

CHEMISTRY CONNECT



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From the HOD's Desk

Greetings !

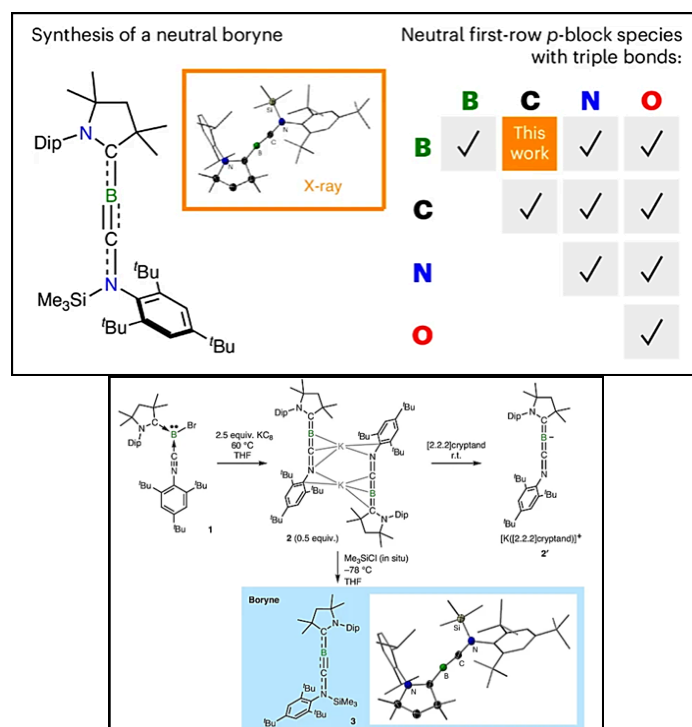
It gives me immense pleasure to welcome you again and to present the latest edition of our departmental newsletter, '*Chemistry Connect*'. On behalf of the faculty, staff, and student community of the Department of Chemistry and Chemical Biology, I am proud to share this continued journey of academic excellence, innovative research, and collective accomplishments. In our previous edition, we celebrated a host of exciting developments—ranging from the vibrant launch of Charming Buzz, to the outstanding achievements of our students, and the collaborative successes across various domains within the department. Today, we return with yet another enriching glimpse into our recent strides and milestones. This edition features insightful stories, inspiring achievements, and meaningful contributions that highlight the passion and perseverance of our community. I invite you to immerse yourself in the vibrant academic and research culture that defines our department. I extend heartfelt appreciation to our dedicated faculty members and enthusiastic students for their unwavering commitment and hard work. Your efforts continue to elevate our department to greater heights. We also look forward to your valuable suggestions and feedback as we strive to further strengthen our collective vision.



Warm regards,
Prof. Parthasarathi Das
Head of Department
Chemistry Buzz

Holger's team from Institute for Sustainable Chemistry & Catalysis with Boron, Julius-Maximilians-Universität Würzburg, Germany has described the synthesis of a neutral boryne and the

reactivity of the compound is explored as its thermal rearrangement, carbonylation and formation of a π complex with a transition-metal fragment. The synthesis and isolation of a neutral, uncoordinated boryne marks a significant advance in main-group chemistry, closing a longstanding gap in the family of neutral first-row p-block compounds featuring element–carbon triple bonds. In this study, a boron–carbon triple bond ($B\equiv C$) is successfully generated and structurally characterized in its free form. The authenticity of the $B\equiv C$ triple bond is supported by a combination of experimental techniques, including X-ray crystallography and spectroscopic analysis, alongside detailed computational investigations. Reactivity studies further substantiate the bonding model, most notably through the π -coordination of the boryne to a copper(I) fragment, highlighting its capacity to engage in transition-metal interactions akin to classical alkynes.



