



Dr. Bhaskar Biswas

Professor

Department of Chemistry

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Research Experiences & Publications

Research Interest: Synthesis of Coordination compounds, Supramolecular Chemistry, Bio-mimicking Chemistry, Molecular Recognition, Bio-inspired Catalysis, Structural Chemistry; Composite Materials

Research Project: (Ongoing)

• Design and synthesis of coordination driven smart functional molecules and their bio-mimetic and electrocatalytic aspects in hydrogen evolution reaction (HER), *SERB (EEQ/2020/0079), India (PI)*

Member of the Learned Society

- Indian Chemical Society (F/8097/LM)
- American Chemical Society (32182808)

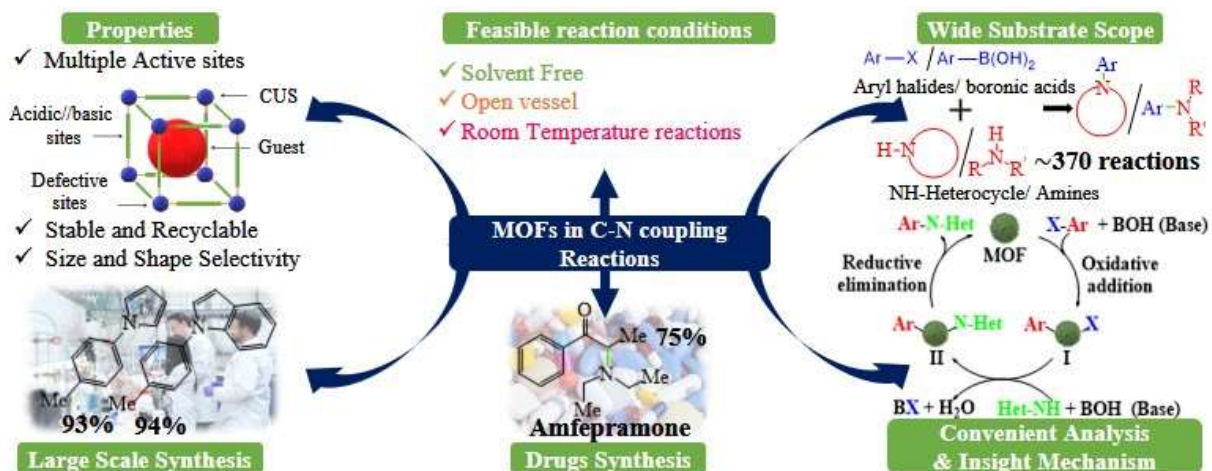
Selected Research Publications

2022

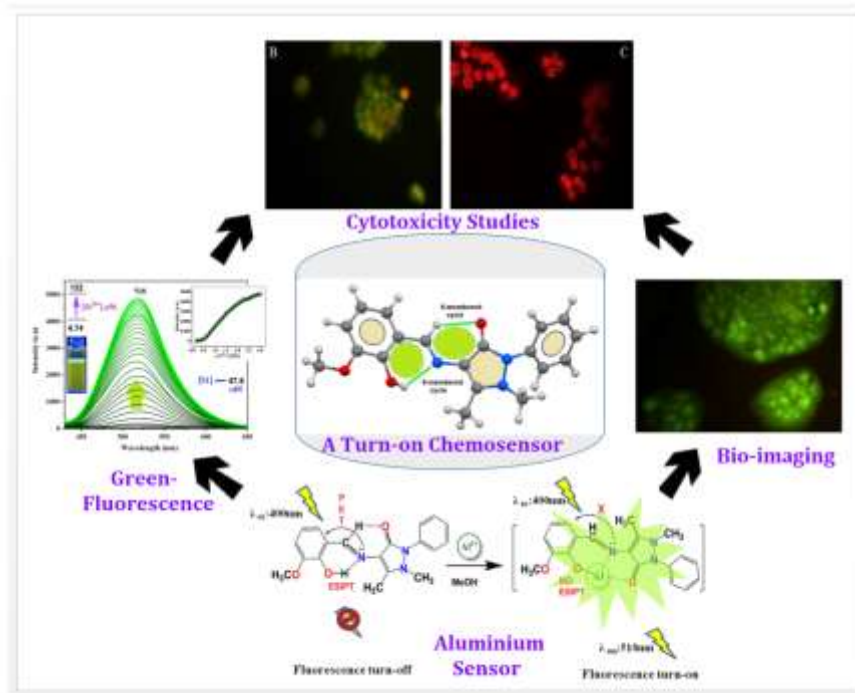
93. Metal–Organic Framework: An Emergent Catalyst in C–N Cross-Coupling Reactions Nilankar

