

## Editorial Board Focus: Prof. Debabrata Maiti (Indian Institute of Technology Bombay, India)

**Background and Purpose.** From time to time, SYNFORM portraits Thieme Chemistry Editorial Board or Editorial Advisory Board members who answer several questions regarding their research interests and revealing their impressions and views on the developments in organic chemistry as a general research field. This Editorial Board Focus presents Prof. Debabrata Maiti (Indian Institute of Technology Bombay, India) who will join the Editorial Board of SYNLETT as its new Editor-in-Chief with effect of January 2024.

### Biographical Sketch



Professor D. Maiti

**Debabrata Maiti** is a synthetic scientist specializing in organometallic chemistry and catalysis and serving as professor of chemistry at the Indian Institute of Technology Bombay, Mumbai (India). He was born (1980) in West Bengal, India. He received his B.Sc. from RKMVM, Belur, University of Calcutta (India) in 2001 and M.Sc. from IIT Bombay in 2003. He received his PhD from Johns Hopkins University (USA) in 2008 under the supervision of Prof. Kenneth D. Karlin. He spent two years as a Post-Doctoral Fellow at Massachusetts Institute of Technology (USA) with Prof. Stephen L. Buchwald before joining the Department of Chemistry at IIT Bombay as an Assistant Professor in 2011. He was promoted to Associate Professor (2015) and to Professor (2021) and was named the Institute Chair Professor in 2022. In 2022, he was elected as a fellow of Academy of Sciences (FASc). He is the coauthor of 266 papers and 17 issued patents. He served as an associate editor for *The Journal of Organic Chemistry* during the period of 2017–2023. He was awarded the Shanti Swarup Bhatnagar Prize, the prestigious Indian national award for excellence in scientific research, for Chemical Sciences for the year 2022 for his significant contributions to developing transition-metal catalysis for transforming organic molecules to prepare value-added materials by site-selective functionalization, leading impact on agrochemicals and pharmaceuticals industry. In 2024, he joins SYNLETT as Editor-in-Chief.

### INTERVIEW

**SYNFORM** *What fascinates you most about organic chemistry and synthesis?*

**Professor D. Maiti** I am fascinated by the creative problem-solving and the ability to design and synthesize complex molecules with specific properties.

**SYNFORM** *Tell us more about your current research activities.*

**Professor D. Maiti** Our group is mainly focusing on developing highly efficient catalytic reactions using the tools of organic/organometallic synthesis and physical organic chemistry. In this context, one of our primary activities is focused on the selective activation of C–H bonds and their functionalization with appropriate coupling partners. Although C–H bonds are prevalent in organic compounds, breaking them and replacing another molecule for the hydrogen atom is challenging. Selectivity is also an issue when there are multiple comparable C–H bonds in the molecule and only one needs to be activated. To achieve selective activation of C–H bonds, our group is actively involved in the discovery of novel organometallic catalysts and the design of ligands. This site-specific C–H functionalization technique would allow for the introduction of new chemical groups toward the end of a synthetic sequence, which means new molecules can be rapidly accessed without laborious de novo chemical synthesis.

Besides C–H bond activation, we also aim to harness the power of cutting-edge electrocatalytic and photocatalytic strategies to overcome energy barriers for chemical bond manipulation that are unattainable by current synthetic methods. Transition-metal-catalysed cross-coupling is a transformative method for carbon–carbon bond formation that accounts for 12% of reactions conducted in the pharmaceutical industry.

We realized that next-generation cross-coupling reactions are needed to support the greater three-dimensionality of pharmaceuticals and to reduce reliance on precious metals and unstable aryl/alkyl nucleophile reagents in the discovery and manufacture of medicines. In this endeavour, our group is developing catalysts for C(sp<sup>2</sup>)-C(sp<sup>3</sup>) and C(sp<sup>2</sup>)-C(sp<sup>2</sup>) cross-electrophile coupling that rely on abundant aryl and alkyl halide/pseudohalide electrophiles.

