

LANGMUIR MONOLAYERS AS SMART TOOLS FOR STUDYING PHYSICAL INTERACTIONS

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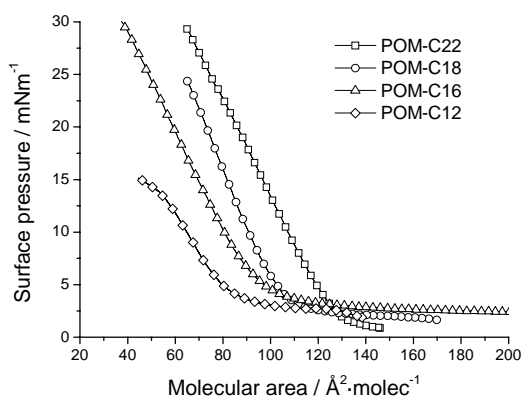
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Langmuir monolayers are regarded as a classical topic within Colloid and Interface science.¹ As a simple physical system, Langmuir monolayers offer the possibility of modeling different interactions at the air/water interface. To this point, lipid monolayers have been widely used for biophysical studies on a physical chemistry perspective.²

“Classical” surfactants, such as fatty acids or phospholipids, have been extensively studied since the 70’s. With the development of new surface analysis techniques for in situ research, e. g., Brewster Angle Microscopy, as well as UV-vis and IR reflection spectroscopy in the early decade of 1990, new information could be achieved.

In the present situation, Langmuir technique may offer new answers for questions arising from Biophysics and Nanotechnology. The use of biologically relevant lipid monolayers in combination with complex biomolecules, such as proteins or DNA, is expected to offer new insights on molecular mechanisms. New steps on Nanotechnology have been made regarding the use of non-standard surface active molecule at the air/water interface, such as nanoparticles or colloidal particles.

In this communication, new polyoxometalate surfactants Langmuir monolayers are presented as an example of new materials for monolayer buildings. Additionally, the effect of ions in a model antimicrobial peptide is discussed.



¹ I. Langmuir, *I. J. Amer. Chem. Soc.* **1917**, 39, 1848.

² G. Brezesinski, H. Möhwald. *Adv. Coll. Int. Sci.* **2003**, 100, 563.

³ S. Landsmann, C. Lizandara-Pueyo, S. Polarz. *J. Amer. Chem. Soc.* **2010**, 132, 5315.