

Dr. Chanchal Mondal

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Career objective:

To attain a position that provides opportunity to use my scientific knowledge.

Biographical information:

Date of Birth: 15th June 1989

Nationality: Indian

Sex: Male

Languages known: English, Bengali, Hindi

Education:

- **2015- Till date: Assistant professor in chemistry at Mathabhanga College**
- **2011- 2015:** Doctor of Philosophy in Chemistry (**Indian Institute of Technology Kharagpur**)---- **Title: Morphology Controlled Synthesis of Nanostructured Materials for Their Photocatalytic and Supercapacitor Applications**
- **2009-2011:** Master of Science in Chemistry (**Indian Institute of Technology Kharagpur**)
 - **CGPA obtained : 8.41**
- **2006-2009:** Bachelor of Science in Chemistry (**The University of Burdwan**)
 - **% of marks obtained: 70.875%**
- **2004-2006:** Higher Secondary Examination (W.B.C.H.S.E)
 - **% of marks obtained: 83.7%**
- **2002-2004:** Secondary Examination (W.B.B.S.E)
 - **% of marks obtained:87.375%**

Awards & Honors:

- Qualified CSIR-UGC NET for CSIR fellowship and Lecturer ship in Chemical Sciences, University Grant Commission, New Delhi, held in June, 2010.
- □ Qualified CSIR-UGC NET for CSIR fellowship and Lecturer ship in Chemical Sciences, University Grant Commission, New Delhi, held in December, 2010.
- Qualified GATE 2011 in Chemistry held in 2011.

Extracurricular Activity:

- G. Sec. Mess, Hall Council, B. C. Roy Hall of Residence.
- President, Hall Council, B. C. Roy Hall of Residence.

Research Area:

- Materials Chemistry.
- Nanocomposites .
- Fabrication of Morphologically different Metal oxides, Composite materials and Mixed metal oxides.
- Supercapacitor fabrication.

- Carbonaceous material e.g., MWCNT.
- Energy Storage materials.
- Environmental remediation.
- Adsorption processes for Abatement of Dyes and heavy metal ions from the Environment.
- Photocatalysis for Removal of environmentally hazardous (dye molecules, aqueous Cr (VI)) from the Environment.
- Metal and Metal oxide Thin film fabrication on various substrates by chemical process.
- Fabrication of Superhydrophobic Templates for various applications.
- Preparation of Inorganic Gel from Simple Molecular Frame work.

Research Experiences:

1. Synthesis of nano and micro structured material for supercapacitor application.
2. Preparation of nanocomposites based on MWCNT via chemical method.
3. Hydrothermal synthesis of various metal oxides/hydroxides with various morphologies and their composites with MWCNT.
4. Synthesis of metal semiconductor composite material (plasmonic photocatalyst) for photocatalysis under visible light exposure.
5. Synthesis of sulfide materials for photocatalytic reduction of aqueous Cr(VI) under visible light.
6. Mixed metal oxide synthesis for photocatalysis and magnetic moment measurement.
7. Plasmonic photocatalyst and engineered photocatalyst with heterojunction for improved catalysis under visible light.
8. Synthesis of porous material (gel) for dye and heavy metal ion adsorption for environmental remediation.
9. Thin film fabrication for self-cleaning, water repellent character and oil-water separation.

Instrument proficiencies

- UV-visible spectrophotometer.
- X-ray diffraction (XRD).
- FTIR.
- Electrochemical Work Station.
- Raman instrument.

Research Interests:

- Synthesis and functionalization of carbonaceous material on semiconductor and pseudocapacitor.
- Tailoring of various morphologies of conducting polymers and study their morphology dependent electrochemical property.
- Synthesis of nanocomposites based on conducting polymer, Graphene/Carbon Nanotubes with metal oxide/hydroxides/mixed metal oxide/metal sulfide for high performance supercapacitor application.
- Synthesis of electrode material and fabrication of flexible hybrid supercapacitor (supercabattery) of generation II.
- Fabrication of printable Supercapacitor.
- Li ion battery.
- Study of polymeric gel electrolyte for flexible supercapacitor.
- Synthesis of nanocomposites based on conducting polymer/Graphene/Carbon Nanotubes and semiconductor metal oxide/mixed metal oxide for enhanced photocatalysis.
- Synthesis of porous material for removal of dye molecules through adsorption on the nanomaterial.
- Synthesis of functional nanomaterials for enhanced visible light driven H₂ production activity through water splitting.
- Dye sensitised solar cell.