Diyali, Sagarmoni Rasaily, Bhaskar Biswas*, *Coordination Chemistry Review*, 469 (2022) 214667

(Corresponding Author). (I.F. 24.8)



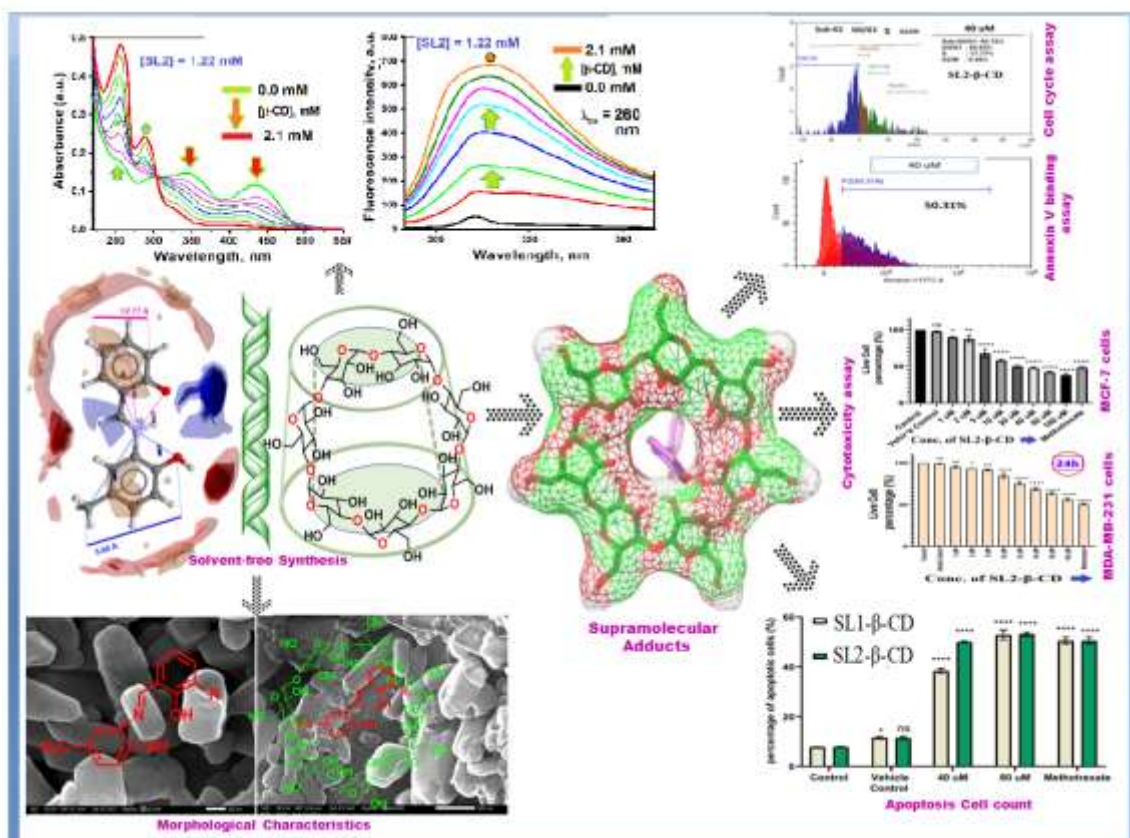
92. A Visible light-triggered Pyrazole-Functionalized Reversible Ionophore for Selective Monitoring of Aluminium(III) ion, Suvojit Roy, Subhankar Kundu, Subhajit Saha, K. Muddukrishnaiah, Rajib Paramanik, Bhaskar Biswas, *Applied Organometallic Chemistry*, 36 (2022) e6865 (Corresponding Author). (I.F. 4.1)



91. A Hemilabile 2-(2'-pyridyl)-imidazole Based Nickel(II) Complex: Proton-coupled-electron-transfer, Bactericidal and Cytotoxicity Studies, Krishnendu Paramanik, Nilaj Bandopadhyay, Rakesh Debnath, Suvojit Roy, Muddukrishnaiah Kotakonda, Mrinal Kanti Adak, Bhaskar Biswas, and Hari Sankar Das, *New Journal of Chemistry*, 46 (2022) 17517-17526 (Corresponding Author). (I.F. 3.9)

