

Curriculum Vitae: Dr. Sandipan Roy

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RESEARCH INTERESTS

- Functional Porous Organic Materials
- Semiconducting Covalent Organic Framework Materials (COFs)
- Covalent triazine frameworks (CTFs)
- Metal Organic Frameworks (MOFs)
- Heterogeneous catalysts and Photocatalysts
- COF derived hierarchical porous carbons for Supercapacitors and Ionic Actuators
- Supramolecular Chemistry
- Charge Transfer Cocrystals
- Supramolecular Photochromic Materials
- Chemosensors

EDUCATION

Ph.D. Indian Institute of Technology, Kharagpur (Chemistry, November 2013)

Thesis: Supramolecular Approach Towards the Design and Synthesis of Functional Materials: Exploration of Cocrystals, Salts and Coordination Polymers.

M.Tech. Indian Institute of Technology, Kharagpur (Biochemical Engineering, May 2008)

Thesis: Refolding and Characterization of Alcohol Dehydrogenase from Mycobacterium Tuberculosis.

M.Sc. Guru Ghasidas Central University, India (Chemistry: Spl. Organic Chemistry, July 2005)

B.Sc. Vidyasagar University, India (Chemistry Honors, July 2003)

RESEARCH EXPERIENCE

- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
 - Visiting Scientist (June 2019 - July 2019)
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

- Visiting Scientist (Dec 2018 - Jan 2019)
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
 - Visiting Scientist (June 2018 - July 2018)
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea
 - Visiting Scientist (Dec 2017 - Jan 2018)
- Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea
 - Postdoctoral Researcher (April 2016-April 2017)
 - Department of Mechanical Engineering
- Tel-Aviv University, Tel-Aviv, Israel
 - Postdoctoral Researcher (April 2015-March 2016)
 - School of Chemistry
- National Institute of Advanced Industrial Science & Technology (AIST), Ikeda, Osaka, Japan
 - Postdoctoral Research Scientist (July 2014-Feb. 2015)
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India
 - Research Associate (Feb. 2014- May 2014)
 - Chemistry and Physics of Materials Unit

TEACHING EXPERIENCE

- Assistant Professor (April 10, 2017-August 10, 2020) , Maharishi Markandeshwar Deemed to be University (MMDU), Ambala, Haryana

Courses Taught (Both Theory and Practical):

Postgraduate:

Theory:

- Reagents and Heterocyclic Chemistry
- Reaction Mechanism of Organic Chemistry
- Advanced Organic Synthesis

Lab:

- Few Synthesis of Organic Compounds (two steps) and Mixture Separations

Undergraduate:

Theory:

- Organic Chemistry in 2nd Year

PhD Course:

- Solid-state Supramolecular Chemistry

DETAILS OF M.Sc. PROJECTS Completed

- Synthesis and structural exploration of novel two-component supramolecular host framework by using flexible aromatic tricarboxylic acid.
- Exploration of novel luminescent microporous organic polymer as effective chemosensor.
- Design, synthesis and structural exploration of novel amide based ligands.
- Design and synthesis of a novel imine-linked covalent organic polymer as an efficient photocatalyst.

DETAILS OF COLLABORATIVE PROJECTS ONGOING WITH PANJAB UNIVERSITY

- Development of Novel Charge Transfer Covalent Organic Frameworks (CT-COFs) for Optoelectronic Applications (Work ongoing)
- Photodimerization of a 1,2-bis(4-pyridyl)ethylene in the Solid State: A Supramolecular Approach (Work ongoing)

DETAILS OF COLLABORATIVE PROJECTS ONGOING WITH KOREA ADVANCED INSTITUTE OF SCIENCE & TECHNOLOGY (KAIST), SOUTH KOREA

- Collectively Exhaustive Electrodes Based on Covalent Organic Framework and Antagonistic Co-doping for Electro-Active Ionic Artificial Muscles ([Published in Advanced Functional Materials and selected as hot topic in Batteries and Supercapacitors fields](#))
- Newly Designed Covalent Organic Framework Derived Porous Sandwiched 2D-Structure for High Performance Ionic Actuators (Work ongoing)

DETAILS OF SUBMITTED PROJECTS IN 2020

- Development of Novel Covalent Triazine Framework and Covalent Organic Framework for Photocatalytic Water Splitting ([Submitted in Core Research Grant under SERB in 2020](#)).

