Abstract Submitted for the MAR16 Meeting of The American Physical Society

Direct observation of critical adsorption on colloidal particles HONGYU GUO, ZHIYUAN WANG, C. E. BERTRAND, NIST - Natl Inst of Stds Tech, PAUL DOUGLAS GODFRIN, University of Delaware, YUN LIU, NIST - Natl Inst of Stds Tech — We report our direct measurements of critical adsorption on the surface of small spherical silica particles suspended in a binary mixture of lutidine and water, using small-angle neutron scattering (SANS). The surface concentration profile and excess adsorption are studied as functions of temperature, lutidine concentrations, and surface curvature. The profile shape agree with scaling laws. The adsorption associated with the profile shape is found to increase monotonically with increasing lutidine concentration and to decrease with increasing temperature. These observations are important to understand colloidal aggregation behaviors close to the critical point of a binary solvent.

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Date submitted: 06 Nov 2015

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