

BIJOY P. MATHEW, Ph.D.

Assistant Professor of Chemistry | St. Stephen's College, University of Delhi

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PROFILE

Assistant Professor of Chemistry at St. Stephen's College, University of Delhi, with over eight years of undergraduate teaching experience, approximately three years of postdoctoral research experience in South Korea, and prior research experience in the pharmaceutical/biotechnology industry. Research experience spans C–H activation, multicomponent reactions, polycyclic aromatic hydrocarbons, heterocyclic chemistry, and graphitic carbon nitride-based photocatalytic materials.

RESEARCH INTERESTS

- Graphitic carbon nitride-based photocatalysts and environmental applications
- Multicomponent reactions and sustainable organic synthesis
- Aromatic C–H activation and selective annulation toward polycyclic aromatic hydrocarbons and nanographenes

EDUCATION

- Ph.D. in Organic Chemistry, University of Delhi, 2012 — Thesis: Synthesis and Antimicrobial Evaluation of Dihydro[1,3]oxazine Derivatives
- M.Phil. in Organic Chemistry, University of Delhi, 2008; Thesis: Synthesis of Dihydro-1,3-Benzoxazines as Potential Antifungal Agents
- M.Sc. in Organic Chemistry, St. Stephen's College, University of Delhi, 2006
- B.Sc. (Hons) in Chemistry, St. Stephen's College, University of Delhi, 2004

TEACHING EXPERIENCE

- Assistant Professor, St. Stephen's College, University of Delhi — August 2026–Present. Courses: Stereochemistry; Lab Safety and Control Measures and Nitrogen-containing Compounds; Ayurveda and Nutrition.
- Assistant Professor, Vimala College, Thrissur — August 2018–August 2026. Courses included Basic Organic Chemistry, Stereochemistry, Reaction Mechanisms, Heterocyclic Chemistry, Dyes, and Carbohydrates; supervised practical classes and examinations.
- Assistant Professor (Adhoc), St. Stephen's College, University of Delhi — July 2012–May 2013. Taught Organic Chemistry concepts and mechanisms.
- Guest Lecturer, SRCAS for Women, University of Delhi — January 2012–April 2012. Taught medicinal chemistry topics including drug design and receptor interactions.

RESEARCH EXPERIENCE

- Institute of Basic Science (IBS), Center for Genomic Integrity, Ulsan, South Korea — January 2015–December 2016. Investigated metal-catalyzed C–H activation strategies for aryl-(hetero)aryl structures; developed novel chemotherapeutic agents targeting DNA repair mechanisms; synthesized PAHs for nanodimensional applications.
- Ulsan National Institute of Science & Technology (UNIST), Ulsan, South Korea — April 2014–December 2014. Developed zeolite-based single-atom catalysts for selective aromatic C–H functionalization; conducted kinetic investigations and built a flow-reactor system for continuous synthesis.

INDUSTRY EXPERIENCE

- Senior Research Associate (A-3), GVK Bioscience, Hyderabad — September 2013–February 2014. Synthesized phosphodiester-based oligosaccharides and heterocyclic compounds.
- Senior Research Analyst, J R Labs, Hyderabad — January 2017–July 2018. Analyzed asbestos fibers from work and ambient environments.

RESEARCH GRANTS

- Co-PI, WISE-KIRAN Division, "Consolidation of University Research for Innovation and Excellence in Women Universities" (CURIE-PG), Department of Science & Technology, Government of India — ₹50 lakh, three-year grant.

- UGC Travel Grant, Government of India — ₹2.5 lakh, 2019.

AWARDS & FELLOWSHIPS

- Junior Research Fellowship, CSIR, Government of India — 2007.
- Senior Research Fellowship, CSIR, Government of India — 2010–2011.
- Topper, NPTEL Online Course “Mechanisms in Organic Chemistry” — July–September 2019.

