

# **Atomically-resolved three-dimensional structures of electrolyte aqueous solutions near a solid surface: 3D-AFM experiments and DFT results**

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**Abstract:** Very recently, Atomic Force Microscopy (AFM) experiments have been extended from their usual two-dimensional scanning of a surface to three dimensional (3D) images within a fluid, with atomic resolution. Multilayers 3D structures, induced by a mica surface, have been observed in liquid solutions of Rb Cl, and other chloride-alkali salts. A density functional (DF) calculation, with a rather simple model interaction, has been used to interpret the experimental AFM results, and we found them consistent with the 3D structured layering generically predicted in DF theory, from the coupling between the strong correlation structure in a dense liquid and the 2D order induced on the solid surface.