



Institut für Physik
Institut für Chemie und Biotechnik



INSTITUTSKOLLOQUIUM

Gemeinsames Kolloquium der Physik und Chemie

Am Dienstag, dem 14. Juni 2022, spricht um 17:15 Uhr im Faraday-Hörsaal,

Frau Dr. Ina Vollmer
Universität Utrecht

zum Thema:

„CHEMICAL STRATEGIES FOR VALORIZATION OF PLASTIC WASTE“

Abstract:

Chemical pathways could turn plastic waste into valuable chemical building blocks like aromatics, monomers or surfactants. Ina Vollmer works on such strategies, especially for polyethylene and polypropylene packaging, because of their dominance and the challenges in converting them to high purity products. This involves using catalysts to lower energy demand and improve product purity as well as novel strategies via mechano-catalytic, using mechanical force to break chemical bonds at low temperatures, and photo-assisted routes. She will address the challenges in contacting the highly viscous polymer with the porous catalyst and in tuning the purity of the product.

Decades of polymer engineering have led to various plastic materials with a variety of tunable properties and applications saving, for example, transport related CO₂ emissions or improving hygiene. Considerably less effort has gone into circular strategies for avoiding and dealing with the waste created. The majority of plastic waste is landfilled, burned, or leaks to the environment, harming wildlife and potentially humans, i.e. in the form of additives or micro- and nanoplastics via the food-chain. Unfortunately, only 12 % (by weight) of plastic packaging is recycled globally, mainly because the predominantly applied recycling technique of melting and re-extrusion produces a lower quality plastic. In addition, this process requires a highly pure stream of certain types of polymers. Only polyethylene terephthalate (PET) and polyolefins are currently recycled this way on a significant scale.

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Die Hochschullehrer der Institute für Physik und Chemie