SELECTED PUBLICATIONS

- Manchary John, P. U.; Kandula, S. K.; Peddi, K.; Cheekatla, S. S.; Tanguturi, S. M.; Maddila, S.; Mathew, B. P. et al. “Pregnenolone biotransformation by a plant-associated *Bulbithecium* sp. GSBT E3 and in silico insights.” *3 Biotech* 16, 243 (2026).
- Lee, S.-g.; Seo, Y.; Jeong, S.; Chung, Y.; Kong, S.; Kim, M.; Rhlee, J. H.; Um, S.; Mathew, B. P. et al. “Targeting IP6 signaling to destabilize homologous recombination proteins to overcome PARP inhibitor resistance.” *Nature Communications* 17, 4871 (2026).
- Mathew, B. P.; Joy, J.; Crispin, R.; Khan, Z. “Pristine Lignin: A Sustainable Material for Electrochemical Energy Storage.” *SusMat* 5, no. 6 (2025): e70050.
- Lathwal, A.; Mathew, B. P.; Nath, M. “Syntheses, Biological and Material Significance of Dihydro[1,3]oxazine Derivatives: An Overview.” *Current Organic Chemistry* 25 (2021): 133–174.
- Mathew, B. P.; Kuram, M. R. “Emerging C–H functionalization strategies for constructing fused polycyclic aromatic hydrocarbons and nanographenes.” *Inorganica Chimica Acta* 490 (2019): 112–129.
- Mathew, B. P.; Yang, H. J.; Kim, J.; Lee, J. B.; Kim, Y.-T.; Lee, S.; Lee, C. Y.; Choe, W.; Myung, K.; Park, J.-U.; Hong, S. Y. “An annulative synthetic strategy for building triphenylene frameworks by multiple C–H bond activations.” *Angewandte Chemie International Edition* 56 (2017): 5007–5011.
- Mathew, B. P.; Yang, H. J.; Oh, D. G.; Myung, K.; Kwak, J. H.; Hong, S. Y. “Efficient copper catalysts for C–H bond arylation under microwave heating: direct access to multisubstituted pivanilides.” *Catalysis Communications* 90 (2017): 83–86.
- Jeon, M. H.; Mathew, B. P.; Kuram, M. R.; Myung, K.; Hong, S. Y. “A palladium and gold catalytic system enables direct access to O- and S-linked non-natural glycoconjugates.” *Organic & Biomolecular Chemistry* 14 (2016): 11518–11524.
- Mathew, B. P.; Yang, H. J.; Jeon, H.; Lee, J. H.; Kim, J. C.; Shin, T. J.; Myung, K.; Kwak, S. K.; Kwak, J. H.; Hong, S. Y. “C–H bond arylation of anilides inside copper-exchanged zeolites.” *Journal of Molecular Catalysis A: Chemical* 417 (2016): 64–70.
- Mathew, B. P.; Batra, N.; Nath, M. “A convenient one-pot aqueous phase synthesis and properties of naphtho[e]bis[1,3]oxazines.” *Current Green Chemistry* 3 (2016): 360–365.
- Mathew, B. P.; Tandon, R.; Batra, N.; Agarwal, D.; Bose, M.; Gupta, R. D.; Nath, M. “Environmentally benign synthesis and anti-mycobacterial evaluation of 9,10-dihydro-4-methylchromeno[8,7-e][1,3]oxazin-2(8H)-one derivatives.” *Indian Journal of Chemistry-B* 56B (2017): 1237–1242.
- Mathew, B. P.; Aggarwal, N.; Kumar, R.; Nath, M. “Synthesis and anti-bacterial activity of novel dihydrochromeno[8,7-e][1,3]oxazine-2(8H)-thione derivatives.” *Journal of Sulphur Chemistry* 35 (2014): 31–41.
- Mathew, B. P.; Kumar, A.; Sharma, S.; Shukla, P. K.; Nath, M. “An eco-friendly synthesis and antimicrobial activities of dihydro-2H-benzo- and naphtho-1,3-oxazine derivatives.” *European Journal of Medicinal Chemistry* 45 (2010): 1502–1507.
- Mathew, B. P.; Nath, M. “One-pot three-component synthesis of dihydrobenzo- and naphtho[e]-1,3-oxazines in water.” *Journal of Heterocyclic Chemistry* 46 (2009): 1003–1006.
- Mathew, B. P.; Nath, M. “Recent approaches to antifungal therapy for invasive mycoses.” *ChemMedChem* 4 (2009): 310–323.

BOOK CHAPTERS

- “Graphitic carbon nitride/polymer nanocomposites,” in *Synthesis, Characterization and Applications of Graphitic Carbon Nitride*, Elsevier (2022).
- “One-pot three-component selective annulation strategies for the synthesis of bioactive β -lactam, pyrrole, and pyridine scaffolds,” in *Multicomponent Synthesis: Bioactive Heterocycles*, De Gruyter (2023).
- Singh, D. K.; Mathew, B. P. “Exploring the Synthesis and Characteristics of Nanographenes and PAHs with Azulene Embedment,” in *Azulene-Based Materials* (2026). DOI: 10.1002/9781394159369.ch8.

- Mathew, B. P.; Singh, D. K.; Kumar, N. R. "Why Organic Semiconducting Systems in Biotechnology?" in Organic Semiconducting Systems for Applications in Biomedical Engineering, Elsevier — proof reading.

CONFERENCES, MENTORING & PROFESSIONAL DEVELOPMENT

- Oral presentations: 25th International Conference on Organic & Inorganic Chemistry, Vancouver, Canada (2019); ICCPM 2018, St. Thomas College, Thrissur (2018).
- Poster presentation: 14th ISCB International Conference, Lucknow (2010).
- Supervised M.Tech and UG projects focusing on green synthesis and novel compound development; guided summer trainees and mentored research projects on biodegradable polymers and heterocyclic compounds.
- Participated in faculty development programmes, workshops on online teaching, and training on research methodologies.