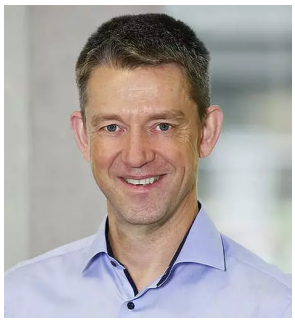
訪日学者講演会

主　催　高分子学会　東海支部

日　時　令和 7 年 4 月 8 日 (火) 16:00～17:30

会　場　名古屋大学 工学部 1 号館 3F 132 講義室

講演題目



Closed Loop Recyclable and Degradable

Polyethylene-Like Materials Enabled by Catalysis

講演者

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https://www.chemie.uni-konstanz.de/mecking/

講演概要

The excellent materials properties of polyethylene, the largest produced synthetic plastic, originate from a crystalline packing of the (linear) hydrocarbon chains. The inert nature of the hydrocarbon backbone of polyethylene and other common plastics hinders chemical recycling, however, and also renders material lost to the environment persistent for many decades. Catalytic approaches enable an introduction of in-chain functional groups in a polyethylene chain, either via chain growth olefin copolymerization or step growth polycondensation of long-chain monomers, obtained from natural oils or waste feedstocks. These yield e.g. polyesters with solid state structures and materials and processing properties similar to polyethylene (HDPE). At the same time, these materials can be closed-loop recycled under mild conditions via the low density of in-chain functional groups. The in-chain groups can also render the materials biodegradable. Stable isotope labelling during synthesis allows for quantification of the mineralization in different environments including soil.

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