90. Synthesis, crystal structure, and antidiabetic property of hydrazine functionalized Schiff base: 1,2-Di(benzylidene)hydrazine, Nilankar Diyali, Meena Chettri, Abhranil De and Bhaskar Biswas, *European Journal of Chemistry*, 13 (2022) 234-240. (Corresponding Author). (I.F. 0.53)

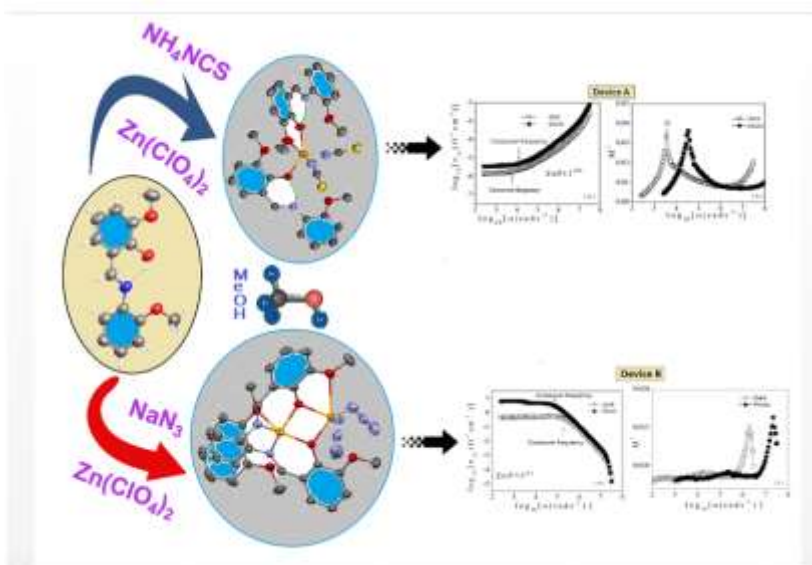
89. Supramolecular Encapsulation of Nanocrystalline Schiff base into β -Cyclodextrin for Multifold Enrichment of Bio-potency” Rajani Kanta Mahato, Ananya Debnath, Ajit Das, Debanjan Sarkar, Sankar Bhattacharyya, and Bhaskar Biswas, *Carbohydrate Polymer*, 291 (2022) 119614. (Corresponding Author). (I.F. 9.31)



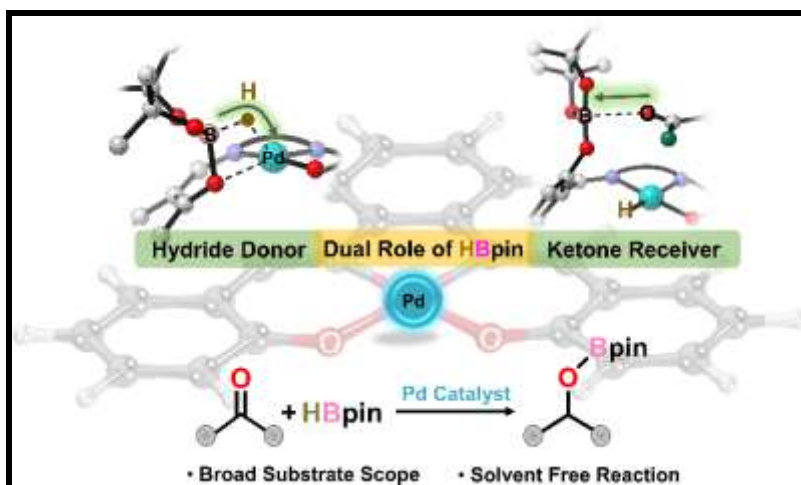
88. *In Silico* Anti-SARS-CoV-2 Activities of Five-membered Heterocycle-substituted Benzimidazoles, Prafulla Kumar Mudi, Rajani Kanta Mahato, Himanshu Verma, Subhra Jyoti Panda, Chandra Sekhar Purohit, Om Silakari, **Bhaskar Biswas**, *Journal of Molecular Structure*, 1261 (2022) 132869 (Corresponding Author).