Publications

1. Bhanja, K. K. and Patra, N.*, Identification of Novel Fourth-Generation Allosteric Inhibitors Targeting Inactive State of EGFR T790M/L858R/C797S and T790M/L858R Mutations: A Combined Machine Learning and Molecular Dynamics Approach. *J. Phys. Chem. B*, **2025**, *129*, 14, 3610–3629; DOI: 10.1021/acs.jpcc.4c07651.
2. Chakraborty, G. and Maity, S.*, Divergent Hydroelementation of Unsaturated C-C Bonds Using 3d Transition Metal Based Catalysts. *Advanced Synthesis & Catalysis*, **2025**, *367*, 6, e202401239; DOI: 10.1002/adsc.202401239.
3. Samanta, A.; Mondal, P. P.; Bej, G. and Maity, S.*, Development of a Phototriggered Diradical Phosphoamination Strategy of Alkenes. *Organic Letters*, **2025**, *27*, 606-611; DOI: 10.1021/acs.orglett.4c04380.
4. Mondal, S.; Debnath, S.; Lo, R. and Maity, S.*, Photoredox Activation of Donor-Acceptor Cyclopropanes: Distonic Radical Cation Reactivity in [3+2] Cycloaddition Reactions. *Angewandte Chemie International Edition*, **2025**, *64*, e202419426; DOI: 10.1002/anie.202502300.
5. Talukdar, V.; Paul, S.; Mondal, K. and Das, P.*, CuF₂-catalyzed C-N Cross-Coupling of Aryl Silanes: Expanding the Scope of Chan-Lam Type Reaction. *Advanced Synthesis & Catalysis*, **2025**, *367*, e202401498; DOI: 10.1002/adsc.202401498.
6. M.; Bera, A.; Kumar, A.; Kumar, M. and John, R. P.*, An efficient coumarin-based thiosemicarbazone probe for ratiometric fluorescent sensing of Zn²⁺ and application in live cell imaging. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, **2025**, *336*, 126006; DOI: 10.1016/j.saa.2025.126006.
7. Ghosh, S.; Manna, K.; Chakraborty, K.; Dhara, S. and Pal, S.*, Site Specific Drug Delivery Using Injectable pH-Responsive Biopolymeric Hydrogel: Instant Crosslinking and Shear Thinning. *ACS Appl. Polym. Mater.*, **2025**; DOI: 10.1021/acsapm.4c03770.

Invited Lectures

1. Prof. Niladri Patra delivered an invited talk on “Improving the Computational Efficiency of the Adaptive Biasing Force and Umbrella Sampling by Leveraging the Telescopic-Solvation Scheme” at the Recent Advances in Modeling Rare Events (RARE): Methods and Applications conference in Khajuraho, Madhya Pradesh from 9th to 12th March, 2025.
2. Prof. Sagar Pal delivered an invited talk on “A Comprehensive Review Towards Development and Applications of Polymeric Hydrogels and Micelles” at the 3rd International Conference on Energy, Functional Materials/Molecules and Nanotechnology (ICEFN) at Kumaun University, Nainital from 20th to 22nd March, 2025.
3. Prof. Parthasarathi Das delivered a keynote talk at the IGP Sustainable Chemistry III-2025 conference, held at IIT Indore from 18th to 20th March, 2025.
4. Prof. Swapan Dey conducted a meeting on 24th March, 2025 at Taj Deccan, Hyderabad, Telangana, with Mr. Venky Kandalla, Executive Vice President of the Industrial Chemical Division at Ion Exchange (India) Ltd.. The discussion focused on exploring potential consultancy opportunities and R&D proposals as part of promoting Industry-Academia interactions.
5. Prof. Madhulika Gupta was invited as a Guest Speaker at the CONNECT-2025: Alumni, Parents, and Students Meet at the Chemistry Department, St. Stephen's College, Delhi on March 21, 2025 to share her academic journey, research experiences, and insights with the students, aiming to inspire and motivate students as a distinguished alumnus.

6. **Prof. Rajiv Lakkaniga** delivered a lecture and served as the session chair at the International Conference on Challenges and Advancements in the Treatment of Neurological Disorders, held at Birla Institute of Technology & Science (BITS), Pilani from 21st to 22nd March, 2025.
7. **Prof. S. K. Padhi** delivered an Invited lecture at OUAT Bhubaneswar in the in the National Workshop on "Gene Regulation to Clean Energy; Role of Fundamental Sciences" held from 19th to 20th March 2025.



