

Faculty Profile

Department: Faculty of Science and Technology

Name: Dr. Tufan Singha Mahapatra

Designation: Assistant Professor

Branch: Chemistry



Educational Qualification(s):

Qualification(s)	University
Bachelor of Science (Chemistry)	Presidency College, University of Calcutta
Master of Science (Chemistry)	IIT Madras
Doctor of Philosophy (Inorganic Chemistry)	IIT Kharagpur
Post-Doctorate	CSIR-Central Salt and Marine Chemicals Research Institute

Experience in years:

Academic: 8years (Post PhD)

Details:

Sl. No.	Organization	Position Held	Duration	
			From	To
1	Techno India University, Kolkata	Assistant Professor	20-07-2016	09-02-2017
2	CSIR-Central Salt and Marine Chemicals Research Institute	SERB-National Post-Doctoral Fellow	07-03-2017	06-03-2019
3.	CSIR-Central Salt and Marine Chemicals Research Institute	Research Associate	26-03-2019	05-08-2019
4	ICFAI University Tripura, Agartala-799210, Tripura	Assistant Professor	12-08-2019	Continuing

Industrial: **NIL**

NATIONAL LEVEL EXAMINATIONS DETAILS

Examination Name	Year	Outcome	All India rank (AIR)
IIT JAM (Joint Admission Test)	2009	Masters in IIT Madras	86

GATE (Graduate Aptitude Test in Engineering)	2011, 2015, 2016	Not availed of any benefits	(1) 341 (2011) (2) 33 (2015) (3) 76 (2016)
CSIR UGC NET	2010	JRF and Eligibility for Lectureship (UGC Fellowship scheme)	326
CSIR UGC NET	2011	JRF and Eligibility for Lectureship (CSIR Fellowship scheme)	26

TEACHING INTERESTS

Graduate courses	Post-Graduate courses
<ul style="list-style-type: none"> • Coordination Chemistry • Organometallic Chemistry • Bioinorganic Chemistry • Environmental Studies • General Chemistry • Solid State Chemistry • Qualitative semi-micro analysis (Lab) • Inorganic complex Preparations (Lab) 	<ul style="list-style-type: none"> • Advanced Coordination Chemistry • Advanced Coordination Chemistry and X-ray crystallography • Advanced Organometallic Chemistry • Advanced Bioinorganic Chemistry • Inorganic complex Preparations (Lab)

RESEARCH AREAS

- Design and synthesis of transition (3d/4d) and lanthanide (4f) metal-containing complexes/coordination polymers (CPs) using meticulously prepared ligands.
- Development of functional luminescent metallogels from the substituted terpyridine moieties and lanthanide ions.
- Development of luminescent Two-Dimensional lanthanide Coordination Nanosheets.
- Investigation of the prepared coordination polymers and complexes' optical, sensing, magnetic, and catalytic properties.

Ph. D. THESIS SUPERVISION (MAIN SUPERVISOR) (Ongoing 1)

Name of the candidate	Thesis title	Year	Status
Mr. Bilash Chandra Roy	Design, Synthesis, and Studies of 3d and 4f Metal Directed Self-Assembled Supramolecular Coordination Complexes	2020-2024	Ongoing

MASTERS DISSERTATION THESIS SUPERVISED: 19

PUBLICATIONS: [Research Articles: 19, Awarded Patents: 2, Book chapter: 2, Edited Book: 1]

Research Articles (SCI and SCOPUS)(year-wise descending order)

