

Meet Dr. Nagaraju Barsu, Thieme Chemistry Journals Awardee 2026!



Dr. Nagaraju Barsu received his PhD in 2019 from the Indian Institute of Technology Kanpur (India). He subsequently carried out postdoctoral research (2019–2021) at the Max Planck Institute for Coal Research (Germany) prior to taking up his current position as a senior scientist at CSIR–National Chemical Laboratory, and assistant professor (AcSIR), Pune (India).

Thieme: Which field of organic chemistry are you interested in the most and why?

Dr. Barsu: I am particularly interested in catalysis-driven synthetic organic chemistry, especially at the interface of organometallic chemistry and sustainable transformations. This field offers powerful tools to construct complex molecular architectures with high efficiency and selectivity. More importantly, it enables the development of environmentally benign processes, which I find crucial in addressing global challenges such as plastic waste and resource sustainability.

Thieme: Following that, what is the focus of your current research activity?

Dr. Barsu: My current research focuses on the development of sustainable catalytic strategies for polymer upcycling, particularly targeting polyolefins such as polyethylene. I am working on designing noble-metal-free catalytic systems, especially copper-, iron- and cobalt-based platforms, to introduce controlled unsaturation into polymer backbones, followed by post-functionalization to generate value-added chemicals such as alkenes, linear dialdehydes and diacids. Additionally, I am exploring multifunctional catalytic systems integrating photocatalysis and heterogeneous catalysis for efficient functional group transformations of small molecules (see Figure 1).

Thieme: What do you think about the modern role and prospects of organic chemistry?

Dr. Barsu: Organic chemistry plays a central role in addressing some of the most pressing challenges of our time, including sustainability, energy, and healthcare. The field is rapidly evolving toward greener, more efficient, and more selective transformations, driven by advances in catalysis, automation, and interdisciplinary approaches. I believe the future of organic chemistry lies in its ability to integrate with materials science, chemical engineering, and environmental science to develop scalable and impactful solutions.

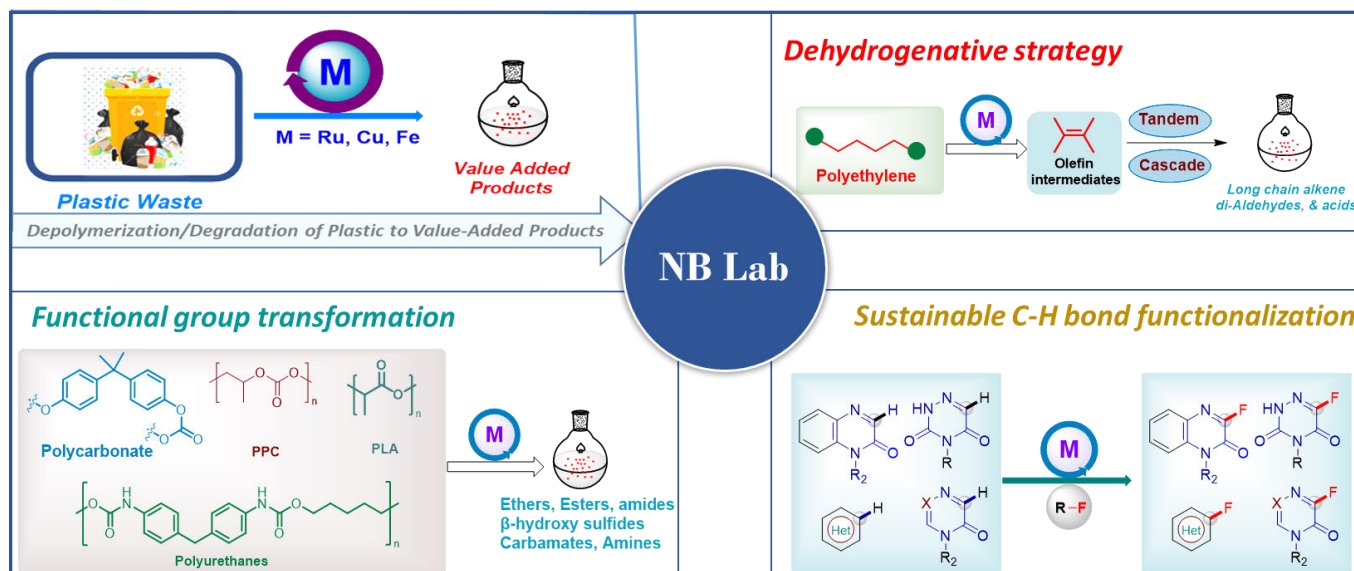


Figure 1 Overview of the research foci of Barsu's group

Thieme: Which difficulties are there for young upcoming chemists in your field? Do you have any tips?

Dr. Barsu: One of the key challenges for young chemists is navigating the increasing complexity and interdisciplinarity of modern research. Balancing fundamental understanding with application-oriented goals can also be demanding. Additionally, the pressure to publish impactful work can sometimes limit risk-taking in research. My advice would be to build a strong foundation in fundamental chemistry, remain curious, and not hesitate to explore unconventional ideas. Developing resilience, embracing collaboration, and maintaining scientific integrity are equally important for long-term success.

Thieme: What is your most important scientific achievement to date and why?

Dr. Barsu: One of my most important scientific achievements is the development of a novel catalytic approach for the chemical upcycling of polyethylene into value-added linear aliphatic di-aldehydes. This work is significant because it gives the path for critical thinking towards the environmental challenge of converting plastic waste into useful chemical feedstocks. It demonstrates not only the feasibility of controlled polymer functionalization but also the potential for designing sustainable and scalable solutions for plastic waste valorization.

Thieme: Could you tell us something about yourself outside the lab, such as your hobbies or extra-work interests?

Dr. Barsu: Outside the lab, I enjoy engaging in activities that help me maintain balance and creativity. I like reading about scientific developments and broader topics such as sustainability and technology. I also enjoy spending time in nature and participating in outdoor activities, which often provide a fresh perspective and renewed motivation for research.