BIOENGINEERING SEMINAR

“Enabling Single-Molecule Measurements with Microfluidics and Optical Microresonators: Disordered Proteins and Semiconducting Polymers”

Monday – May 4, 2015 – 2:00 p.m.
EPFL – room BM 5 202

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host: Prof. Aleksandra Radenovic

Abstract

Single-Molecule measurements offer a wealth of detail about chemical diversity and unsynchronized dynamics, but only if the system under study is conducive to known methods of single-molecule fluorescence microscopy. I will present two cases where new measurement technology enables new observations on individual molecules. In the first case, a microfluidic trap that cancels Brownian motion will be used to explore the solution-phase conformation of an intrinsically disordered protein, Tau, central to the etiology of Alzheimer’s Disease. In the second case, a method to enable study of non-fluorescent molecules will be described using ultrahigh quality-factor optical microresonators as platforms for spectroscopy. This method will be applied to study the electronic structure of doped conjugated polymers.

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