PhD thesis:

Nanomechanics of DNA-protein interaction

Enzymes, such as polymerases, helicases or translocases bind to DNA and catalyze biological processes with high specificity and fidelity. We are interested in understanding the underlying molecular mechanisms that drive these marvelous nano-machines. In well-defined in vitro assays we study one molecule at a time with high spatial, and temporal resolution. We use single-molecule fluorescence techniques, to monitor conformational changes as well as movement and rotation. Details about the mechanical properties and mechanisms are elucidated with the help of single-molecule force spectroscopy in optical tweezers, magnetic tweezers or an AFM microscope. We are looking for a skilled and motivated student to combine these two techniques in a new apparatus, to study DNA-protein interaction.

If you are interested in fast-paced interdisciplinary research at the border of physics, chemistry and biology and would like to work in an international research atmosphere, send your applications to: Jens.Michaelis@uni-ullm.de