87. A thiomethyl-substituted imidazolyl imine functionalized copper(II) complex: synthesis, structural characterization, phenoxazinone synthase mimics and biological activities, Nilaj Bandopadhyay, Krishnendu Paramanik, Prafulla Kumar Mudi, Gayetri Sarkar, Muddukrishnaiah Kotakonda, Madhusudan Shit, Hari Sankar Das, **Bhaskar Biswas**, *Polyhedron*, 218 (2022) 115783 (Corresponding Author). (I.F. 3.05)

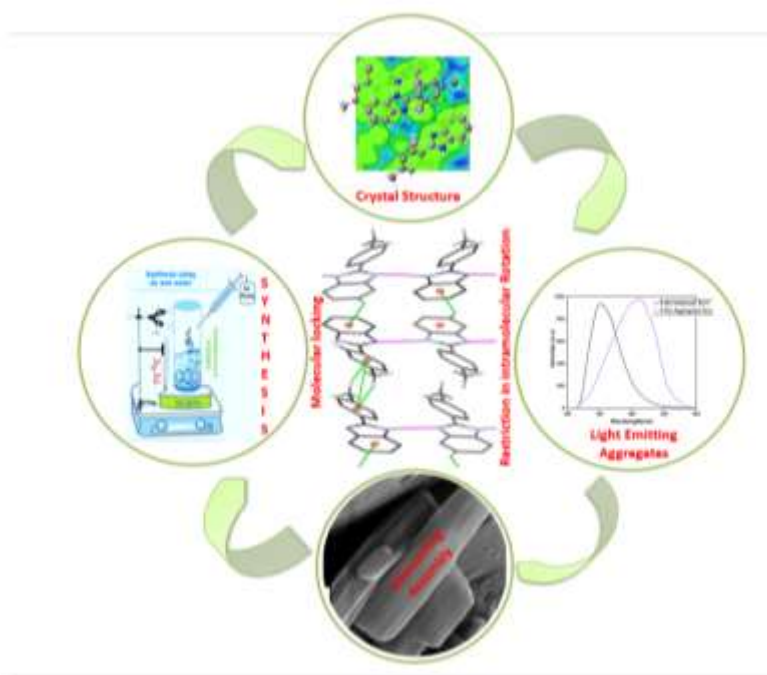
86. Schiff Base Driven Denticity-Fluctuated Structural Assortment of Zinc-pseudohalide Complexes: Synthesis, Structures and Electrical Transport Properties, Prafulla Kumar Mudi, Labhini Singla, Anil Chamuah, Sanjib Bhattachariya, Angshuman Roy Choudhury, and **Bhaskar Biswas***, *Crystal Engineering Communications*, 24 (2022) 2418 (Corresponding Author). (I.F. 3.8)



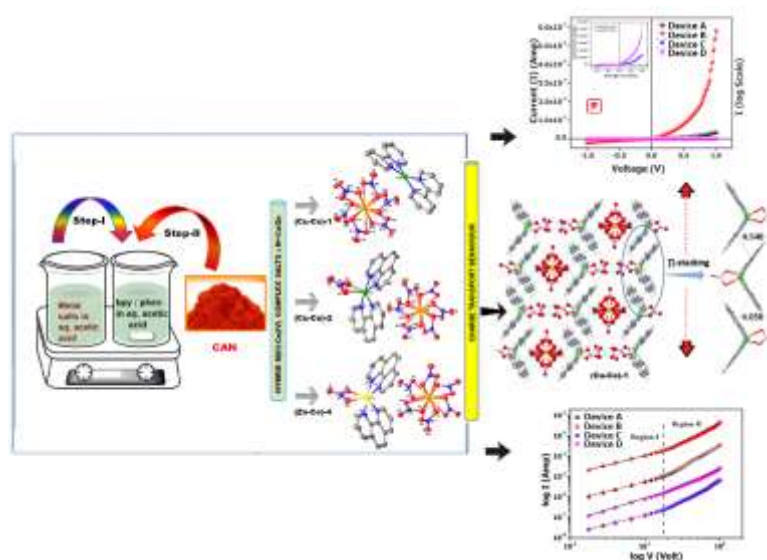
85. Hydroboration and reductive amination of ketones and aldehydes with HBpin by a bench stable Pd(II)-catalyst, Shreya Mahato, Parveen Rawal, Ajitaro Devadkar, Mayank Joshi, Angshuman Roychoudhury, **Bhaskar Biswas***, Puneet Gupta, Tarun Panda, (2022) *Organic & Biomolecular Chemistry*, 20 (2022) 1103 (Corresponding Author). (I.F. 3.8)