Prof. Niladri Patra at RARE, Madhya Pradesh



Prof. S.K. Padhi at OUAT, Bhubaneswar



Prof. Swapan Dey at Taj Deccan, Hyderabad



Prof. Madhulika Gupta at St. Stephen's College, Delhi

Spotlight

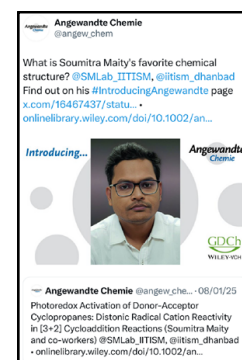
Dr. Ananya Banik joined the department as an Assistant Professor on March 11, 2025. She earned her Ph.D. from Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, under the guidance of Prof. Kanishka Biswas, focusing on lead-free thermoelectric materials for waste heat recovery. Her doctoral work was honored with the KPIT Shodh Best Thesis Award at the 'Energy and Mobility' conference in 2019. Following her Ph.D., she joined Prof. Wolfgang Zeier's group at the University of Giessen, Germany, to work on solid-state batteries. She was awarded the prestigious Alexander von Humboldt Postdoctoral Fellowship to continue her research on solid electrolytes at the University of Münster. During this time, she focused on high-conducting thiophosphate and halide solid electrolytes. Before joining the department, she worked as a Research Scientist at TCG CREST, Kolkata, developing low-cost sodium solid electrolytes for solid-state batteries. She received the Young Scientist Award at GDCEM 2024 in Singapore and currently serves as an Early Career Board member of ACS Applied Energy Materials. Her research interest includes solid-state chemistry for thermoelectrics and batteries.



Other Achievements

1. **Prof. Soumitra Maity's** research and academic profile have been featured in Angewandte Chemie as part of their "Introducing Angewandte" series. In this feature, Prof. Maity shared insights into his work on photoredox activation and his recent paper titled "Photoredox Activation of Donor-Acceptor Cyclopropanes: Distonic Radical Cation Reactivity in [3+2] Cycloaddition Reactions."

2. **Prof. Biswajit Chowdhury** attended the Kick-off Meeting for the Indo-Norwegian Cooperation Program 2, organized by the University Grant Commission (UGC) and the Norwegian Directorate for Higher Education and Skills. The meeting, which took place from March 24-25, 2025, focused on the "Bioscopy" project, where



Prof. Chowdhury participated as the Project Coordinator on behalf of IIT (ISM).

The project received a total sanctioned funding of One Crore Fourteen Lakh Sixty-Six Thousand INR (1,14,66,000) from UGC. The Principal Investigator (PI): Prof. Krishna Agarwal (UiT The Arctic University of Norway).

3. **Prof. Madhulika Gupta** was invited as the Chief Guest on the occasion of Women's day at SSLNT Mahila Mahavidyalya, Dhanbad on 8th March 2025.



Prof. Biswajit Chowdhury from the Indo-Norwegian Cooperation Program 2

Students' Achievements

1. **Shreya Mukherjee**, Ph.D. student of **Prof. Niladri Patra**, presented a poster on "Employing Dynamics Study and Enhanced Sampling to Identify Bio-viable SRPK1 Inhibitor." at Recent Advances in Modeling Rare Events (RARE): Methods and Applications during 9th-12th, March 2025, at Khajuraho, Madhya Pradesh, India.

2. **Kousik Kumar Bhanja**, Ph.D. student of **Prof. Niladri Patra**, presented a poster on "Computational Investigation of the Binding Mechanism and Conformational landscape of Selective Covalent Inhibitors in EGFR exon 19 Deletion and Point Mutation." at Recent Advances in Modeling Rare Events (RARE): Methods and Applications during 9th-12th, March 2025, at Khajuraho, Madhya Pradesh, India.

3. **Gourav Chakraborty**, Ph.D. student of **Prof. Niladri Patra**, presented a poster on "Targeting 14-3-3 ζ / α -Synuclein Complexation: Identification of Allosteric Sites and Development of Modulatory Inhibitors." at Recent Advances in Modeling Rare Events (RARE): Methods and Applications during 9th-12th, March 2025, at Khajuraho, Madhya Pradesh, India.

4. **Suprabha Palatasingh** and **Reetika Tamang**, Ph.D. students of **Prof. Madhulika Gupta**, were invited as special guests on the occasion of Women's day at SSLNT Mahila Mahavidyalya, Dhanbad on 8th March 2025 to inspire girls.



Reetika and Suprabha with Prof. Madhulika Gupta at SSLNTMM



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Contact: ccb@iitism.ac.in

