Pritiranjan Mondal, Ph.D.
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Education

Ph.D. (Biomaterials and Tissue engineering)	Aug. 2018 – July 2024
Department of Materials Engineering, Indian Institute of Science	Bengaluru, India
M. Tech. (Materials Science & Engineering)	Aug. 2016 – July 2018
Materials Science Centre, Indian Institute of Technology, Kharagpur	Kharagpur, India
M.Sc. (Applied Chemistry)	July 2014 – July 2016
Ramakrishna Mission Vidyamandira (University of Calcutta)	Howrah, India
B.Sc. (Industrial Chemistry)	July 2011 – July 2014
Ramakrishna Mission Vidyamandira (University of Calcutta)	Howrah, India

Projects and research

Multifunctional hydrogels with injectable, self-healing, and shape-morphing capabilities for biomedical applications	Aug. 2018 – July 2024
Department of Materials Engineering, Indian Institute of Science	Bengaluru, India
Directed self-assembly of anisotropic plasmonic building blocks into smectic crystalline phases	July 2017 – Mar. 2018
Plasmonic functional surfaces, Leibniz Institute of Polymer Research	Dresden, Germany
Metamorphosis of Ruthenium-Doped Carbon Dots: In Search of the Origin of Photoluminescence and Beyond	Aug. 2015 – July 2016
Chemical Science division, Saha Institute of Nuclear Physics	Kolkata, India
SERS-based ppt level Hg^{2+} sensing from ground water	Aug. 2013 – July 2014
Chemical Science division, Saha Institute of Nuclear Physics	Kolkata, India

Academic Achievement

Graduate Aptitude Test in Engineering (GATE) All India Rank 96 & 79	2016 & 2017
Ministry of Human Resource Development, Government of India	
DAAD scholarship holder (DAAD-IIT Masters Sandwich fellow)	2017 -2018
DAAD - Deutscher Akademischer Austauschdienst (Germany)	
Silver medalist for First class second in the institute	2016
M.sc (University of Calcutta)	

List of Patents

1. **Mondal, P.**, Mandal A., Chatterjee, K. (2024) A printable conducting ink composition, a three-dimensional hydrogel, and implementations thereof (Indian Patent No. 202441019308). IPTel India office
2. **Mondal, P.**, Mandal A., Chatterjee, K. (2023) A 4D Printed Hydrogel, Method of Preparation, And Implementations Thereof (Indian Patent No. 202341028595). IPTel India office
3. Kumari, S., **Mondal, P.**, Chatterjee, K. (2023). A Photocurable Ink Composition for Bioprinting and Methods Thereof (Indian Patent No. 202341018932). IPTel India office.
4. Chakraborty, I., **Mondal, P.**, Maity. S., Chatterjee, K., and Bose, S. (2021). A method for preparation of Polyurethane composite material and composites thereof (Indian Patent No. 202141038867). IPTel India office.

Key Research articles (Google scholar)

1. **Mondal, P.**, Mandal, A. and Chatterjee, K., 2024. "All-in-one" ink for light-based 4D printing of conducting, tough, anti-freezing, and cytocompatible hydrogels. ***Chemical Engineering Journal***, p.153883.
2. **Mondal, P.** and Chatterjee, K., 2024. Multibiofunctional Self-healing Adhesive Injectable Nanocomposite Polysaccharide Hydrogel. ***Biomacromolecules***.
3. **Mondal, P.**, Mandal, A. and Chatterjee, K., 2023. Bi-Directional Shape Morphing in 4D-Bioprinted Hydrogels on a Single Stimulation. ***Advanced Materials Technologies***, 8(19), p.2300894.
4. **Mondal, P.** and Chatterjee, K., 2022. Injectable and self-healing double network polysaccharide hydrogel as a minimally-invasive delivery platform. ***Carbohydrate Polymers***, 291, p.119585.
5. Kumari, S., **Mondal, P.**, Tyeb, S. and Chatterjee, K., 2024. Visible light-based 3D bioprinted composite scaffolds of κ-carrageenan for bone tissue engineering applications. ***Journal of Materials Chemistry B***, 12(7), pp.1926-1936.
6. Kumari, S., **Mondal, P.** and Chatterjee, K., 2022. Digital light processing-based 3D bioprinting of κ-carrageenan hydrogels for engineering cell-loaded tissue scaffolds. ***Carbohydrate Polymers***, 290, p.119508.
7. Rajput, M., **Mondal, P.**, Yadav, P. and Chatterjee, K., 2022. Light-based 3D bioprinting of bone tissue scaffolds with tunable mechanical properties and architecture from photocurable silk fibroin. ***International Journal of Biological Macromolecules***, 202, pp.644-656.
8. Ghosh, S., **Mondal, P.**, Vel, B.R. and Chatterjee, K., 2020. Effect of dual crosslinking on physico-chemical properties of hydrogels prepared from chitosan and alginate. ***Journal of Metallurgy and Materials Science***, 62(3and4), pp.31-40.

