

Abstract Submitted  
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**Detection of a thin depletion region of water on an extended hydrophobic surface using x-ray reflectivity** ANDREW RICHTER, JASON VAN DE WALKER, University of Memphis — What happens when water is placed on top of a hydrophobic surface? On the molecular level the picture is not yet clear. Further exploration of the hydrophobic effect is necessary to understand protein folding, fluid flow, and the attractive force between two closely positioned hydrophobic surfaces in the presence of water. Researchers have begun to probe this important interface using a variety of methods, finding phenomena ranging from the formation of nanobubbles to the presence of a thin vacuum layer to the absence of any effect at all. Using the technique of x-ray reflectivity at the interface between water and a hydrophobic self-assembled monolayer, we have detected the presence of a thin depletion region and quantified its characteristics. The depleted region has a density of about two-thirds that of bulk water and extends over approximately 0.3-0.6 nm, a figure much closer to the theoretically predicted value than seen using other methods [1]. We will present these findings as well as those from experiments that used other liquids. [1] Lum, K. *et al.*, *J. Phys. Chem. B* **103**, 4570-4577 (1999).

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