OPTEXC

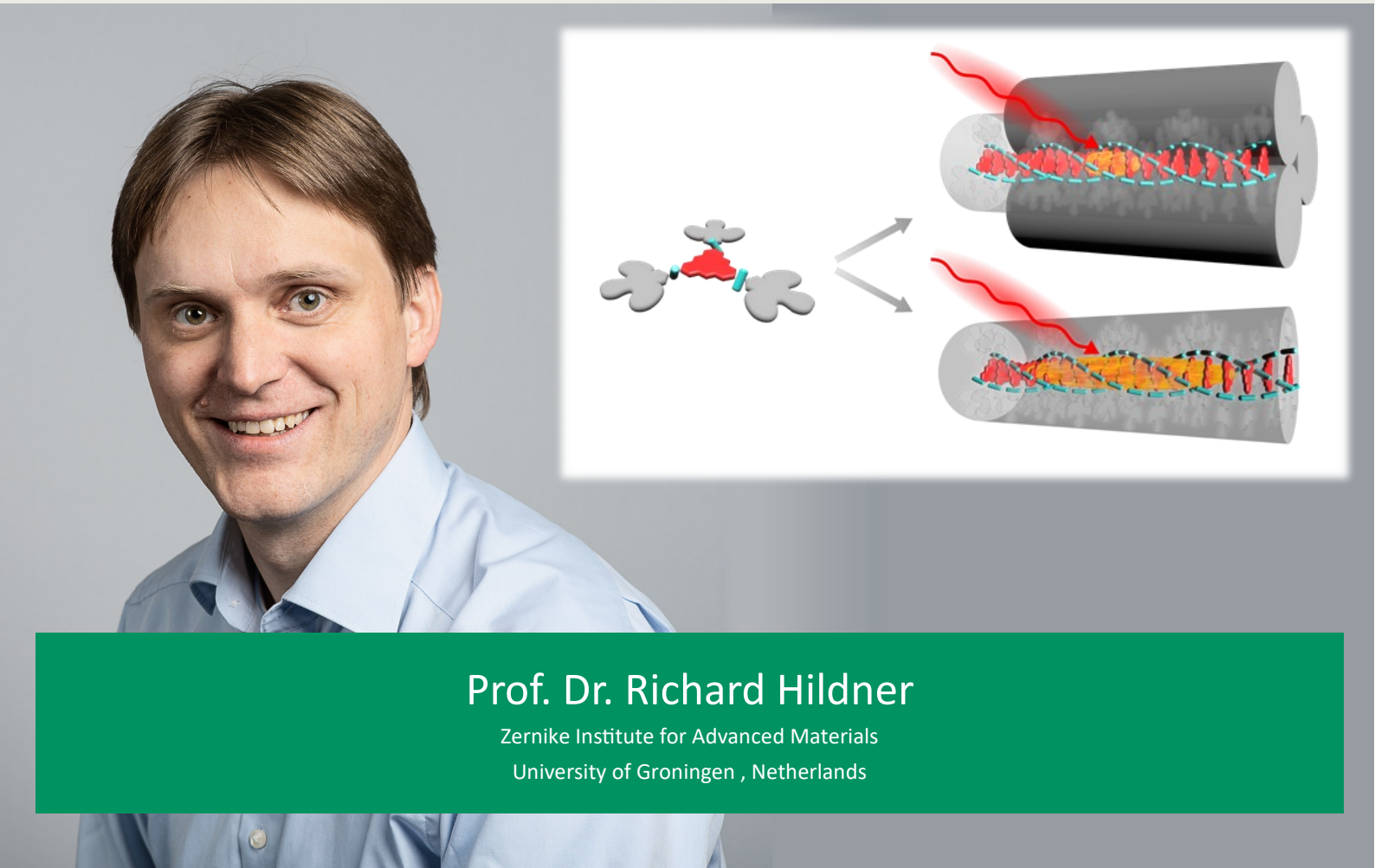
UNIVERSITÄT BAYREUTH

invited speaker series

Energy Transport in Supramolecular (Super-)Structures with Tailored Excited-State Energy Landscapes

Organic (nano-)photonics and molecular electronics applications require efficient charge and/or energy transport through assemblies of functional molecules. A key factor for transport was demonstrated to be high electronic and structural order, which, however, is very difficult to achieve by simple casting techniques. Self-assembly of functional molecules or conjugated polymers into defined nanostructures can be used to create systems with tailored energy transport characteristics by controlling the properties of the excited-states. Specifically, we use a low-molecular-weight molecule (carbonyl-bridged triarylamine) that features robust self-assembly into well-defined hierarchical supramolecular nanostructures. Such structures allow to resolve long-range and efficient energy transport in time and space. In combination with numerical modelling, we extract their excited-state energy landscapes and how those determine transport distances. Moreover, we exploit more complex supramolecular superstructures ("Shish-Kebab"-type structures), to investigate defined and highly aligned nanofibres based on the prototypical conjugated polymer poly(3-hexylthiophene), P3HT.

Date: Friday, 21st July 2023 | Time: 2:00 pm| Room: H13, NW I



Prof. Dr. Richard Hildner

Zernike Institute for Advanced Materials

University of Groningen , Netherlands