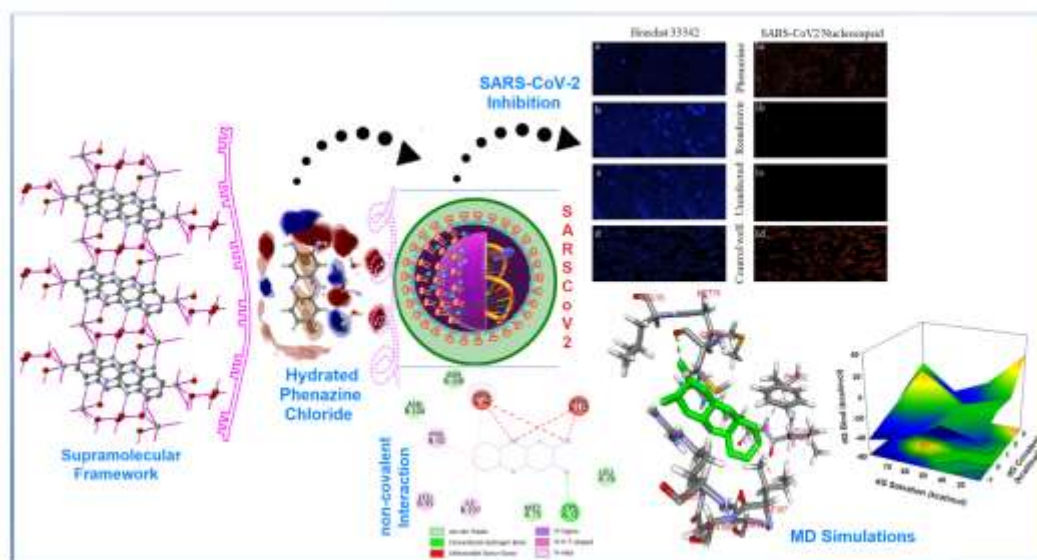
84. Methyl group: A Potential Building Block for Edge-to-Face Interlocking of Benzimidazole Scaffolds in Developing Blue Light Emitting Molecular Aggregates, S. Kundu, S. Saha, A. Das, L. Singla, A.R. Choudhury, **Bhaskar Biswas***, *Journal of Molecular Liquids*. 347 (2022) 118340. (Corresponding Author). (I.F. 6.1)



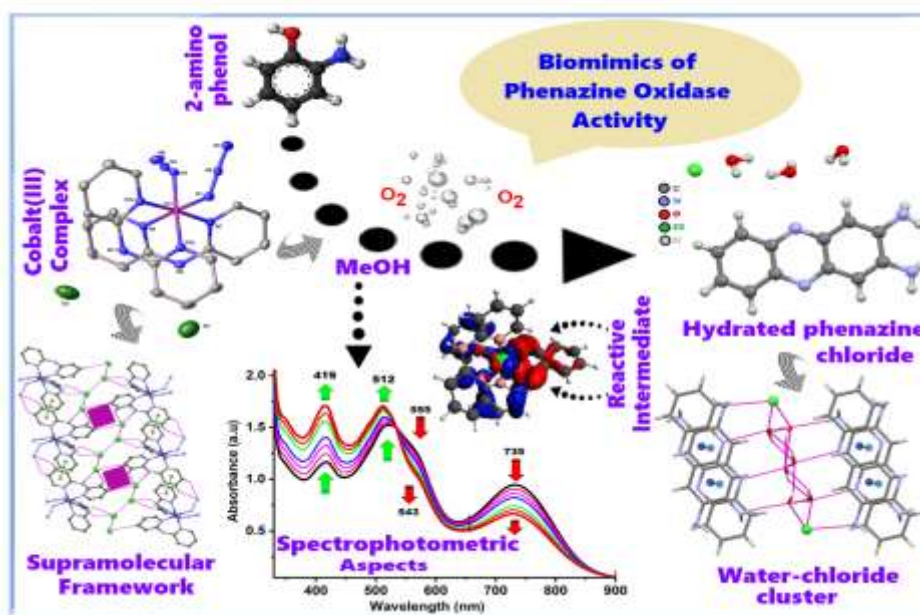
83. A Benzimidazole Scaffold as a Promising Inhibitor against SARS-CoV-2” Prafulla Kumar Mudi, Ayan Kumar Mahanty, Muddukrishnaiah Kotakonda, Sunnapu Prasad, Subires Bhattacharjee,* and **Bhaskar Biswas***, *Journal of Biomolecular Structure & Dynamics* (2022). <https://doi.org/10.1080/07391102.2021.2024448> (Corresponding Author). (I.F. 3.6)
82. De Novo synthesis of hybrid d-f block complex salts and their electronic Charge Transport Properties, Shreya Mahato, Amit Mondal, Mainak Das, Mayank Joshi, Partha Pratim Ray, Angshuman Roy Choudhury, C. Malla Reddy,^{b,*} and **Bhaskar Biswas*** *Dalton Transactions*, 51, 2022, 1561. Doi. 10.1039/d1dt02722k (Corresponding Author) (I.F. 4.1)



