

Título: DEVELOPMENT OF NEW ANALYSIS METHODS FOR THE STUDY OF MOLECULAR AGGREGATION AND ADSORPTION

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Resumen: Many natural phenomena and industrial applications depend directly on molecular aggregation and adsorption processes which, in turn, are intimately connected to each other: molecules with a high affinity for interfaces typically tend to aggregate in the liquid phase. New experimental, theoretical and computational methods are proposed and tested in this thesis to better understand these processes. In particular, the development and first results of what we call Fluid Interface Calorimetry, are presented. Complementary, new semiempirical models for the analysis of experimental measurements from different techniques are proposed. A chapter devoted to the characterization of structure and dynamic behaviour of water molecules around solutes in the liquid bulk and at water/air interfaces is also included.

