

Chemical Strategies to Enhance Polymer Properties and Recyclability.

Prof. Suong Nguyen

Laboratory of Synthetic Polymer Chemistry, EPFL Lausanne
EPFL SB ISIC LCPS, Av. François-Alphonse Forel 3, 1015 Lausanne
suong.nguyen@epfl.ch

Plastics have transformed modern society thanks to their low cost, durability, and versatility, with applications spanning virtually every sector of daily life. At the same time, their production and end-of-life management present significant environmental challenges, demanding new strategies to recycle existing plastics and design next-generation recyclable materials. This talk will highlight complementary strategies to advance polymer sustainability: (1) recovering monomers from commercial plastics through new depolymerization methods; (2) incorporating “drop-in” cleavable additives that enable selective end-of-life deconstruction without altering native properties; and (3) developing chemical approaches to enhance the performance of industrially important polymers. Together, these approaches offer promising routes to transform existing plastic waste into valuable resources and contribute to the development of a more sustainable and circular polymer economy.