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**Diffusion through Colloidal Shells under Stress** J. GUERY, J. BAUDRY, ESPCI, D.A. WEITZ, Harvard, P.M. CHAIKIN, NYU, J. BIBETTE, ESPCI — The permeability of solids has long been associated with a diffusive process involving activated hopping. Tensile stress can affect the activation energy as originally envisioned by Eyring. Here we use liquid core - solid shell, core-shell, solid colloidal particles that are sensitive to osmotic pressure, to follow the permeation of encapsulated probes at various stresses. We unambiguously show that the tensile stress applied on colloidal shells linearly reduces the local energy barrier for diffusion.

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