

Abstract Submitted
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The dynamical origin of the zeta potential PATRICK TABELING,
ESPCI — By using evanescent waves, we study equilibrium and dynamical properties of liquid-solid interfaces in the Debye layer for hydrophilic and hydrophobic surfaces. We measure velocity profiles and nanotracer concentration and diffusion profiles between 20 and 300 nm from the walls in pressure-driven and electroosmotic flows. We extract electrostatic and zeta potentials and determine hydrodynamic slip lengths with 10 nm accuracy. The spectacular amplification of the zeta potential resulting from hydrodynamic slippage allows to clarify for the first time the dynamic origin of this potential.

Patrick Tabeling
ESPCI

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