

Stratingh Seminar

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Room: 5111.0022

Time: 15.00 hrs

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From dynamically self-assembling materials to chemical reactivity inside confined environments

Living organisms are the most prominent examples of systems self-assembled and performing useful functions under far-from-equilibrium conditions. Inspired by Nature, we design new materials whose properties and functions can be “turned on” and “off” on demand, using external stimuli as “inputs”. Among the different external stimuli, we focus on magnetic fields [1] and light [2-4] since they can be delivered instantaneously and into a precise location. In this talk, I will discuss molecular switches and inorganic nanoparticles as the key building blocks of new dynamically self-assembling materials. These materials hold promise for new applications as diverse as light-controlled catalysis [5], or manipulating non-magnetic objects with the help of magnets [6].

[1] Science 2014, 345, 1149-1153.

[2] Nature Commun. 2014, 5, 3588.

[3] Nature Chem. 2015, 7, 646-652.

[4] Angew. Chem. Int. Ed. 2015, 54, 12394-12397.

[5] Nature Nanotech. 2016, 11, 82-88.

[6] J. Am. Chem. Soc. 2012, 134, 19564-19567.

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