

PHYSICS, SPECTROSCOPY AND IMAGING APPLIED TO BIOLOGY AND MEDICINE

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We will present some of our activity regarding the use of nanotechnology for exploring different aspects of biological sample preparation and their study of interest in medicine. The presentation will span from the investigation and detection of several DNA intercalants [1], the generation of protein fibers and their structural studies [2], and last, TEM imaging of ion channels in cell membrane. The presentation will further include the description and the use of an original scanning probe spectroscopy [3] that combines the simultaneous multi probe excitation based on visible enhanced photon generation and hot electrons in order to obtain physical and chemical information on different kind of materials at nanometer scale.

REFERENCES:

1. S Stassi, M Marini, M Allione, S Lopatin, D Marson, E Laurini, S Pricl, ...E Di Fabrizio *Nanomechanical DNA resonators for sensing and structural analysis of DNA-ligand complexes*, Nature communications, 2019, 10 (1), 1-10
2. P Zhang, M Moretti, M Allione, Y Tian, J Ordonez-Loza, D Altamura, ...E. Di Fabrizio *A droplet reactor on a super-hydrophobic surface allows control and characterization of amyloid fibril growth*, Communications biology, 2020, 3 (1), 1-13
3. A Giugni, B Torre, A Toma, M Francardi, M Malerba, A Alabastri, ... E. Di Fabrizio, *Hot-electron nanoscopy using adiabatic compression of surface plasmons*, Nature nanotechnology, 2013, 8 (11), 845-852