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Contact Angle Measurements by AFM on Droplets of Intermediate-Length Alkanes Adsorbed on SiO_2 Surfaces[1] M. BAI, H. TAUB, U. Mo.-Columbia, K. KNORR, U. des Saarlandes, U.G. VOLKMANN, P. U. Católica Chile, F.Y. HANSEN, Tech. U. Denmark — We have recently discovered that films of intermediate-length alkanes (n-C_nH_{2n+2}; $24 < n < 40$) do not completely wet a SiO_2 surface on a nanometer length scale [2]. In a narrow temperature range near the bulk melting point T_b, we observe a single layer of molecules oriented with their long axis perpendicular to the surface. On heating just above T_b, these molecules undergo a delayering transition to three-dimensional droplets that remain present up to their evaporation point. Here we report measurements by noncontact Atomic Force Microscopy of the contact angle of these droplets for a film of hexatriacontane (n-$C_{36}H_{74}$ or C36). Our preliminary measurements indicate that there is a weak maximum in the contact angle at $\sim \quad T_b + 3\ ^\circ$C. Further measurements are planned to investigate whether the weak maximum in the contact angle is consistent with the droplets supporting a surface freezing effect as at the bulk fluid/air interface. [2]M. Bai, K. Knorr, M. J. Simpson, S. Trogisch, H. Taub, S. N. Ehrlich, H. Mo, U. G. Volkmann, F. Y. Hansen, cond-mat/0611497.

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