

Abstract Submitted
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Observing a Wetting Transition for Water SHINYA SEGAWA, WPI, ROBERT WEILER, WPI, RAFAEL GARCIA, WPI — A liquid is said to wet a solid surface if it spontaneously spreads out uniformly over the surface. It is said to not wet the surface, if it remains a droplet on the surface, exhibiting a finite contact angle. A wetting transition is defined as an abrupt change from non-wetting to wetting or vice-versa. Water does not wet most semiconductor and metal surfaces near room temperature. However, recent state-of-the-art theoretical calculations [1] predict that water should exhibit a wetting transition on these surfaces, completely wetting them at high temperatures. The search for this wetting transition is difficult because at high temperatures, water can be quite oxidizing and has a very high vapor pressure. An experimental cell has been constructed suitable for careful thermodynamic optical studies of liquid water droplets on solid surfaces. Preliminary experimental results will be presented. [1] M. Gatica, X. Zhao, J. K. Johnson and M. W. Cole, J. Phys. Chem. B 108, 11704 (2004).

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