

# **CURRICULUM VITAE**

**ARUNDHATI BHOWMICK, Ph.D.**

## **ADDRESS FOR COMMUNICATIONS**

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## **EDUCATIONAL QUALIFICATIONS**

- **Doctor of Philosophy (Ph. D.) (Tech.)** (Degree Awarded: 19/05/2017) in Polymer Science and Technology from the **University of Calcutta, West Bengal, India**
- **Master of Science (Chemistry)** with thesis, **The University of South Dakota, South Dakota, USA, 2011.**
- **Bachelor of Science, The University of Burdwan, India, 2006.**
- **Higher Secondary Examination (Science),** West Bengal Council of Higher Secondary Education, India, 2003.
- **Secondary Examination,** West Bengal Board of Secondary Education, India, 2001.

## **EXPERIENCE**

- **Assistant Professor-I: July 2025 to Present;** Department of Chemistry, Adamas University, India
- **Principal Investigator, DST-Women Scientist-A Fellow, GOI: May 2023 to July 2025;** Department of Polymer Science and Technology, University of Calcutta, India.
- **Assistant Professor: September 2012- May 2017;** Department of Chemistry, D.L.S. P.G. College, Bilaspur, CG, INDIA (affiliated to Bilaspur University), India.

## **AWARDS AND HONORS**

- Awarded **“Best Teaching Assistant”** of the 2010-2011 Academic Year by the department of Chemistry at the **University of South Dakota, USA.**
- Awarded **“Best Paper Presenter”** among young research scholar at the National Conference on “Recent Trends in Chemistry (RTC-2012)”- January 23-25, 2012, **Sikkim Manipal Institute of Technology, Sikkim, India.**
- Awarded **“Junior Research Fellowship”** from April 2012 to December 2012 by **“National Institute for the Orthopaedically Handicapped(NIOH)”, Kolkata, India**

## **RESEARCH EXPERIENCE**

- **Masters Research**: Department of Chemistry, The University of South Dakota, South Dakota, USA under the supervision of Prof. Andrew Sykes (January 2010-August 2011).

**Master's Thesis Title:** *“Development of Imine Based Fluorescent Chemosensors for Selective Detection of Metal Ions”*

**Research Highlights:**

- Synthesized anthraquinone-crown ether based imine derivatives based fluorescence chemosensor for selective detection of barium ion (*Journal of Organic Chemistry*, **2011**, 76 (19), 7866-7871)
- Synthesized imine-enamine based organic fluorescence chemosensors for the detection of zinc (II) metal ion (*Organic Letters*, **2012**, 14 (11), 2698–2701.)

- **Ph.D. Research**: Department of Polymer Science and Technology, The University of Calcutta, India (June 2012- May 2017).

**Ph.D. Thesis Title:** *“Development of Bioactive Polymer/Hydroxyapatite (Nano) Composites for Bone Tissue Engineering”*

**Research Highlights:**

- Design and development of various metal oxide doped chitosan-polymer-hydroxyapatite nanocomposites hybrid materials
- Investigation of physicochemical, mechanical, antimicrobial, pH and osteoblastic cell proliferation studies of synthesized nanocomposites for bone tissue engineering applications

(Papers published in “RSC Advances”, “New Journal of Chemistry”, “Carbohydrate Polymers”, “International Journal of Biological Macromolecules”, “Advances in Polymer Technology”, “Advances in Polymer Science”)

## **SUMMARY OF RESEARCH PUBLICATIONS**

No of publication in international peer-reviewed journals	:	14
Total impact factor	:	72.985
Total number of citation	:	461
h-index	:	11

## LIST OF RESEARCH PUBLICATIONS IN PEER-REVIEWED JOURNALS

### A. Research Publications From Master Thesis:

1. P. N. Basa, A. Bhowmick, L. M. Horn, A. G. Sykes. Zinc(II) Mediated Imine-Enamine Tautomerization- *Organic Letters*, **2012**, 14 (11), 2698–2701. (Impact Factor: 4.9).
2. P. N. Basa, A. Bhowmick, M. M. Schulz, A. G. Sykes. Site-Selective Imination of an Anthracenone Sensor: Selective Fluorescence Detection of Barium(II)- *The Journal of Organic Chemistry*, **2011**, 76 (19), 7866-7871. (Impact Factor: 3.4).