International Conference:

- Poster presented at Department of Chemistry, IIT Kharagpur, **Diamond Jubilee Symposium on Recent Trends in Chemistry (DJSRTC-2011), Kharagpur.**

National Conference:

- Poster presented at the S. N. Bose National Centre for Basic Sciences, Kolkata, **NANODAYS 2015.**

List of Publications

1. **Mondal, C.**; Ganguly, M.; Pal, J.; Sahoo, R.; Sinha, A. K.; Pal, T. Pure Inorganic Gel: a New Host with Tremendous Sorption Capability. *Chem. Commun.* **2013**, *49*, 9428-9430.
2. **Mondal, C.**; Ganguly, M.; Manna, P. K.; Yusuf, S. M.; Pal, T. Fabrication of Porous β -Co(OH)₂ Architecture at Room Temperature: a High Performance Supercapacitor. *Langmuir* **2013**, *29*, 9179-9187.
3. **Mondal, C.**; Ganguly, M.; Pal, J.; Roy, A.; Jana, J.; Pal, T. Morphology Controlled Synthesis of SnS₂ Nanomaterial for Promoting Photocatalytic Reduction of Aqueous Cr (VI) under Visible Light. *Langmuir* **2014**, *30*, 4157-4164.
4. **Mondal, C.**; Pal, J.; Pal, K. K.; Sasmal, A. K.; Ganguly, M.; Roy, A.; Manna, P. K.; Pal, T. Serendipitous Synthesis of Ag_{1.92}Mo₃O₁₀. H₂O Nanowire from AgNO₃ Assisted Etching of Ammonium Phosphomolybdate: A Material with High Adsorption Capacity. *Cryst. Growth Des.* **2014**, *14*, 5034–5041.

5. **Mondal, C.**; Ganguly, M.; Sinha, A. K.; Pal, J.; Pal, T. Fabrication of a ZnO Nanocolumnar Thin Film on a Glass Slide and its Reversible Switching from a Superhydrophobic to a Superhydrophilic state. *RSC Adv.* **2013**, *3*, 5937-5944.
6. **Mondal, C.**; Ganguly, M.; Sinha, A. K.; Pal, J.; Sahoo, R.; Pal, T. Robust Cubooctahedron Zn₃V₂O₈ in Gram Quantity: a Material for Photocatalytic Dye Degradation in Water. *CrystEngComm* **2013**, *15*, 6745-6751.
7. **Mondal, C.**; Pal, J.; Ganguly, M.; Sinha, A. K.; Jana, J.; Pal, T. A One Pot Synthesis of Au–ZnO Nanocomposites for Plasmon-enhanced Sunlight Driven Photocatalytic Activity. *NJC* **2014**, *38*, 2999–3005.
8. **Mondal, C.**; Sinha, A. K.; Ganguly, M.; Pal, J.; Dhara, S.; Negishi, Y.; Pal, T. Deposition of Zinc Oxide Nanomaterial on Different Substrates for Useful Applications. *CrystEngComm* **2014**, *16*, 4322-4328.
9. **Mondal, C.**; Sasmal, A. K.; Yusuf, S. M.; Mukadam, M. D.; Pal, J.; Ganguly, M.; Pal, T. Modified Hydrothermal Reaction (MHT) for CoV₂O₆.4H₂O Nanowire Formation and the Transformation to CoV₂O₆.2H₂O Single-crystals for Antiferromagnetic Ordering and Spin-flop. *RSC Adv.* **2014**, *4*, 56977–56983.
10. **Mondal, C.**; Singh, A.; Sahoo, R.; Sasmal, A. K.; Pal, T. Preformed ZnS Nanoflower Prompted Evolution of CuS/ZnS p-n Heterojunction for Exceptional Visible Light Driven Photocatalytic Activity. *New J. Chem.* **2015**, *39*, 5628-5635.
11. **Mondal, C.**; Ghosh, D.; Aditya, T.; Sasmal, A. K.; Pal, T. Mn₃O₄ Nanoparticles Anchored to Multiwall Carbon Nanotubes: A Distinctive Synergism for High Performance supercapacitor. *New J. Chem.* **2015**, *39*, 8373-8380.
12. **Mondal, C.**; Ghosh, D.; Ganguly, M.; Sasmal, A. K.; Pal, T. Synthesis of Multiwall Carbon Nanotube Wrapped Co(OH)₂ Flakes: A High-Performance Supercapacitor. *Appl. Surf. Sci.* **2015**, *359*, 500–507.
13. Sasmal, A. K.; **Mondal, C.**; Sinha, A. K.; Gauri, S. S.; Pal, J.; Aditya, T.; Ganguly, M.; Dey, S.; Pal, T. Fabrication of Superhydrophobic Copper Surface on Various Substrates for Roll-off, Self-Cleaning, and Water/Oil Separation. *ACS Appl. Mater. Interfaces* **2014**, *6*, 22034–22043.
14. Ganguly, M.; **Mondal, C.**; Jana, J.; Pal, A.; Pal, T. Selective Dopamine Chemosensing Using Silver-Enhanced Fluorescence. *Langmuir* **2014**, *30*, 4120-4128.
15. Pal, J.; **Mondal, C.**; Sasmal, A. K.; Ganguly, M.; Negishi, Y.; Pal, T. Account of Nitroarene Reduction with Size and Facet Controlled CuO-MnO₂ Nanocomposites. *ACS appl. Mater. interfaces* **2014**, *6*, 9173–9184.
16. Ganguly, M.; **Mondal, C.**; Jana, J.; Pal, A.; Pal, T. Photoproduced Fluorescent Au (i)@(Ag₂/Ag₃)-thiolate Giant Cluster: an Intriguing Sensing Platform for DMSO and Pb (II). *Langmuir* **2014**, *30*, 348-357.
17. Ganguly, M.; **Mondal, C.**; Chowdhury, J.; Pal, J.; Pal, A.; Pal, T. The Tuning of Metal Enhanced Fluorescence for Sensing Applications. *Dalton Trans.* **2014**, *43*, 1032-1047.
18. Ganguly, M.; **Mondal, C.**; Pal, J.; Pal, A.; Negishi, Y.; Pal, T. Fluorescent Au(i)@Ag₂/Ag₃ Giant Cluster for Selective Sensing of Mercury (II) Ion. *Dalton Trans.* **2014**, *43*, 11557–11565.

