021 to till date): NANOPLANT, Department of Plant Nanotechnology, IPG PAS, Poznan, Poland
- Assistant professor (2017-2021): Centre for Nano and Material Sciences, Jain University, Bangalore, India
- Postdoctoral research (2015-2017): CICECO-Aveiro Institute of Materials, University of Aveiro, Portugal.
- PhD, Chemical Science (2011-2015): CSIR-CSMCRI, Thesis title: Study of bioresources for energy and advanced material: A sustainable point of view, Guide: Prof. Pushpito K. Ghosh; Co-guide: Dr. K. Prasad
- MSc, Chemistry (2009-2011): IIT-Guwahati

Research experience: 6 yrs after PhD

- Paper published: 64 in international peer reviewed journals (20 as corresponding author since 2017) with cumulative IF >440 and Avg IF= ~7 Total citation 2015; h-index 24.
- Patent: 15 patent applications (5 granted; 4 as PI)
- Book chapter: 5; Conferences: >40; Invited talk: 6
- Experience on the organization of 2 international conferences as a Co-convenor and coordinator

Awards: • CSIR-NET Fellowship, 2010 & 2011; • 3 best poster and 1 best oral presentation

• FCT-Portugal postdoc fellowship, 2017; • Member of Royal Society of Chemistry (*MRSC*)

MAJOR RESEARCH PROJECTS

- As PI: Improving the activity and stability of nanogel caged enzymes in presence of neoteric solvents for facile biocatalysis (DST-India, completed)
- As Co-PI: Biomass derived heteroatom doped graphene and hard carbon composites for energy storage applications (DST-India)
- As a researcher: IgY Technology: A Purification Platform using Ionic-Liquid-Based Aqueous Biphasic Systems (ERC starting grant, completed)
- As a team member: Seeking (A) improvements in ethanol production from *K. alvarezii* through scientific understanding of saccharification of the polysaccharides and fermentation of derived sugar(s), and (B) improved understanding of *K. alvarezii* sap (CSIR, completed)

RESEARCH VISITS

From 2015-2017: Postdoctoral researcher in an ERC funded project at CICECO-Aveiro Institute of Materials, University of Aveiro.

PUBLICATION (5 MAJOR PUBLICATIONS, LAST 5 YEARS)

1. S. M. Shet, M. Bisht, S. Pramanik, S. Roy, Sarath Kumar T., S. K. Nataraj, **D. Mondal***, S. Bhandari, Engineering Quantum Dots with Ionic Liquid: A Multifunctional White Light Emitting Hydrogel for Enzyme Packaging, *Adv. Optical Mater.* **2020**, 1902022
2. Kavya B., Meena Bisht, P. Venkatesu, **D. Mondal*** “Designing biological fluid inspired molecularly crowded ionic liquid media as sustainable packaging platform for Cytochrome C”, *Chemical Communication*, **2019**, 55, 5747-5750.
3. Manohara H. M., Supratim C., Kanakaraj A., D. Ghosh, N. Singh, K. Prasad, D. Kalpana, S. K. Nataraj, **D. Mondal*** “Engineering Fe-doped highly oxygenated solvothermal carbon from glucose based eutectic system as active microcleaner and efficient carbocatalyst”, *Journal of Material Chemistry A*, **2019**, 7, 4988-4997.
4. Nidhi M. R., Kanakaraj A., Ashesh Mahto, Vibha Sharma, D. Deepika, **D. Mondal,*** SK Nataraj “Low operating pressure nanofiltration membrane with functionalized natural nanoclay as antifouling and flux promoting agent” *Chemical Engineering Journal*, **2019**, 358, 821-830.
5. K. Aruchamy, M. Bisht, P. Venkatesu, D. Kalpana, Nidhi M. R., N. Singh, D. Ghosh, **D. Mondal,*** S. K. Nataraj “Direct conversion of lignocellulosic biomass to biomimetic dendril- like functional carbon helices: a protein friendly host for cytochrome C” *Green Chemistry* **2018**, 20, 3711-3716