

Jyoti Rai, Ph.D.

Postdoctoral Researcher (Macrocyclic chemistry).



Profile

Chemist with extensive experience in various instruments, characterization techniques, chemical analysis and development of materials for targeted applications. Experience in process development, optimization of synthesis through in-situ monitoring, scale-up synthesis. Expert in handling the light sensitive chromophore and fluorophore, technique to understand their photophysical properties, explore to practical applications. Good experience in project handling, management and providing the time targeted deliverables. Experience in setting up new instruments, writing and reviewing project reports, safety documents, publications and patents.



Employment History

09/2019-08/2020 **Postdoctoral Researcher at Technion- Israel Institute of Technology, Haifa, Israel.**

Research Advisor Prof. Zeev Gross.

- Have worked on oxidative cyclizations of open chain polypyrrolic molecules.
- Understand the photophysical properties of metalcorrole and porphyrins through absorption and emission spectrophotometer.
- Experienced the NMR, Mass spectrometry, EPR and other material characterization techniques to identify the molecules.
- Mentored Undergraduate students for their research projects.
- Writing Project reports, publications and proposals for funding.



Education


08/2013 – 05/2019 **Doctor of Philosophy, Indian Institute of Science Education and Research (IISER) - Bhopal, India.**

Research Advisor: Dr. Jeyaraman Sankar.

Dissertation title: "Homometallic Corrole-Porphyrin-Corrole Triads : Syntheses, Characterization and Application".

- Synthesis of pyrrolic derivatives and their oxidative cyclization to towards the formation of porphyrin and corroles.
- Understand the metalation effect over the photophysical properties and electronic properties of pyrrolic macrocycle (corrole and Porphyrin).

Contact

 K-605, Broshim Campus, Dr. George Wise St-20, Tel Aviv, Israel.

 Israel no. +972-586277234

 raiijyoti.bhu@gmail.com

 <https://www.linkedin.com/in/jyoti-rai-072b67160>

Technical Skills

All Chromatography techniques, Preparative Liquid Chromatography, LC-MS, Size-Exclusion chromatography (SEC), Cyclic voltammetry, UV-Vis spectrophotometer, Single Crystal, 200 and 300 MHz NMR, EPR.

Spectroscopic

Techniques

NMR (^1H , ^{19}F , ^{31}P , ^{13}C , ^{11}B), FT IR, HPLC, LCMS,

- Metallation pyrrolic derivatives in different oxidation states to use as catalysis reaction in various organic transformation.
- Estimate metal interaction with ligand and their influence over geometry through EPR and XRD analysis.
- Successful utilizations as catalysts in organic transformations like epoxidation, hydrogenation, N-N coupling in carbazoles etc.

07/2010 – **Master of Science, Lucknow University, Lucknow, India.**

06/2012 Major: General Chemistry

07/2007 – **Bachelor of Science, Banaras Hindu University, Varanasi, Uttar Pradesh, India.**

06/2010

Subjects: Botany, Zoology, Chemistry (Hons.)



Awards

- 2013 Qualified GATE, AIR-500 (Graduate Aptitude Test in Engineering), MHRD, India.



Additional Information

Writing skills (Scientific/Technical) demonstrated through publications.



Major Publications

<https://scholar.google.com/citations?user=HvGKqxcAAAAJ&hl=en>

MALDI-TOF and UV-Vis, Fluorescence, TCSPC for fluorescence Lifetime measurements.

Synthesis

Working under Schlenk lines, Glove box, and High temperature/Hydrothermal reactions.

Software Skills

Chem office, Topspin and Mnova for NMR, Origin, Gaussian, Crystallography Software- APEX, Olex2, Shelxtl, Wingx, Ortep, Mercury, Adobe Illustrator, Adobe Photoshop.

Language

English : Proficient

Hindi : Proficient