81. A hydrated 2,3-diaminophenazinium chloride: A promising building block against SARS-CoV-2, Rajani Kanta Mahato, Ayan Kumar Mahanty, Muddukrishnaiah Kotakonda, Sunnapu Prasad, Subires Bhattacharyya, and **Bhaskar Biswas***, *Scientific Reports* 11 (2021) 23122 | <https://doi.org/10.1038/s41598-021-02280-5>. (I.F. 5.5)



80. Bio-mimics of Phenazine Oxidase Activity with a Cobalt(III) Complex: Synthesis, Structural Characterization, Catalytic Activities, Rajani Kanta Mahato, Soumik Das, Mayank Joshi, Angshuman Roy Choudhury, Anirban Misra, and **Bhaskar Biswas,*** *Applied Organometallic Chemistry*. 36 (2022) e6483, doi.org/10.1002/aoc.6483 (Corresponding Author)



79. A Direct Metal-free Synthetic Approach for the Efficient Production of Privileged Benzimidazoles in water medium under Aerobic Condition, Rajani Kanta Mahato, Prafulla Kumar Mudi, Mayukh Deb and **Bhaskar Biswas***, *Asian Journal of Organic Chemistry*, 10 (2021) doi.org/10.1002/ajoc.202100477 **(Corresponding Author) I.F. 3.3**
78. Head-to-Tail Interlocking Aromatic Rings of a Hydrazine Functionalized Schiff Base for the development of Nano-aggregates with blue emission: Structural and Spectroscopic Characteristics, Prafulla Kumar Mudi, Ajit Das, Nagendranath Mahata, **Bhaskar Biswas**, *Journal of Molecular Liquids*. 340 (2021) 117193 **(Corresponding Author)**.
77. Unprecedented Copper(II) Coordination Induced Nucleophilic Cleavage of Quinoxaline Heterocycle: Structural and Computational Studies, N. Bandopadhyay, M. Joshi, S. Armaković, S. J. Armaković, H.S. Das, A.R. Choudhury, **Bhaskar Biswas**, *Crystal Engineering & Communications*, 23 (2021) 5078-5086 DOI: 10.1039/d1ce00569c **(Corresponding Author) (I.F. 3.6)**
76. Solvent Induced Distortion in a Square Planar Copper(II) Complex Containing an Azo-Functionalized Schiff base: Synthesis, Crystal Structure, *In-vitro* Fungicidal and Anti-proliferative, and Catecholase Activity, S. Mukherjee, C.K. Pal, M. Kotakonda, M. Joshi, M. Shit, P. Ghosh, A.R. Choudhury, **Bhaskar Biswas***, *Journal of Molecular Structure*, 1245 (2021), 131057 <https://doi.org/10.1016/j.molstruc.2021.131057> **(Corresponding Author) (I.F. 3.3)**
75. Copper(II) Complexes with a Benzimidazole Functionalized Schiff base: Synthesis, Crystal Structures and Role of Ancillary ions in Phenoxazinone Synthase Activity, Prafulla Kumar Mudi, Rajani Kanta Mahato, Mayank Joshi, Madhusudan Shit, Angshuman Roy Choudhury, Hari Sankar Das, **Bhaskar Biswas***, *Journal of Applied Organometallic Chemistry*, 35 (2021) e6211. **(Corresponding Author)**
74. A Mononuclear Nickel(II) complex: Synthesis, X-ray structure, Spectroscopic Characterization and Anti-tumor Activity, Sangharaj Diyali, Ayan Kumar Mahanty, Subhajit Sarkar, Md. Firoj Hossain, Biplab Bhowmik, and **Bhaskar Biswas***, *Journal of Advanced Chemicobiology Research*, (2021) 22-30 **(Corresponding Author)**
73. Synthesis, X-ray Structure and Evaluation of Bactericidal Activity of an o-vanillin Functionalized Schiff Base , Prafulla Kumar Mudi, Smriti Pradhan, Amrita Sahu, Dipanwita Saha, and **Bhaskar Biswas**, *Journal of Applied Microbiology: Theory & Technology*, 2 (2021) 18-28 doi.org/10.37256/amtt.212021719 **(Corresponding Author)**

