

Curriculum Vitae

Dr. Sumanta Kumar Sahu

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Personal Data

Date of Birth: 15/07/1981

Gender: Male

Category: General

Educational Qualification

Degree	Branch/ Specialization	College/University /Institute		Year
10 TH		BSE ORISSA		1996
12 TH	PCM	CHSE ORISSA		1998
B SC	CHEMISTRY	NORTH UNIVERSITY	ORISSA	2001
M SC	PHYSICAL CHEMISTRY	NORTH UNIVERSITY	ORISSA	2003
PH D	CHEMISTRY	IIT KHARAGPUR		2011

Ph. D Thesis

Title: Synthesis and Characterization of Nanoparticles for Targeted Delivery and Bioseparation

Supervisor: Prof. Panchanan Pramanik

Professional Status

<i>Positions held</i>	<i>Name of the Institute</i>	<i>From</i>	<i>To</i>
Assistant Professor (On contract)	NIT Agartala	17/08/2011	31/12/2011
Assistant Professor	IIT (ISM) Dhanbad	06/01/2012	11/04/2021
Associate Professor	IIT (ISM) Dhanbad	12/04/2021	Continuing

Research Interest

Synthesis of functionalized nanomaterials for sensing, imaging, catalysis, drug delivery and WLED applications.

Research Guidance

	Awarded	Ongoing
Ph D	6	5
M Sc Project	22	3

Details of Ph.D awarded

Sl. no	Name	Thesis Title	Year of completion	Role
1	Triveni Kumar Mahto	Synthesis of multifunctional magnetic nanoparticles and graphene oxide for adsorption and catalysis	2017	Guide
2	Angshuman Ray Chowdhuri	Fabrication of multifunctional nanoscale materials for chemotherapeutic delivery	2017	Guide
3	Soumen Chandra	Synthesis and surface modification of fluorescence carbon dots for sensing, imaging and catalysis	2017	Guide

4	Chandrani Sarkar	Synthesis of cellulose-hydroxyapatite based ternary composites for possible orthopedic applications	2019	Guide
5	Amit Kumar	Synthesis of functionalised fluorescent nanoparticles for sensing and imaging	2020	Guide
6	Arpita Samui	Development of nanoporous materials for biocatalysis and organocatalysis	2020	Guide

List of Externally Sponsored R&D Projects

Sl. No.	Funding agency	Amount	Duration	Project Title	Status	Role
1	ISM (Minor Project)	1 lakh	2012-2014	Synthesis and Characterization of Nanoporous Particles for Targeted Delivery	Completed	PI
2	ISM (FRS Project)	7.05 Lakhs	2013-2016	Synthesis of Polymer-Protein Complex Nanoparticles for Delivery of Antibiotics	Completed	PI
3	DST (Fast Track Scheme)	24.8 Lakhs	2014-2017	A Study of Polymeric Layer on Efficiency Enhancement of Upconversion Nanoparticles for Biomedical Applications	Completed	PI
4	TEQIP-III	2 Lakhs	2018-2020	Fabrication And Functionalization Of Upconversion Nanoscale Metal Organic Frameworks As Theranostic Agent	Completed	PI

Teaching Experiences

Taught graduate and post-graduate students different topics of chemistry, such as

Theory Classes:

Under Graduate course:

- Material Science and Technology
- Chemistry

Post-Graduate course:

- Solid State Chemistry
- Statistical Thermodynamics and Kinetics
- Nanomaterials for Advanced Applications
- Advanced materials
- Drug delivery and formulations

Practical Classes:

Experimental Chemistry for B. Tech and M.Sc.

Administrative/Academic Responsibilities

- DUGC member; (15 October 2020-14 October 2022)
- Warden of Topaz Hostel (June 2018- July 2020)
- Examiner, M.Sc. Entrance examination (For 2012-13 and 2013-14).
- Member, Anti-Ragging Squad (Monsoon Semesters of 2013-14, 2014-15, 2015-2016).
- Indenter of instruments of cell culture lab facility in CRF
- Department B. Tech student Coordinator (2013-2018)
- Tabulation Duty (From Monsoon Semester of 2014 to 2017).
- Co-coordinator, DST-FIST Project (Rs. 150 Lakhs), 2014-18.
- Organizing Secretary of conferences, RAMSE-2018

Reviewers of Journals

- ACS Sustainable Chemistry & Engineering
- ACS Nano
- ACS Applied Materials & Interfaces
- ACS Applied Bio Materials
- Journal of Materials Chemistry B
- ACS Applied Nano Materials

- Sensors & Actuators, B: Chemical
 - Chemical Engineering Journal
 - Langmuir
 - RSC advances
- And many more

Major Research Achievements

Our lab research work is mainly focused on design and synthesis of nanomaterials for targeted anticancer drug delivery, antibiotic/antihypertensive /antimalarial drug delivery, Tissue engineering, enzyme immobilization, sensing/biosensing and fabrication of WLED. The major achievements of my research work are

- We have developed different drug delivery system that is NMOFs which combines targeting ligand, fluorescent agent in one pot synthesis method. Simultaneously, the developed drug delivery system possesses high cancer drug loading content and pH-sensitive drug release. The synthesis process of NMOFs is also very facile and maintains stability which can be applicable in practical utility.
- We have developed nano carrier systems which are highly effective antibacterial agent against multidrug-resistant bacteria that is *Staphylococcus aureus*.
- Different fluorescent carbon dots are designed in such facile ways which are applicable in different toxic metal ions sensing, bacteria sensing and imaging.
- We have also designed different support for enzyme immobilization which are used in different types of bio- catalysis reactions.
- Low cost, nontoxic and longer-wavelength-emissive carbon quantum dots are established for the fabrication of WLED.

Publication in Journals

Publications	Q1	Q2	Q3	Q4	Awaited
Total	27	24	9	4	2

Publication in Book Chapter

A. Samui, S. K. Sahu, Chapter 13 - Characterizations of MOFs for biomedical application, Metal-Organic Frameworks for Biomedical Applications, 2020, 277-295. doi.org/10.1016/B978-0-12-816984-1.00015-9.