Awards/Recognition/Fellowships

- Awarded Visiting Scientist position from KAIST, South Korea in December 2017, June 2018, Dec 2018, June 2019.
- Awarded American Chemical Society (ACS) Membership 2020.
- Assistant Professor (on contract basis) under TEQIP-III, NPIU, 2017. (Offer declined)
- Awarded Postdoctoral Fellowship from Tel-Aviv University, Tel-Aviv, Israel in 2015
- Awarded AIST Postdoctoral Research Scientist from Research Institute for Ubiquitous Energy Devices, AIST Kansai Center, Osaka, Japan in 2014

- Awarded Senior Research Fellowship (SRF) from Indian Institute of Technology, Kharagpur, India in 2011
- Awarded Junior Research Fellowship (JRF) from CSIR, New Delhi, India in 2008
- Graduate Aptitude Test in Engineering (GATE2006) All India Rank 130

LIST OF PUBLICATIONS

1. Meta-Organic Framework Derived Graphitic Nanoribbons Anchored on Graphene for Electronic Artificial Muscles. Kotal, M.; Tabassian, R.; Roy, S.; Oh, S.; Oh, I. K. *Adv. Funct. Mater.* 2020, DOI: [10.1002/adfm.201910326](https://doi.org/10.1002/adfm.201910326). (Selected as Hot Topics in Carbon, Graphite and Graphene Area from Advanced Materials and Robotics from Advanced Materials Technologies and selected as Frontispiece). (Impact Factor: 16.836)
2. Graphene Templated Cobalt Nanoparticles Embedded Nitrogen-Doped Carbon Nanotubes for Efficient Visible-Light Photocatalysis. Kotal, M.; Sharma, A.; Sonu, Vinit, Roy, S.; Sahoo, S. C.; Sharma, H. K.; Mehta, S. K. *Crystal Growth & Design*, 2020, doi: [10.1021/acs.cgd.0c00430](https://doi.org/10.1021/acs.cgd.0c00430). (IF=4.153)
3. Collectively Exhaustive Electrodes Based on Covalent Organic Framework and Antagonistic Co-doping for Electro-Active Ionic Artificial Muscles (Selected as Hot Topic in Batteries and Supercapacitors area). Roy, S.; Kim, J. H.; Kotal, M.; Kim, K. J.; Oh, I. K. *Adv. Funct. Mater.* 2019, 1900161 (DOI: [10.1002/adfm.201900161](https://doi.org/10.1002/adfm.201900161)). (Impact Factor: 16.836)
4. Mechanochemical synthesis of a new imine linked covalent organic polymer for degradation of organic dye under sunlight irradiation. Kawal Preet, Girish Gupta, Moumita Kotal, Sushil Kumar Kansal, Deepak B. Salunke, Harish K. Sharma, Subash Chandra Sahoo, Pascal Van Der Voort, and Sandipan Roy*. *Cryst. Growth Des.* 2019, DOI: [10.1021/acs.cgd.9b00166](https://doi.org/10.1021/acs.cgd.9b00166). (Impact Factor: 4.15)
5. Highly Bendable Ionic Soft Actuator Based on Nitrogen-Enriched 3D Hetero-Nanostructure Electrode. Kotal, M.; Kim, J. H.; Tabassian, R.; Roy, S.; Nguyen, V. H.; Koratkar, N.; Oh, I. K. *Adv. Funct. Mater.* 2018, 28, 1802464. (Impact Factor: 16.836)
6. Electro-Ionic Antagonistic Muscles Based on Nitrogen-Doped Carbons Derived From Poly(Triazine-Triptycene). Roy, S.; Kim, J. H.; Kotal, M.; Kim, K. J.; Oh, I. K. *Adv. Sci.* 2017, 4, 1700410. (Impact Factor: 15.804)
7. Back Cover Image: Electro-Ionic Antagonistic Muscles Based on Nitrogen-Doped Carbons Derived From Poly(Triazine-Triptycene). Roy, S.; Kim, J. H.; Kotal, M.; Kim, K. J.; Oh, I. K. *Adv. Sci.* 2017, 4, 1770062. (Impact Factor: 15.804)
8. A Photoswitchable and Photoluminescent Organic Semiconductor Based On Cation- π and Carboxylate-Pyridinium Interactions: A Supramolecular Approach. Roy, S.; Mondal, S. P.; Ray, S. K.; Biradha, K. *Angew. Chem. Int. Ed.* 2012, 51, 12012. (Impact Factor: 12.257)

