

CV of Andrea Alessandrini

1993 – Degree in Physics from the University of Bologna under the supervision of Prof Ugo Valdrè

1999- PhD in Experimental Physiopathology from The university of Pavia with a PhD thesis: "A new approach to the study of biological structures at molecular resolution: Atomic Force Microscopy"

1999-2001- Post Doc at the University of Bologna, Physics Department

2002-2003- Post Doc at the University of Modena and Reggio Emilia, Physics Department

2003-2007- CNR-INFN Researcher at the National Centre S3 (Nanostructures and Biosystems at Surface) , Modena

From 2007 - Associate Professor in Applied Physics at the Faculty of Biosciences and Biotechnologies of the University of Modena and Reggio Emilia (now Department of Physics, Informatics and Mathematics - FIM)

Research Activity

My research activity includes the study of biophysical systems interacting with surfaces (surface biofunctionalization, electron transfer in metalloproteins on surface), the study of biological membrane models by biophysical techniques (infrared spectroscopy, atomic force microscopy, Black Lipid Membranes), nanotechnologies aimed at the realization of biosensors and smart surfaces, and nanomechanical properties of living cells studied by scanning probe techniques. In the context of mechanobiology my research activity has been recently focused on the effect of periodic mechanical stretching on cell migration and differentiation exploiting live cell imaging and in-house developed stretching devices. I also developed a micropipette aspiration set-up used for the rheological characterization of suspended living cells. I'm also involved in research programs aimed at understanding the interaction between lipids and transmembrane proteins. In particular, I'm interested in the effects that different physical and chemical parameters might have on the activity of transmembrane proteins such as ion channels. In this context I'm studying the mechanical properties of supported lipid bilayers at the nanoscale by means of Atomic Force Spectroscopy and of Giant Unilamellar Vesicles exploiting the Micropipette Aspiration Technique.



Modena, 08/07/2024