

Langmuir Blodgett technique: Fundamentals, limitations and applications

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Langmuir films constitute a molecular organized system providing unique opportunities for developing new materials with a controlled architecture and particularly with a low dimensionality and a well-defined molecular density. The Langmuir-Blodgett technique (LB) film has been traditionally limited to investigate the self-assembly process of conventional amphiphilic molecules (i.e fatty acids). Nowadays this limitation has widely overcome and there is a growing trend in the usage of the LB technique for the study of non-traditional surface active molecular entities at the air/liquid interface.

The first part of the talk will deal with the self-assembly of different liquid crystals at the air/water interface. It will be shown that changes in the molecular structure of the liquid crystal molecule has a direct impact on the film architecture at the air/water interface which is closely related to the liquid crystalline behavior. The second part of the talk will explore the self-assembly process of non-traditional amphiphilic molecules (i.e organometallic and polymers) into well-ordered films with potential application in the microelectronics, photomechanical actuators and sensors.