* Corresponding author

No	Authors' Name	Publication Year	Title of the Article	Journal Name; Volume, Page No, DOI
19	B. C. Roy, V. R. Ramlal, D. Basak, S. Basak, S. Roy, S. Ghosh, and T. Singha Mahapatra*	2024	Light-Emitting Coordination Polymers: Stimuli-Responsive Gels, PMMA-Based Composite Films and UV-Shielding	Inorganic Chemistry, 2024 (Accepted) (Impact Factor: 4.3, Nature Indexed)
18	B. C. Roy, S. Ghosh, T. Singha Mahapatra,* A. Das*	2024	Ultrathin lanthanide-based 2D-coordination nanosheets: a versatile class of 2D materials	Coordination Chemistry Reviews, 2024, 518 , 216058. (Impact Factor: 20.3) https://doi.org/10.1016/j.ccr.2024.216058
17	B. C. Roy, A. Kundu, P. Biswas, S. Roy,* and T. Singha Mahapatra*	2024	Recent Advances in Stimuli-Responsive Luminescent Supramolecular Lanthanide-Based Metallogels	ChemistrySelect, 2024, 9 , e202304755 https://doi.org/10.1002/slct.202304755
16	T. Singha Mahapatra,* B. Roy, B. Dutta, J. Lengyel, M. Shatruck, and D. Ray*	2023	Structures and magnetic properties of a trinuclear angular [Ni ₃] and a heptanuclear wheel-like [Ni ₇] complexes with a Schiff base ligand	Polyhedron, 2024, 249 , 116782–116791 https://doi.org/10.1016/j.poly.2023.116782
15	B. Roy, B. Dutta, D. Basak, S. Debnath, D. Ray*, and T. Singha Mahapatra*	2023	Investigations on a mononuclear Cu(II) Schiff base complex: Theoretical calculations, catechol oxidase activity, and protein binding interaction analysis	New Journal of Chemistry, 2023, 47 , 11928–11944 https://doi.org/10.1039/D3NJ01515G
14	B. Roy and T. Singha Mahapatra*	2023	Recent Advances in the Development of Europium (III) and Terbium (III)-based Luminescent Supramolecular Metallogel (Front Cover for Issue 10)	Soft Matter, 2023, 19 , 1854–1872(Front Cover) https://doi.org/10.1039/D2SM00999D
13	A. Dey, V. R. Ramlal, S. S. Sankar, T. Singha Mahapatra , E. Suresh, S. Kundu, A. K. Mandal and A. Das	2020	Crystalline Free-Standing Two-Dimensional Zwitterionic Organic Nanosheets for Efficient Conduction of Lithium Ions	ACS Applied Materials & Interfaces, 2020, 12 , 58122–58131 https://doi.org/10.1021/acsami.0c17683
12	A. Dey, A. Maity, T. Singha Mahapatra , E. Suresh, A. K. Mandal, and A. Das	2020	Tuneable Hierarchical Self-Assembly of C ₃ -Symmetric Triaminoguanidium-derivative into Rhombic Dodecahedral Morphology	CrystEngComm, 2020, 22 , 5117–5121 https://doi.org/10.1039/DoCE00909A
11	T. Singha Mahapatra,* A. Dey, H. Singh, S. S. Hossain, A. K. Mandal* and A. Das*	2020	Two-dimensional lanthanide coordination polymer nanosheets for detection of FOX-7	Chemical Science, 2020, 11 , 1032–1042 https://doi.org/10.1039/C9SC05403K (corresponding authorship)
10	H. Singh, S. Sreedharan, E. Oyarzabal, T. Singha Mahapatra , N. Green, S. Yen-Yu Ian, M. Das, J. A. Thomas, S. K. Pramanik and A. Das	2020	Mitochondriotropic Lanthanide Nanorods: Implications for Multimodal Imaging	Chem. Commun., 2020, 56, 7945 https://doi.org/10.1039/DoCC02698K
9	T. Singha	2018	White-Light-Emitting Lanthanide	Journal of Materials Chemistry C, 2018,

