ISGC 2022

N°1397 /
TOPIC(s) : Homogenous, heterogenous and biocatalysis

Exploring Sustainable Chemistry

AUTHORS
Ben FERINGA / UNIVERSITY OF GRONINGEN, NIJENBORGH 4, GRONINGEN

PURPOSE OF THE ABSTRACT

Chemistry, being the creating science par excellence, faces the challenge to build a more sustainable and green basis for our chemical transformations and materials. Chemical design and synthesis is confronted with the fascinating future journey to discover novel catalysts, alternative synthons, precision chemical transformations and adopting the principles of green chemistry. In this lecture we will explore both chemical activation and materials design from a perspective of more sustainable alternatives. Recent advances in our program on adaptive and multitasking catalysts using both metal- based and organo-catalytic approaches are presented. Furthermore, novel cross coupling methodology illustrates fast high precision C-C bond formation. Towards materials design the focus will be on self-healing and reversibility/recycling taking advantage of natural monomers and supramolecular organization principles. Balancing covalent, dynamic covalent and non-covalent bonds offers attractive prospects for future advanced materials. Finally, bio-based routes to polymers and coatings, using photocatalytic oxidation as a key transformation or materials featuring intrinsic recycling capabilities, as well as brief outlook are presented.
Information on http://www.benferinga.com
Vision statement Materials in Motion: Adv. Mater. 2020

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS

BIBLIOGRAPHY