9. Crystal engineering with isosteric triether and triamine linked aromatic tri-carboxylic acids: iso-structurality and synthon interplay in their co-crystals and salts with bis(pyridyl) derivatives. Das, D; Roy, S.; Biradha, K. *New J. Chem.* 2018, DOI: 10.1039/C8NJ04600J. (Impact Factor: 3.277)
10. Sulfur and Nitrogen Co-Doped Holey Graphene Aerogel for Structurally Resilient Solid-State Supercapacitors under High-Compressions. Kotal, M.; Kim, H.; Roy, S.; Oh, I. K. *J. Mater. Chem. A* 2017, 5, 17253. (Impact Factor: 11.301)
11. Multifunctional White Light-Emitting Metal-Organic Gels with a Sensing Ability of Nitrobenzene. Roy, S.; Katiyar, A.; Mondal, S. P.; Ray, S. K.; Biradha, K. *ACS Appl. Mater. Interfaces* 2014, 6, 11493. (Impact Factor: 8.758)
12. Separation of isomers of sulfophthalic acid by guest induced host framework formation with 4,4'-bipyridine. Mahata, G.; Roy, S.; Biradha, K. *Chem. Commun.* 2011, 47, 6614. (Impact Factor: 6.290)
13. Two-component Supramolecular Organic Hosts as Colorimetric Indicators for Aromatic Guests: Visual Molecular Recognition via Cation- π Interactions. Roy, S.; Biradha, K. *Cryst. Growth Des.* 2011, 11, 4120. (Impact Factor: 4.155)
14. Supramolecular organic frameworks (SOFs) of tetrakis(4-hydroxyphenyl) porphyrin with efficient guest inclusion. Roy, S.; Titi, H. M.; Goldberg, I. *Cryst Eng Commun.* 2016, 18, 3372-3382. (Impact Factor: 3.382)
15. Silver Coordination Polymers Based on Newly Designed Bis(cyanobenzyl)bipiperidine Ligand: Synthesis, Anion Exchange, Guest Inclusion, Electrochemical, and Photoluminescence Properties Roy, S.; Titi, H. M.; Tripuramallu, B. K.; Bhunia, N.; Verma, R.; Goldberg, I. *Cryst. Growth Des.* 2016, 16, 2814-2825. (Impact Factor: 4.155)
16. Highly Catalytic Performance of MIL- 101 Supported Alloy Nanoparticles towards the Hydrolytic Dehydrogenation of Ammonia Borane. Roy, S.; Pachfule, P.; Xu, Q. *Eur. J. Inorg. Chem.* 2016, 4353. (Impact Factor: 2.942)
17. Inside Cover: High Catalytic Performance of MIL-101-Immobilized NiRu Alloy Nanoparticles towards the Hydrolytic Dehydrogenation of Ammonia Borane. Roy, S.; Pachfule, P.; Xu, Q. *Eur. J. Inorg. Chem.* 2016, 4530. (Impact Factor: 2.942)
18. Ameliorated synthetic methodology for crystalline lanthanoid- metalloporphyrin open frameworks based on a multitopic octacarboxy-porphyrin scaffold: structural, gas sorption and photophysical properties. Tripuramallu, B. K.; Titi, H. M.; Roy, S.; Verma, R.; Goldberg, I. *Cryst Eng Commun.* 2016, 18, 515. (Impact Factor: 3.474)
19. Coordination Polymers Containing Tubular, Layered, and Diamondoid Networks: Redox, Luminescence, and Electron Paramagnetic Resonance Activities. Banerjee, K.; Roy, S.; Kotal, M.; Biradha, K. *Cryst. Growth Des.* 2015, 15, 5604. (Impact Factor: 4.155)
20. Design, Synthesis and Photoluminescence Properties of 1D, 2D and 3D Coordination