	Mahapatra ,* H. Singh, A. Maity, A. Dey, S. K. Pramanik, E. Suresh and A. Das*		and Lanthanide-Iridium Doped Supramolecular Gels: Modular Luminescence and Stimuli-Responsive Behaviour	6, 9756-9766 https://doi.org/10.1039/C8TC03487G (corresponding authorship)
8	T. Singha Mahapatra , A. Roy, S. Chaudhury, S. Dasgupta, S. L. Shrivastava, V. Bertolasi, and D. Ray	2017	Trapping of Methanoato Bridge in μ -1,1,3,3 Mode for [Cu ₄] Aggregate Formation: Synthesis, Steric Control on Nuclearity, Antimicrobial Activity, and DNA-Interaction Properties	<i>European Journal of Inorganic Chemistry</i> , 2017, 769–779 https://doi.org/10.1002/ejic.201601092
7	K. Jana, T. Maity, T. Singha Mahapatra , P. K. Das Mahapatra, S. C. Debnath, S. Das, M. Hossain and B. C. Samanta	2017	A square pyramidal copper(II) complex of a Schiff base ligand: synthesis, crystal structure, antibacterial and DNA interaction studies	<i>Transition Metal Chemistry</i> , 2017, 42 , 69–78 https://doi.org/10.1007/s11243-016-0108-6
6	T. Singha Mahapatra , D. Basak, S. Chand, J. Lengyel, M. Shatruk, V. Bertolasi and D. Ray	2016	Competitive coordination aggregation for V-shaped [Co ₃] and disc-like [Co ₇] complexes: synthesis, magnetic properties and catechol oxidase activity	<i>Dalton Transactions</i> , 2016, 45 , 13576-13589 https://doi.org/10.1039/C6DT02494G
5	T. Singha Mahapatra , A. Bauzá, D. Dutta, S. Mishra, A. Frontera and D. Ray	2016	Carboxylate Coordination Assisted Aggregation for Quasi-Tetrahedral and Partial-Dicubane [Cu ₄] Coordination Clusters	<i>ChemistrySelect</i> , 2016, 1 , 64–74 https://doi.org/10.1002/slct.201600006
4	T. Singha Mahapatra , S. Chaudhury, S. Dasgupta, V. Bertolasi and D. Ray	2016	Dinuclear nickel complexes of divergent Ni...Ni separation showing ancillary ligand addition and bio-macromolecular interaction	<i>New Journal of Chemistry</i> , 2016, 40 , 2268–2279 https://doi.org/10.1039/C5NJ02410B
3	A. K. Ghosh, T. Singha Mahapatra , R. Clérac, C. Mathonière, V. Bertolasi and D. Ray	2015	Direct C–N coupling in an in situ ligand transformation and the self-assembly of a tetrametallic [Ni ^{II} ₄] staircase	<i>Inorganic Chemistry</i> , 2015, 54 , 11, 5136–5138 https://doi.org/10.1021/acs.inorgchem.5b00411
2	T. Singha Mahapatra , K. Chattopadhyay, D. Basak, M. Das, A. Bhanja, M. Biswas and D. Ray	2015	Forced ether oxygen coordination from reduced Schiff base ligand in [Cu ₂] complexes: Synthetic preference, trapping of carboxylates and catechol oxidation	<i>Journal of the Indian Chemical Society</i> , 2015, 92 , 1939–1947 (Invited Article)
1	A. Sarkar, A. K. Ghosh, M. Pait, H. Mandal, T. Singha Mahapatra , B. Sharangi, M. Sarkar and D. Ray	2012	Rhomboidal [Cu ₄] coordination cluster from self-assembly of two asymmetric phenoxido-bridged Cu ₂ units: Role of μ ,1-azido clips	<i>Journal of Chemical Sciences</i> , 2012, 124 , 1377–1383 https://doi.org/10.1007/s12039-012-0336-z

Awarded Patents

SI No	Title	Country	Filed on (Date)	Granted (Date)	Names of Inventors
1	Transparent and Flexible Poly(Methyl Methacrylate) Composite Films With UV-Shielding Performances and	India	03/08/2018 Application No.: 201811029277	02/06/2022 Patent No. 398431	Tufan Singha Mahapatra , Sumit Kumar Pramanik and Amitava Das

	Process For Preparation Thereof				
2	A novel terbium-based coordination polymer for the detection of FOX-7 and process for preparation thereof	India	12/09/2019 Application No.: 201911036793	19/03/2021 Patent No. 404135	Tufan Singha Mahapatra , Harwinder Singh, Ananta Dey, and Amitava Das

