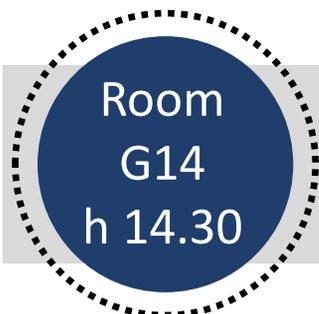


The Chemist's Interactions

Seminars @ the Chemistry Department



Friday, 26th January 2024

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Responsive polymers and smart polymeric materials – a tutorial

Polymeric materials that respond to one or several stimuli by changing specific properties e.g. volume, mechanics, optics, shape a.o., can be considered as smart materials with special interest for application in sensorics and as actuator, but also in information technology, optoelectronics, and biomedicine. In this tutorial several research fields of smart polymeric materials will be highlighted. Firstly, responsive hydrogels and soft (multi)compartments will be introduced which combine sensoric as well as actuator function. Polymeric hydrogels can be adapted for various stimuli e.g. temperature, pH, light, redox, chemicals a.o. and act usually with a change in volume by swelling or deswelling in water. Examples will be given how this may be used e.g. in microfluidics, microreactors or chemical information processing as well as to control reactions in nanoreactors and for polymer origami. Briefly, responsive polymersomes and multicompartments as artificial organelles and cellular mimics will be introduced. Also smart polymeric composites will be covered. Here a function like an electronic, optical or mechanical response will be combined in structural materials, e.g. thermoplastics or elastomers. This is an important part of the field of function integration in structural materials with strong interest for application in robotics, but also in construction and high-performance lightweight constructions where it is important to have the ability to monitor the “health” status of the material (structural health monitoring).



The event will be streamed on
MS Teams for external participants!

For registrations: seminari.dipchi@unimi.it



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