GRK 2905
Ultrafast
Nanoscopy

Special Lecture Series

Friday, November 29, RUN auditorium, 2:00 PM

Advancing biophysics using DNA Origami

Over the last two decades – aiming to imitate efficient biological machineries – artificial nanostructures have been developed that form defined 2D- and 3D-shapes including carbon-nanotubes, DNA origami and cyclodextrins. Among these, DNA origami found a remarkable rise of interest spurred by its biocompatible properties combined with the possibility to precisely and accurately arrange functional molecules like proteins, nanoparticles, DNA "docking stations" for biomolecular assays and fluorescent probes. Recently, a synthetic membrane channel and a DNA nanorobot solely build by DNA origami have been introduced demonstrating the variety of structures possible. In this talk, I will introduce the highly innovative world of DNA origami and illustrate how it enabled new biophysical insights. I describe various applications of DNA origami: rulers and positioning devices, force measurements and force application devices, serving as support for biomolecules in cryogenic electron microscopy and super-resolution microscopy, programmable nanopores.

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