“A genetic code for the synthesis of inorganic nanostructures with programmable shape”

Thursday, October 15
13:00 – 14:00
Seminar Room 115, Hallwachsstr. 3 (HAL)

DNA nanotechnology has recently provided a wealth of techniques to fold DNA into well-defined complex two- and three-dimensional structures in a programmable manner. For inorganic materials such a synthesis scheme with freely programmable shapes has so far been missing. Here we show that three-dimensional DNA origami nanostructures can be used to fabricate gold nanoparticles with predesigned shape. In particular, the DNA structures are used as molds to dictate the final shape of the metal particles that forms by a seeded-growth procedure. We also show that individual molds can be used as bricks to build extended and more complex mold structures. Finally we discuss the application of this technology to fabricate simple electronic components and devices.
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Academic professional experience
since 04/2015 Professor W3, Institute for Experimental Physics I, University of Leipzig
2013-2015 Professor W2, Institute for Molecular Cell Biology, University of Münster
2006-2013 Research group leader, Biotechnology Center, TU Dresden
2003-2005: Postdoc, Kavli Institute of Nanoscience, Delft University of Technology (The Netherlands) in the group of Prof. Cees Dekker
2000 Visiting researcher in the groups of U. Sivan and E. Braun, Technion, Haifa (Israel)

University education
1997 State University St. Petersburg (Russia) – 6 month
1993 – 1999 Studies of Physics, TU Dresden