72. Cascade Detection of Fluoride and Bisulphate Ions by Newly Developed Hydrazine Functionalised Schiff Bases, Suvojit Roy, Provakar Paul, Monaj Karar, Mayank Joshi, Suvendu Paul, Angshuman Roy Choudhury, and **Bhaskar Biswas***, *Journal of Molecular Liquids*, 326 (2021) 115293 (Corresponding Author) I.F. 6.1
71. Nickel(II) di-aqua complex containing water cluster: Synthesis, X-ray structure and catecholase activity, Madhusudan Shit, Suvendu Maity, Sachinath Bera, Prafulla Mudi, **Bhaskar Biswas***, Thomas Weyhermueller, Prasanta Ghosh, *New Journal of Chemistry* 45 (2021) 2221-2227 (Co-Author) I.F. 3.5
70. Synthesis, Supramolecular Structure, Polyphenol Oxidase Mimics and Bactericidal Activity of a Zinc(II)-Schiff Base Complex, Shreya Mahato, Nishith Meheta, K Muddukrishnaiah, Mayank Joshi, Madhusudan Shit, Angshuman Roy Choudhury, and **Bhaskar Biswas***, *Polyhedron*, 194 (2021) 114933 (Corresponding Author) I.F. 3.1
69. Catalytic Oxidative Coupling of o-Phenylenediamine, In-vitro Antibacterial and Antitumor Activities of a Gold(III)-Bipyridine Complex, R.K. Mahato, A.K. Mahanty, Suvendu Paul, Vinothini Gopal, Balaji Perumalsamy, Balaji Perumalsamy, Gowdhami Balakrishnan, Thirumurugan Ramasamy, Dhanasekaran Dharumadurai, and **Bhaskar Biswas***, *Journal of Molecular Structure*, 1223 (2021) 129264 (Corresponding Author) I.F. 3.3

Awards /Prize/ Fellowship/Recognition

- Teachers Associateship for research Excellence (TARE) TAR/2018/000473 by SERB, INDIA

Reviewer of Scientific Journals

(i) Chemical Communication (ii) RSC Advances (iii) Applied Organometallic Chemistry (iv) Inorganica Chimica Acta. (v) J. Molecular Structure (vi) Chinese Chemical Letters (vii) Journal of Coordination Chemistry (viii) J Chemical Sciences, (ix) ZAAC. (x) Anti Cancer Drug (xi) J. Indian Chemical Society. (xii) Journal of Inorganic & Nanometal Chemistry.

Invited Talk:

1. Invited Lecture at Refresher Course titled "Recent Trends in Chemistry & Biology" during August 20 to September 02, 2019 at HRDC, University of North Bengal on 21st August 2019.
2. Invited Lecture at Scientific Symposium on International Year of Periodic Table of Chemical Element during 18-19 December 2019 at North Bengal Science Centre, Siliguri, West Bengal
3. Invited Lecture on "Synthetic Coordination Chemistry: Biological Perspectives" in One Day Webinar on "Advance Level Study on Chemical Sciences" by Netaji Subhas Open University(NSOP) on 23rd September, 2020

4. Invited Lecture on “Metallo-supramolecular Chemistry: Synthetic strategy, self-assembly and smart functionalities” in One Day National Level Webinar on “National Science Day Celebrations” by Urumu Dhanalakshmi College, Tiruchirapally, India on 26 February, 2021.
5. Invited Lecture at Refresher Course titled “**Emerging Trends in Natural and Biological Sciences**” during September 09 to September 22, 2022 at HRDC, University of North Bengal on 19th September 2022.

