Dehydrogenative and Hydrogenative Catalysis for the synthesis and recycling of polymers

Amit Kumar

School of Chemistry, University of St. Andrews, KY169ST, Email: ak336@st-andrews.ac.uk.

The development of sustainable methods for the closed-loop production and recycling of plastics is an important challenge of the current times. Reactions based on catalytic (de)hydrogenation are atom-economic and sustainable routes for organic transformations. This lecture will discuss the application of homogeneous (de)hydrogenative catalysis for the synthesis and degradation of plastics such as nylons, polyureas, polyureaurethanes, polyethylenimines, polyketones, and polyesters.[1]

Reference:

1. A. S. Lozano-Perez, P. Kulyabin, A. Kumar, ACS Catalysis, 2025, 15, 3619-3635.

Biography

Amit Kumar is a UKRI Future Leaders Fellow at the School of Chemistry, University of St. Andrews. He completed his DPhil (2012–2016) as a Rhodes Scholar under the supervision of Prof. Andrew Weller at the University of Oxford, UK, and then moved to Israel to carry out postdoctoral research with Prof. David Milstein at the Weizmann Institute of Science (2016-2019). Amit started his independent academic career at the University of St. Andrews in January 2020 as a Leverhulme Early Career Fellow and was awarded a UKRI Future Leaders Fellowship in 2022. He was promoted to Principal Research Fellow/Reader in 2024.