Polymers: Anion Assisted Argentophilic Interactions as Building Blocks. Banerjee, K.; [Roy, S.](#); Biradha, K. *Cryst. Growth Des.* 2014, 14, 5164. (Impact Factor: 4.155)

21. Exploration of Salts and co-crystals of 2,2',6,6'- tetracarboxybiphenyl with acetic acid, monobasic and di-basic N-heterocycles and N-oxides. [Roy, S.](#); Biradha, K. *Cryst. Growth Des.* 2013, 13, 3232. (Impact Factor: 4.155)
22. Coordination Polymers of Silver (I) with Flexible Tritopic Ligand 1,3,5-Tri(4-cyanophenoxy) benzene: Guest Inclusion and Luminescent Properties. [Roy, S.](#); Biradha, K. *Aust. J. Chem.* 2013, 66, 436. (Impact Factor: 1.427)
23. Cocrystal and Salts of 2,2',6,6'- tetracarboxybiphenyl with Bis(pyridyl) Derivatives: Eight-fold Interpenetrated Diamondoid and Layered Networks. [Roy, S.](#); Mahata, G.; Biradha, K. *Cryst. Growth Des.* 2009, 9, 5006. (Impact Factor: 4.155)
24. Supramolecular self-assembly of meso-carboxyphenylporphyrins into topologically different host networks. Vinit Mishra, Aastha, Moumita Kotal, Sonu Jakhar, Amit Mittal, Harish K Sharma and Subhas C Sahoo and [Sandipan Roy*](#). (Manuscript under Preparation)
25. A new Imine-Linked Covalent Organic Polymer for visible light-induced hydrogen generation. Kawal Preet, Moumita Kotal, Deepak B. Salunke, Harish K. Sharma, Subash Chandra Sahoo, S. K. Mehta, Pascal Van Der Voort, [Sandipan Roy*](#). (Manuscript Submitted)

INTERNATIONAL & NATIONAL CONFERENCE

1. [Sandipan Roy](#), 2nd International Conference on Crystal Engineering: From Molecule to Crystal, June 19-June 20, 2020. (Oral Presentation)
2. [Sandipan Roy](#), 6.5th Crystal Engineering & Emerging Materials Workshop of Ontario & Quebec (CEMWOQ-6.5), May 30-May 31, 2020. (Oral Presentation)
3. Participated in "4th International Conference on Metal-Organic Frameworks and Open Framework Compounds-MOF 2014", Kobe, Japan, September 27-October 01, 2014.
4. [Sandipan Roy](#), Kumar Biradha: Crystal Engineering Approach towards the Design of Two-component Organic Supramolecular Hosts for Visual Molecular Recognition Studies Aromatic. Indo-US Bilateral meeting on "The evolving role of solid state chemistry in pharmaceutical science". Manesar, India, February 2-4, 2012. (Poster Presentation)
5. [Sandipan Roy](#), Kumar Biradha: Crystal Engineering of Two-Component Organic Supramolecular Hosts and Their Ability Towards inclusion of Aromatic Guest Molecules. XX International Conference on the Chemistry of the Organic Solid State (ICCOSS-XX), IISc Bangalore, India, June 25-30, 2011. (Poster Presentation)

6. Participated in “Diamond Jubilee Symposium on Recent Trends in Chemistry” held on 21st- 23rd October, 2011, Department of Chemistry, IIT Kharagpur, India.

7. Participated in “Sixth One Day National Symposium in Chemistry”, Indian Institute of Technology Kharagpur, November 8, 2008

CITATIONS & H-INDEX (GOOGLE SCHOLOR)

Google Scholar: **h-Index = 14, Total Citations = 403** (by July, 2020)

<https://scholar.google.co.in/citations?user=-Z5FXv4AAAAJ&hl=en>

PERSONAL DETAILS

Date of Birth - 15/06/1983

Marital Status - Married

Languages Known - English, Hindi, Bengali

Interests - Reading Journals, watching movies

Permanent Address - C/o-Nemai Charan Roy, Deshapriya Nagar, Dharma, Midnapur,
P.O.: Dharma, Dist: Paschim Midnapur, Pin-721101, West Bengal, India

Sex - Male

Nationality - Indian

References: Available on request