Convener/Coordinator in National Level Seminar/Workshop

- ✚ **SERB Sponsored KARYASHALA**, on a Hands-on training Program on Design, synthesis, characterization and understanding of smart functional materials through experimental and computational modelings, by Dept. of Chemistry, University of North Bengal, Darjeeling 734013, India (04th July– 11th July, 2022) **(Event Organizer)**
- ✚ **Science Academies’ Lecture Workshop** on *Recent Advances in Chemistry: Challenges & Opportunities*, by Dept. of Chemistry, University of North Bengal, Darjeeling 734013, India & Sponsored by IASc, INSA, NASI (05th – 06th October, 2020) **(Coordinator of Lecture Workshop)**
- ✚ **One day International Seminar** on *Frontier in Chemistry 2020*, by Dept. of Chemistry, University of North Bengal, Darjeeling 734013, India in collaboration with CRSI (North Bengal Local Chapter) (15th October, 2020) **(Jt. Convener)**
- ✚ **Coordinator of on-line test for M.Sc. 4th Sem students of Chemistry on 14th Feb 2020** organized by **Syngene International, Bengaluru** in collaboration with **Mettle (Coordinator of on-line test for Syngene International, Bengaluru)**
- ✚ One day state level Seminar on **Petroleum Conservation opportunities in day to day life** organized by **Petroleum Conservation Research Association (PCRA)** in collaboration with **Dept. of Chemistry, University of North Bengal, Darjeeling 734013, India** (10th Feb, 2020) **(Coordinator of State level Seminar)**
- ✚ **International Seminar on IYPT 2019** on *The Periodic Table of Chemical Elements: A Fundamental Resource for the Advancement of Chemical & Material Sciences*, by Dept. of Chemistry, University of North Bengal, Darjeeling 734013, India (22nd – 23rd November, 2019) **(Jt. Convener of International Seminar)**
- ✚ **Science Academies’ Refresher Course** on *Fundamentals and Applications of Chemical Sciences in Material & Biological Sciences*, by Dept. of Chemistry, Surendranath College, Kolkata 700009, India & Sponsored by IASc, INSA, NASI (2nd – 17th January, 2019) **(Coordinator of Lecture Workshop)**
- ✚ **Indian Chemical Society Lecture Workshop** on *Revisit of Chemistry: Past, Present & Future*, by Dept. of Chemistry, Surendranath College, Kolkata 700009, India (16th February, 2018) **(Coordinator of Lecture Workshop)**
- ✚ **Science Academies’ Lecture Workshop** on *Recent Trends in Chemical Science: Issues & Challenges*, by Dept. of Chemistry, Surendranath College, Kolkata 700009, India & Sponsored by IASc, INSA, NASI (29th – 30th November, 2017) **(Coordinator of Lecture Workshop)**
- ✚ **State Level seminar** on *A Scientific, Social and Economic Impact on Environment: Awareness, Benefits & Limitations*, **10th January 2017**, by Teachers’ Council, Raghunathpur College, Purulia 723133, India. **(Jt. Convener)**

- ✚ **Science Academies' Lecture Workshop** on *Chemistry: An Innovation Driver in Materials Science*, by Dept. of Chemistry, Raghunathpur College, Purulia 723133, India & Sponsored by IASc, INSA, NASI (**27th - 28th September, 2016**) (**Coordinator of Lecture Workshop**)
 - ✚ **State Level seminar** on *A tribute to People's man APJ Abdul Kalam who served our nation through his life and works*, **15th October 2015**, by Dept. of Chemistry, Raghunathpur College, Purulia 723133, India (**15th October 2015**) (**Convener**)
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Research Guidance

- 1) Dhananjay Dey (**Thesis Awarded on 14th November 2017**)
- 2) Abhranil De (**Thesis Awarded on 03rd December 2018**)
- 3) Subrata Das (**Thesis Awarded on 07th June 2019**)
- 4) Biswajit Chowdhury (**Thesis Awarded on 30th October 2019**)
- 5) Mamoni Garai (**Thesis Awarded on 21st August 2021**)
- 6) Prafulla Kumar Mudi (**Thesis Awarded on 10th August 2022**)
- 7) Chanchal Kumar Pal
- 8) Suvojit Roy
- 9) Shreya Mahato
- 10) Rajani Kanta Mahato
- 11) Suvam Mukherjee
- 12) Nilaj Bandopadhyay
- 13) Sangharaj Diyali
- 14) Subhankar Kundu
- 15) Subhajit Saha
- 16) Ananya Debnath
- 17) Nilankar Diyali
- 18) Meena Chetri