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Wetting on nano-patterned surfaces observed with the Atomic Force Microscope[1] ANTONIO CHECCO, BENJAMIN OCKO, OLEG GANG, Brookhaven Natl. Laboratory — Recent technological advancements have allowed for precise nanometer-scale control of surface topology and chemical composition. Such surface engineering can be used to confine and manipulate tiny amounts of liquids or to enhance the liquid-repellency of a substrate. Despite the great potential of these methods, the actual behavior of liquids on the nanoscale is still to be elucidated experimentally. With this aim, we have used Atomic Force Microscopy (AFM) to investigate wetting of liquid alkanes onto chemically nanopatterned surfaces. In a first step, parallel, some tens nm-wide stripes with carboxylic acid termination (wettable) were created on the methyl-terminated surface of a self-assembled monolayer (octadecylthrichlorosilane, non wettable) through local electro-oxidation by a metallic AFM tip[1]. Noncontact mode AFM was used to image the condensation of liquids onto the nanopatterned surface. By finely controlling the amount of liquid condensed onto the striped surface we could follow morphological wetting transitions and estimate the size of the contact line and the magnitude of the line tension. [1] J. Sagiv and R. Maoz, Nano Lett. **3** 761(2003)

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