Séminaire

Mercredi 12 novembre 2025 à 14h30

Amphithéâtre Henri Benoît

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Single-Molecule Magnetic Tweezers: Applications from Polymer Physics to Gene Expression

Magnetic Tweezers is a powerful technique used to probe the mechanical properties of single molecules. Unlike other force-based methods, it is a true constant-force device and therefore does not require active feedback control. In addition, it enables the simultaneous measurement of dozens — or even hundreds — of molecules over long time scales (several hours) and at high throughput (kHz), facilitating robust statistical analysis and the detection of rare events.
These advances have been made possible through technological developments such as high-performance CMOS cameras and parallel computing architectures. As a result, magnetic tweezers have become a versatile tool applied in a wide range of fields, from polymer physics to gene regulation studies.

In this talk, I will introduce the principles of the technique and highlight key recent experiments — both from our work and from the literature.

Les personnes souhaitant rencontrer W. Grange sont priées de prendre contact avec Hendrik Meyer.