Book Chapters & Edited Book

SI No	Title of the Chapter	Publisher	Title of the Book	Year	Names of Authors
1	-----	Ruby Press & Co, 3834/XI, Shanti Niketan Building, IInd Floor, Pataudi House Road, Daryaganj	Edited Book: Recent Trends in Chemistry, Polymers, and Nanoscience ISBN: 978-81-959400-5-9	2024	Editors: S. N. Choudhury, Tufan Singha Mahapatra , S. Roy
2	Emergence and Advancements of Supramolecular Chemistry	Ruby Press & Co, 3834/XI, Shanti Niketan Building, IInd Floor, Pataudi House Road, Daryaganj.	Recent Trends in Chemistry, Polymers, and Nanoscience ISBN: 978-81-959400-5-9	2024	Bilash Chandra Roy, and Tufan Singha Mahapatra
3	Contemporary Trends in the Synthetic Aspects, and Magnetic Properties of 3d-4f Heterometallic Cubane, Partial Dicubane, and Partial Tetracubane Core-Type Coordination Compounds	IIP Proceedings, Volume 2, Book 13, Part 4, Chapter 1	Futuristic Trends in Chemical, Material Sciences & Nano Technology ISBN: 978-93-95632-67-6	2022	Bilash Chandra Roy, and Dr. Tufan Singha Mahapatra

PROFESSIONAL MEMBERSHIP

Life Member: Chemical Research Society of India (CRSI), Membership No is LM 3917

ACADEMIC DISTINCTIONS/HONORS AND AWARDS

- **Best Faculty Award** on the occasion of ICARIA-2022 at the **ICFAI University, Tripura** for the academic year 2021-2022
- **Managing Editor in IUT Journal of Advanced Research and Development (IUT-JARD)** journal
- **Peer Reviewer** in various reputed journals
- Awarded **UGC-Dr. D. S. Kothari Post-Doctoral Fellowship (DSKPDF)**-2019
- Awarded **Research Associateship (2019)** in CSIR-Central Salt and Marine Chemicals Research Institute
- Awarded **SERB-National Post-Doctoral Fellowship (NPDF)** (2017), CSIR-Central Salt and Marine Chemicals Research Institute
- Awarded International Travel Support by the Science and Engineering Research Board (SERB) for participating in "7th EuCheMS Chemistry Congress – Molecular frontiers & global challenges, United Kingdom (26 August, 2018 to 30 August, 2018)"

INVITED TALK & SEMINAR PRESENTATIONS

1. **Invited Talk** at a National Seminar on “Science and Technology for Environmental Sustainability and Tribal Development” on 15 March 2024 at **Govt. Degree College, Dharmanagar**, in collaboration with the **Indian Science Congress Association** on the topic: Lanthanide Coordination Nanosheets for Explosive Detection.
2. **Invited Talk** at “Emergent Materials for Energy and Environment (EMEE-2023)” conference during March 04-05, 2023, organized by **IIT Roorkee** on the topic: Two-Dimensional Lanthanide Coordination Nanosheets for 1,1-Diamino-2,2-dinitroethene (FOX-7) Explosive Detection.
3. **‘Women of The Periodic Table’**, Feb 28, 2020, ICFAI University Tripura, on the occasion of "National Science Day-2020".
4. **‘A Brief History of The Development of Periodic Table’**, October 23, 2019, ICFAI University Tripura, on the occasion of Mole Day and International Year of Periodic Table Celebration.
5. **‘Light-Emitting Supramolecular Metallogels: Modular Luminescence and Stimuli-Responsive Behaviour’**, April 12, 2019, CSIR-CSMCRI Bhavnagar.

CONTRIBUTIONS TO SCIENTIFIC CONFERENCES:

1. Poster Presented at International conference on “**Modern Trends in Inorganic Chemistry (MTIC-XVIII)**”, **IIT Guwahati** (11-14 December 2019)
2. Participated at ‘**International conference on Indo-German Bilateral Workshop on Membranes for Water and Energy (IGSTC-2019)**’, **CSIR-CSMCRI Bhavnagar** (18-2-2019 to 20-2-2019)
3. Poster Presented at International conference on “**Modern Trends in Inorganic Chemistry (MTIC-XVII)**”, **IISER and NCL PUNE** (11-14 December 2017)

4. Poster Presented at International conference on “**Modern Trends in Inorganic Chemistry (MTIC-XVI)**”, **Jadavpur University** (3-5 December 2015).
5. **Oral presentation** in Research Scholars’ Day 2015 organized by Department of Chemistry, **Indian Institute of Technology Kharagpur** (August 2015).
6. Poster Presented at International conference on “**Diamond Jubilee Symposium on Recent Trends in Chemistry (DJSRTC-2011)**”, **Indian Institute of Technology Kharagpur** on 21-23 October 2011.