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**Apparent Slip at Hydrophilic Surface: Flow Profile within 1 nm from the Surface** SUNG CHUL BAE, STEPHEN ANTHONY, STEVE GRANICK, Departments of Materials Science and Engineering, of Chemistry, of Physics, University of Illinois — Fluid dynamics within small channels draws great interest due to the development of microfluidic devices, yet details about flow immediately at a solid surface remain too vague. Here, by using fluorescence energy transfer (FRET and fluorescence quenching) approaches, we measured the flow rate of fluorescence quencher molecules within 1 nm from the quartz surface within a specially-designed microfluidic device. In parallel, we have simulated the flow dynamics at the surface, in order to separate cleanly the actual near-surface velocity from the confounding effects of near-surface diffusion.

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