### B. Research Publications from PhD Thesis:

3. A. Bhowmick, S. L. Banerjee, N. Pramanik, P. Jana, T. Mitra, A. Gnanamani, M. Das, P. P Kundu. Organically modified clay supported chitosan/hydroxyapatite-zinc oxide nanocomposites with enhanced mechanical and biological properties for the application in bone tissue engineering- *International Journal of Biological Macromolecules*, **2018**, 106, 11-19. (Impact Factor: 7.7)
4. A. Bhowmick, N. Pramanik, T. Mitra, A. Gnanamani, M. Das, P. P Kundu. Mechanical and biological investigations of chitosan-polyvinyl alcohol based ZrO<sub>2</sub> doped porous hybrid composites for bone tissue engineering applications - *New Journal of Chemistry*, **2017**, 41, 7524-7530. (Impact Factor: 2.7)
5. A. Bhowmick, N. Pramanik, T. Mitra, A. Gnanamani, M. Das, P. P Kundu. Fabrication of porous magnetic nanocomposites for bone tissue engineering- *New Journal of Chemistry*, **2017**, 41, 190-97. (Impact Factor: 2.7)
6. A. Bhowmick, N. Pramanik, P. Jana, T. Mitra, A. Gnanamani, M. Das, P. P Kundu. Development of bone-like zirconium oxide nanoceramic modified chitosan based porous nanocomposites for biomedical application- *International Journal of Biological Macromolecules*, **2017**, 95, 348-356. (Impact Factor: 7.7)
7. A. Bhowmick, P. Jana, N. Pramanik, T. Mitra, S. L. Banerjee, A. Gnanamani, M. Das, P. P. Kundu. Multifunctional zirconium oxide doped chitosan based hybrid nanocomposites as bone tissue engineering materials- *Carbohydrate Polymers*, **2016**, 151, 879-888. (Impact Factor: 10.7)
8. A. Bhowmick, T. Mitra, A. Gnanamani, M. Das, P. P. Kundu. Development of biomimetic nanocomposites as bone extracellular matrix for human osteoblastic cells- *Carbohydrate Polymers*, **2016**, 141, 82-91. (Impact Factor: 10.7)

9. **A. Bhowmick**, D. Weatherman, P. P. Kundu, A. G Sykes. Polypyrrole-Coated Magnetite Fe<sub>3</sub>O<sub>4</sub> Nanoparticles Containing an Anthraquinone Crown Ether Macrocycle Used for the Extraction of Cu (II) Ion from Water- *Advances in Polymer Technology*, **2016**, 21661, 10.1002/adv.21661. **(Impact Factor: 2.0)**
10. **A. Bhowmick**, N. Pramanik, P. J. Manna, T. Mitra, T. K. R. Selvaraj, A. Gnanamani, M. Das, P. P Kundu. Development of porous and antimicrobial CTS–PEG–HAP–ZnO nano-composites for bone tissue engineering- *RSC Advances*, **2015**, 5, 99385-99393. **(Impact Factor: 3.9)**
11. **A. Bhowmick**, A. Saha, N. Pramanik, S. Banerjee, M. Das, P. P. Kundu. Novel magnetic antimicrobial nanocomposites for bone tissue engineering applications- *RSC Advances*, **2015**, 5, 25437-25445. **(Impact Factor: 3.9)**
12. **A. Bhowmick**, R. Kumar, M. Das, P. P. Kundu. Multicomponent Fabrication of Bone-like Composite Materials Using Chitosan/ PMMA-co-PHEMA/Hydroxyapatite- *Advances in Polymer Technology*, **2014**, 33, 21391. **(Impact Factor: 2.0)**
13. P. P. Kundu, **A. Bhowmick**, T. Mahata, R. Kumar. Miscibility of the Blend of Chitosan and Polymethylmethacrylate-co-Polyhydroxyethylmethacrylate Copolymer- *Trends in Carbohydrate Research*, **2012**, 4 (4), 24-33. **(Impact Factor: 0.56)**

#### **PUBLICATION IN BOOK CHAPTER**

14. Hydroxyapatite Packed Chitosan-PMMA Nano-Composite: A Promising Material for Construction of Synthetic Bone- **A. Bhowmick**, S. Banerjee, R. Kumar, P. P. Kundu. *Advances in Polymer Science*, Publisher: Springer Berlin Heidelberg, Copyright 2013, vol 254, pp-135-167. Series ISSN: 0065-3195, DOI: 10.1007/12\_2012\_197 (Published) **(Impact Factor: 10.125).**

#### **PRESENTATIONS IN CONFERENCES/ SEMINARS/ SYMPOSIA/WORKSHOP**

1. **A. Bhowmick**- Attended Science Academics Lecture workshop entitled “**Supramolecular Assemblies: Synthesis and Application**”- August 21-22, 2015, Department of Chemistry, Guru Ghasidas Viswavidyalaya, Bilaspur, C.G., India.
2. Multicomponent Magnetic Nanocomposites for Bone Tissue Engineering Applications- **A. Bhowmick**, N. Pramanik, M. Das, P. P. Kundu- Poster presentation at **MACRO 2015 - International Symposium on Polymer Science and Technology**- January 23-26, 2015, IACS, Kolkata, W.B., India

