

Abstract Submitted
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Apparent Slip at Hydrophilic Surface: Fluorescence Resonance Energy Transfer Study CHANG-KI MIN, Materials Science and Engineering, University of Illinois, STEPHEN ANTHONY, Department of Chemistry, University of Illinois, SUNG CHUL BAE, STEVE GRANICK, Materials Science and Engineering, University of Illinois — We have used a fluorescence resonance energy transfer (FRET) technique to measure the apparent slip velocity a separations < 10 nm from a hydrophilic surface. A focused laser beam was used to excite Tb³⁺ dye in solution and the excited energy was transferred to Rhodamine 6G that was previously immobilized on the solid surface. In addition, with diffraction-limited spatial resolution, we have measured the fluorescence intensity profile of Rhodamine 6G to monitor the flow profile near the interface. The relevance is to present a greatly improved estimate of what determines the boundary condition of fluid flow in situations where details of the near-surface velocity profile matters, as in microfluidic devices.

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