AVVISO DI SEMINARIO

Venerdì 27 Aprile 2012, ore 16:00
Aula 7 del Complesso Didattico, Via Vienna 2

Il Prof. Giancarlo Franzese, dell'Università di Barcellona, terrà un seminario dal titolo:

*Relations between the diffusion anomaly and cooperative rearranging regions in a hydrophobically nanoconfined water monolayer.*

The desalination of the water or filtrate may be carried out, in the near future by nanometric graphene membranes or carbon nanoporous materials, as water diffuses very rapidly when the walls of these channels are one nanometer apart from each other. On the other hand, it is also known that the hydrophobicity of an object is a property which changes depending on whether this is greater or less than one nanometer. We try to understand these phenomena by developing a study on the behavior of water nanoconfined between two hydrophobic plates. We show that the abnormally rapid diffusion of nanoconfined water is a consequence of the interaction between the rupture of hydrogen bonds and the reorganization of water molecules into cooperative regions of a nanometer in size. We show that the area in which cooperative effects occur is approximately of three water molecules, which corresponds to approximately one nanometer. We argue that this is the scale at which the cooperative effects in water come into play and determine its macroscopic properties [1]. We discuss these findings in relations with other results about water at organic and inorganic interfaces [2].