Review articles

1. **Mondal, P.**, Chakraborty, I. and Chatterjee, K., 2022. Injectable Adhesive Hydrogels for Soft tissue Reconstruction: A Materials Chemistry Perspective. ***The Chemical Record***, 22(11),p.e202200155.

Media Coverage

- (**The Hindu**) https://epaper.thehindu.com/Home/ShareArticle?OrgId=GM690B4FJ.1
- **(News18)** https://www.news18.com/news/education-career/iisc-researchers-develop-substitute-to-plastic-usingagricultural-stubble-4250513.html
- **(Deccan Herald)** https://www.deccanherald.com/city/new-polymer-could-solve-stubble-burning-plastic-waste-1036438.html
- **(The apn news)** https://www.apnnews.com/tata-steel-announces-the-winners-of-the-second-edition-of-materialnext-programme/

Technical skills

- **Expertise:** Chemical synthesis, Materials Chemistry, Polymer chemistry, Nanoparticles synthesis
- **Advance instrument and Software**: DLP 3D printing (Lumen X, Cellink), Extrusion 3D printing (Bio X, Cellink), 3D modelling software, namely Solid works, 3D builder, 3D slicer
- **Instruments handling:** Scanning electron microscope (SEM), X-Ray diffraction analysis (XRD), Rheological analysis and handling rheometer facilities, Universal testing machine (UTM), Dynamic mechanical analysis (DMA), Thermogravimetric analysis (TGA), Differential scanning calorimeter (DSC), Contact angle goniometer
- **Microbiological methods:** Bacterial and Mammalian cell culture (2D and 3D), Cell encapsulation and bioprinting, Histological, biochemical and immunocytochemical assays

Conferences and Presentations

Materials today conference, Elsevier (Poster) Aug. 2023

Expo, Singapore

International Workshop on Advanced Materials (IWAM) (Talk) Feb. 2023
Dubai, United Arab Emirates

International Conference on Functional Materials (ICFM) (Poster) Dec. 2017
IIT Kharagpur, India

Teaching assistantships

Introduction to Biomaterials Jan. 2021 – May 2021
Department of Materials Engineering, IISc

Community involvement

Member of department wellness committee Aug. 2020 – July 2022

Department of Materials Engineering, IISc

Convenors of department 33rd Students' symposium Jan. 2020

Department of Materials Engineering, IISc

Member of department curriculum committee (DCC) Aug. 2021- July 2022

Department of Materials Engineering, IISc

Member of Bengali cultural committee March 2019- July 2021

Spandan, IISc

Member of student mess committee Aug. 2020 -July 2021

IISc

List of referees

1. Prof. Kaushik Chatterjee
   Chair, Department of Bioengineering
   Professor of Materials Engineering & Bioengineering
   Phone: +91-80-2293-3408
   Email: kchattejee@iisc.ac.in
   https://sites.google.com/site/iiscbiomaterials/

2. Prof. Prof. Suryasarathi Bose
   Professor, Department of Materials Engineering
   Indian Institute of Science (IISc)
   Phone: +91-80-22933407
   Email: sbose@iisc.ac.in
   https://sites.google.com/site/polymerprocessinggroup/group-members

3. Prof. Satyam Suwas
   Chair, Department of Materials Engineering
   Indian Institute of Science (IISc)
   Phone: +91-(0)80-2293 3245
   Email: satyamsuwas@iisc.ac.in
   https://materials.iisc.ac.in/~satyamsuwas/index.html