

DNA origami nanopores for controlling molecular transport

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Nanopores are ideally suited for the detection and analysis of molecules in aqueous solution. Here, we demonstrate the assembly of functional hybrid nanopores for single molecule sensing by inserting DNA origami structures into solid-state nanopores. In our experiments, single artificial nanopores based on DNA origami are repeatedly inserted in and ejected from solid-state nanopores with diameters around 15 nm. We show that these hybrid nanopores can be employed for the detection of λ -DNA molecules. Our approach paves the way for future development of adaptable single-molecule nanopore sensors based on the combination of solid-state nanopores and DNA self-assembly. In the last part of the talk we will discuss our recent developments towards controlling and understanding molecular transport with DNA origami nanopores, also in combination with optical tweezers and fluorescence microscopy.

Thursday, October 18th 2012

Time: 16:00 s. t.

Location: Seminarrom 1.079 (new ICP building at Allmandring 3)