**SYNFORM** *What do you think about the modern role and prospects of synthetic chemistry?*

**Professor D. Maiti** In the modern scientific landscape, synthetic chemistry plays a pivotal role by serving as the cornerstone of innovation in various disciplines. Its prospects are fuelled by the ability to design and create novel molecules with precise functionalities, offering solutions to complex challenges in medicine, materials science, and technology. With advancements in green chemistry, synthetic methods are becoming more sustainable, aligning with global efforts for environmentally conscious practices. The integration of artificial intelligence and automation enhances the efficiency of synthetic processes, accelerated drug discovery and materials development. As a dynamic and evolving field, synthetic chemistry continues to drive scientific progress, offering exciting prospects for groundbreaking discoveries in the coming years.

**SYNFORM** *What should be the role of publishers over the next 10 years?*

**Professor D. Maiti** Over the next decade, publishers will play a pivotal role in navigating the evolving landscape of scholarly communication. Embracing technological advancements, publishers must lead in the development of innovative platforms and tools that enhance accessibility, collaboration, and data integration. The promotion of open access initiatives will gain prominence, fostering wider dissemination of knowledge. Publishers will also be instrumental in addressing ethical considerations, ensuring transparency and reproducibility in research. Collaborative efforts between publishers, institutions, and researchers will be essential for shaping a dynamic and inclusive future for academic publishing.

**SYNFORM** *Please comment on joining the editorial board of SYNLETT as new Editor-in-Chief and share your vision for the journal.*

**Professor D. Maiti** I am honoured to be appointed as the new Editor-in-Chief of SYNLETT, a prestigious journal renowned for its commitment to excellence in organic chemistry research. With a strong background in the field, I am eager to contribute to the journal's legacy and further elevate its standing within the scientific community.

My vision for SYNLETT is rooted in fostering innovation and collaboration. I aim to enhance the journal's global reach by actively engaging with researchers and authors across diverse sub-disciplines of organic chemistry. By implementing rigorous yet transparent peer-review processes, we will ensure the publication of high-impact research that pushes the boundaries of synthetic organic chemistry.

Furthermore, I am committed to nurturing the next generation of researchers. Initiatives supporting early-career scientists and providing them with a platform to showcase their work will be a priority, reinforcing SYNLETT's role in shaping the future of organic chemistry.

I am excited about the collaborative journey ahead with the esteemed editorial board. Together, we will fortify SYNLETT's legacy as a beacon of excellence in organic synthesis, fostering a vibrant scholarly community and pushing the boundaries of scientific discovery.

**SYNFORM** *As Editor-in-Chief, what are your recommendations to researchers who want to publish their results in SYNLETT?*

**Professor D. Maiti** As Editor-in-Chief of SYNLETT, I advise researchers to meticulously align their submissions with the journal's scope, emphasizing the significance of their work in synthetic organic chemistry. Craft manuscripts with clarity, conciseness, and a focus on key findings, ensuring a compelling narrative. Rigorously detail experimental procedures and provide comprehensive supporting information to enhance reproducibility. Demonstrate ethical research conduct, engage thoughtfully with reviewers' feedback, and adhere to SYNLETT's citation style. Timely submission and responsiveness to editorial queries are essential for expediting the publication process and maintaining the journal's commitment to excellence.

**SYNFORM** *Finally, on a personal note, what do you do in your free time?*

**Professor D. Maiti** In addition to my academic interests, I have a passion for the fine arts, particularly classical music and painting. I also enjoy partaking in stimulating philosophical debates with colleagues and students, discussing

profound ideas and their implications on our society. When time permits, I also cherish the opportunity to be in the great outdoors. These activities allow me to recharge my mind and spirit, ensuring that I return to my academic pursuits with renewed vigour and creativity.

A handwritten signature in orange ink that reads "Matthew Fankle".