



**De Oosterpoort, Groningen
Friday, 7 April 2017**

Plenary Lecture

Gijs Wuite (VU) - Frontiers in Single Molecule Manipulation and Imaging of DNA-protein transactions

Abstract:

Gijs Wuite (VU) - Frontiers in Single Molecule Manipulation and Imaging of DNA-protein transactions

The genetic information of an organism is encoded in the base pair sequence of its DNA. Many specialized proteins are involved in organizing, preserving and processing the vast amounts of information on the DNA. In order to do this swiftly and correctly these proteins have to move quickly and accurately along and/or around the DNA constantly rearranging it. In order to elucidate these kind of processes we perform single-molecule experiments on model systems such as RNA polymerases, DNA polymerases and repair proteins. The data we use to extract forces, energies and mechanochemistry driving these dynamic transactions. The results obtained from these model systems are then generalized and thought to be applicable to many DNA-protein interactions. In particular, I will report experiments that use a combination of (super-resolution) fluorescence microscopy and optical tweezers to investigate DNA organisation.