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Surface structure of liquids and salt solutions: wetting, droplets and monolayers

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The structure of water surfaces and films on solid substrates is one of the most important and relevant topics in interfacial science. Surprisingly, at the start of the 21^{st} century we do not have yet a detailed knowledge of such basic problems as the thickness of a water film on a surface in equilibrium with vapor or humidity. Even less is known about the structure of this film and the molecular arrangement of water molecules at the surface and in the layers close to it. In this presentation I will review recent results in my laboratory regarding water films, both in ambient conditions (near atmospheric) as well as in vacuum using techniques such as AFM, STM, and Photoemission.