3. Oxidative Polymerization of Functionalized Pyrrole for Stabilization of Magnetic Fe<sub>3</sub>O<sub>4</sub> Nanoparticles- A. Bhowmick, P. P. Kundu- Poster presentation at the **International Conference on “Advances in Chemical Engineering” (ICACE-2013)** - April 5-6, 2013, National Institute of Technology (NIT) Raipur, C.G., India.
4. Synthesis and Characterization of Magnetic Fe<sub>3</sub>O<sub>4</sub> Nanoparticles- **A. Bhowmick** and P. P. Kundu – Poster Presentation at the **National Seminar on “Chemistry in Our Lives”** – February 1-2, 2013, Govt. E. Raghvendra Rao P.G. Science College, Bilaspur, C.G., India.
5. Fluorescent chemosensors for the detection of metal ion- **A. Bhowmick**- Oral presentation at the **National Seminar on “Recent Trends in Chemical Research: Challenges Ahead”**- March 30-31, 2012, Guru Ghasidas Viswavidyalaya, Bilaspur, C.G., India.
6. Fluorescence Sensing of Imine Derivatives of Anthraquinone Macrocycles- A. G. Sykes, P. N. Basa, M. Kadarkaraisamy, **A. Bhowmick**, M. M Schulz. – Presented by Prof. A.G. Sykes at the **243rd ACS National Meeting**, March 25- 29 2012, San Diego, California, USA.
7. Site-Selective Imination of an Anthraquinone Crown Ether: Selective Fluorescent Chemosensor for Barium- **A. Bhowmick** – Oral presentation at the **National Conference on “Recent Trends in Chemistry (RTC-2012)”**- January 23-26, 2012, Sikkim Manipal Institute of Technology, Majitar, Rangpo, Sikkim. (**Selected as best paper presenter among young research scholar**).
8. Imine Substituted Anthraquinone Macrocycles: Site Selective Synthesis and Detection of Ba(II)- P. N. Basa, **A. Bhowmick**, M. M. Schulz and A. G. Sykes- Presented by P. N. Basa at the **242nd ACS National Meeting & Exposition** - August 28-September 1, 2011, Denver, Colorado, USA.
9. A Novel Anthraquinone Based Imine Derivative for Selective Detection of Barium (II) over Other Cations in Organic Solvents- **A. Bhowmick**, P. N. Basa, M. M. Schulz and A. G. Sykes-Poster presentation at the **IdeaFest**, April 13-14, 2011, Vermillion, South Dakota, USA.
10. A Novel Anthraquinone Based Imine Derivative for Selective Detection of Barium (II) over Other Cations in Organic Solvents- **A. Bhowmick**, P. N. Basa, M. M. Schulz and A. G. Sykes-Poster presentation at the **SD EPSCoR RII Track 1 PANS AAAS Review/All Investigator Meeting and the Diversity Summit** -June 1-3, 2011, Chamberlin, South Dakota, USA.
11. Participated at the **NSF EPSCoR RII All Investigator Meeting / Diversity Workshop** - June 13-15, 2010, Chamberlain, South Dakota, USA.

## **PROFESSIONAL COMPETENCE:**

### **Instrumental/Analytical techniques**

- Familiar with the analysis of routine spectroscopic data such as Nuclear magnetic resonance spectrometer (NMR), UV-Vis spectrometer, Electrospray ionization-Mass spectrometer (ESI-MS), Powder X-ray diffractometer, Single Crystal X-ray diffractometer, Spectro-fluorometer, FT-IR.
- Excellent skill in column-chromatography, thin-layer chromatography, extraction of organic compounds, crystallization

### **Computer programs in Chemistry**

- Capable of solving crystal structures using WinGX and Ortep program
- Familiar with all types of commonly used PC operations and computer software's related to chemistry (Chemsketch, Chem-draw ultra, Scifinder)
- Ability to deliver oral and poster presentation
- Possession of good communication, management and personal skills

## **TEACHING EXPERIENCE**

- **January 2010 to August 2011: Teaching Assistant**  
**Department of Chemistry, The University of South Dakota, SD, USA**
  - Assisted undergraduate students with learning laboratory techniques and helped with course content
  - Monitored students laboratory activities
- **September 2012- May 2017: Assistant Professor**  
**Department of Chemistry, D.L.S. P.G. College, Bilaspur, CG, India (affiliated to Bilaspur University), India.**
  - MSc (Chemistry) and BSc (Chemistry) classes taken
  - Assisted students with learning laboratory techniques