

Laboratoire de Nanobiophysique

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Together, biologists, chemists and physicists are very actively exploring the nanoworld of cells. This field of science is strongly driven by remarkable advances in physical measurement and biological preparation techniques, often related to nanotechnology, laser technology, single-molecule manipulation, enzymatic techniques, etc... The motivations range from understanding fundamental biological processes to medical applications.

In our lab, we employ experimental techniques and theoretical concepts of physics to investigate systems of biological interest; the focus is on systems exhibiting at least one characteristic length in the nanometre regime. The research is based on close collaborations with groups from molecular biology, chemistry, physics and semiconductor technology.

Experimentally, we use different single molecule approaches (optical trapping, microscopic fluorescence, current measurements with biological nanopores), transistor based electronic detection, and some surface chemistry and molecular biology.

Keywords : DNA, RNA, polymerases, helicases, molecular motors, single molecule techniques, force, FCS, FRET, nanopores, microarrays, biosensors, FET arrays, statistical physics, electrostatics in aqueous environment, structure and dynamics of systems of biological interest.