19. Ganguly, M.; **Mondal, C.**; Pal, A.; Pratik, S. M.; Pal, J.; Pal, T. Aggregation of Nitroaniline in Tetrahydrofuran through Intriguing H-bond Formation by Sodium Borohydride. *Phys. Chem. Chem. Phys.* **2014**, *16*, 12865-12874.
20. Pal, J.; Ganguly, M.; **Mondal, C.**; Negishi, Y.; Pal, T. Precursor Salt Assisted Syntheses of High-index Faceted Concave Hexagon and Nanorod-like Polyoxometalates. *Nanoscale* **2015**, *7*, 708–719.
21. Ganguly, M.; Pal, J.; **Mondal, C.**; Pal, A.; Pal, T. Intriguing Manipulation of Metal-Enhanced Fluorescence for the Detection of Cu(II) and Cysteine. *Chem. Eur. J.* **2014**, *20*, 12470 – 12476.
22. Pal, J.; Ganguly, M.; **Mondal, C.**; Roy, A.; Negishi, Y.; Pal, T. Crystal-Plane-Dependent Etching of Cuprous Oxide Nanoparticles of Varied Shapes and Their Application in Visible Light Photocatalysis. *J. Phys. Chem. C* **2013**, *117*, 24640–24653.
23. Ganguly, M.; Jana, J.; **Mondal, C.**; Pal, A.; Pal, T. Green Synthesis of Highly Fluorescent Au(i)@Ag₂/Ag₃-thiolate Core-shell Particles for Selective Detection of Cysteine and Pb (ii). *Phys. Chem. Chem. Phys.* **2014**, *16*, 18185-18197.
24. Ganguly, M.; Pal, J.; **Mondal, C.**; Pal, A.; Pal, T. Imine (-CH=N-) Brings Selectivity for Silver Enhanced Fluorescence. *Dalton Trans.* **2015**, *44*, 4370–4379.
25. Sahoo, R.; Roy, A.; Ray, C.; **Mondal, C.**; Negishi, Y.; Yusuf, S. M.; Pal, A.; Pal, T. Decoration of Fe₃O₄ Base Material with Pd Loaded CdS Nanoparticle for Superior Photocatalytic Efficiency. *J. Phys. Chem. C* **2014**, *118*, 11485-11494.
26. Ganguly, M.; Pal, J.; Das, S.; **Mondal, C.**; Pal, A.; Negishi, Y.; Pal, T. Green Synthesis and Reversible Dispersion of a Giant Fluorescent Cluster in Solid and Liquid Phase. *Langmuir* **2013**, *29*, 10945-10958.
27. Sinha, A. K.; Manna, P. K.; Pradhan, M.; **Mondal, C.**; Yusuf, S. M.; Pal, T. Tin Oxide with a p-n Heterojunction Ensures both UV and Visible Light Photocatalytic Activity. *RSC Adv.* **2014**, *4*, 208-211.
28. Pal, J.; Ganguly, M.; Dutta, S.; **Mondal, C.**; Negishi, Y.; Pal, T. Hierarchical Au–CuO Nanocomposite from Redox Transformation Reaction for Surface Enhanced Raman Scattering and Clock Reaction. *CrystEngComm* **2014**, *16*, 883-893.
29. Basu, M.; Sinha, A. K.; Pradhan, M.; Sarkar, S.; Pal, A.; **Mondal, C.**; Pal, T. Methylene Blue–Cu₂O Reaction Made Easy in Acidic Medium. *J. Phys. Chem. C* **2012**, *116*, 25741-25747.
30. Recent Progress in Copper Based Photocatalysts: (A-Review). Mondal. C.; Oriental Journal of Chemistry, 2024, Vol 40, Issue 2, p374
- 31. Developing High-Performance Flexible Zinc Ion Capacitors from Agricultural Waste-Derived Carbon Sheets; Pooja B. Naik; Prahlad Yadav; Radha Nagaraj; Rangaswamy Puttaswamy; Hemanth Kumar Beere; Uday Narayan Maiti; Chanchal Mondal; Nataraj Sanna Kotrappanavar; Debasis Ghosh; *ACS Sustainable Chem. Eng.* 2022, 10, 4, 1471–1481

The above information are true and can be proved if demanded. If anything is found to be wrong I will be liable for that and any punish is welcome from the authority.

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