

Controlling DNA in Nanopore Using Optical Tweezers

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DNA translocation through solid-state nanopores is a relatively new single-molecule technique. It allows for easy and true label-free detection of DNA molecules in solution by simple ionic current measurements.

A control of the translocation velocity would be beneficial for detecting (single) proteins bound to the DNA or for structural investigations. In this talk we will discuss how this can be achieved by combining optical tweezers with solid-state nanopores. We will show that one can control and stop the translocation of DNA in a nanopore and discuss the nature of the forces on the molecule.

This technique enables new insights into processes like DNA electrophoresis. We will also discuss future directions of this technique.