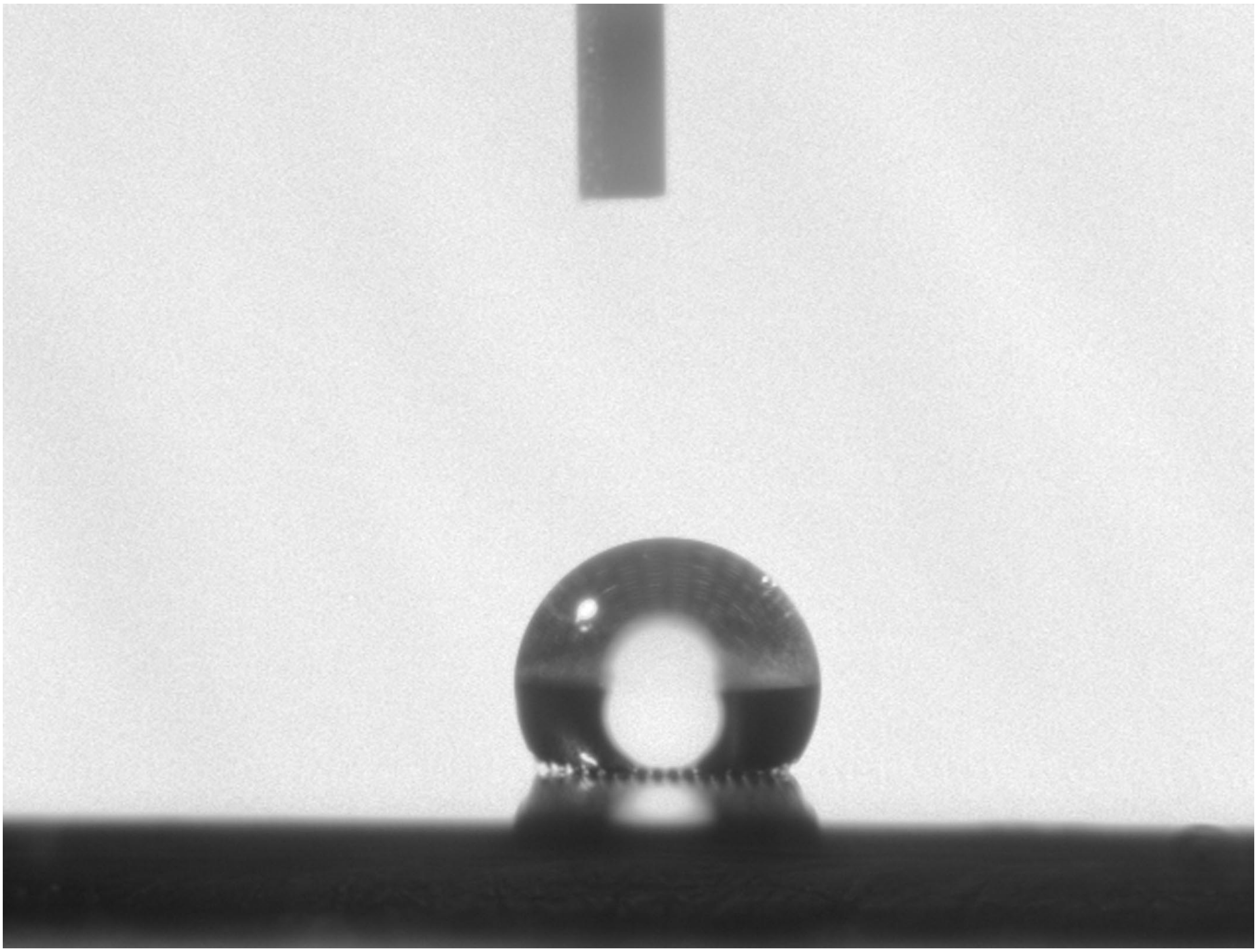
Supporting Information

Tuteja *et al.* 10.1073/pnas.0804872105

Movie S1 (MOV)

Movie S1. A movie illustrating the bouncing of a droplet of hexadecane (γ_{lv} = 27.5 mN/m; θ = 75°) on a silanized microhoodoo surface with ϕ_s = 0.25, D = 10 μm, H = 7 μm, R = 0.15 μm, and W = 10 μm. For the hexadecane droplet in the movie, the Weber number $We = \rho V^2 R_{\mathrm{drop}}/\gamma_{\mathrm{lv}} \approx 10$, where V is the droplet velocity before impact, ρ is the liquid density and R_{drop} (= 0.7 mm) is the droplet radius. The Weber number compares the kinetic energy of the falling droplet with the interfacial energy of the drop. Because $We \gg 1$, the droplet deforms substantially on impact and subsequently loses most of its kinetic energy after impact by shape oscillations [Richard D, Quéré D (2000) *Europhys Lett* 6:769–775], leading to relatively low values for the coefficient of restitution.



Movie S2. A movie (obtained over a period of 5 min) showing the evaporation of a droplet of methanol (γ_{lv} = 22.7 mN/m; θ = 60°) under ambient conditions, on a silanized microhoodoo surface with ϕ_s = 0.11, D = 20 μm, H = 7 μm, R = 0.15 μm, and W = 10 μm. We compute a value of A^* = 8.2 for the system, which leads to a predicted breakthrough pressure of 219 Pa. The radius of the liquid droplet just before it transitions to the Wenzel state was recorded to be 450 μm, which leads to a measured breakthrough pressure of 118.1 Pa.

Movie S2 (MOV)

Other Supporting Information Files

SI Appendix