

Sample characterization.

The colloidal particles are spheres of a polytetrafluoroethylene copolymer (MFA), with radius $R = 82 \pm 3$ nm. The particle density is $\rho_{\text{MFA}} = 2.14$ g/cm³ of MFA. The particles are suspended in an aqueous solution of 0.1M NaCl, to screen electrostatic repulsive interactions, and 0.025 w/w urea, to match the average refractive index of the particles, to which 0.12 v/v of a nonionic surfactant, Triton X100, is added to induce attractive depletion interactions. The density of the solvent is 1.022 g/cm³. Given that the range of the attractive potential is much smaller than R , the particle interaction is close to that of adhesive hard spheres, with a "stickiness" parameter $\tau = 0.01$, as determined by careful measurements of the equation of state (osmotic pressure versus volume fraction) [1].

Experimental setup.

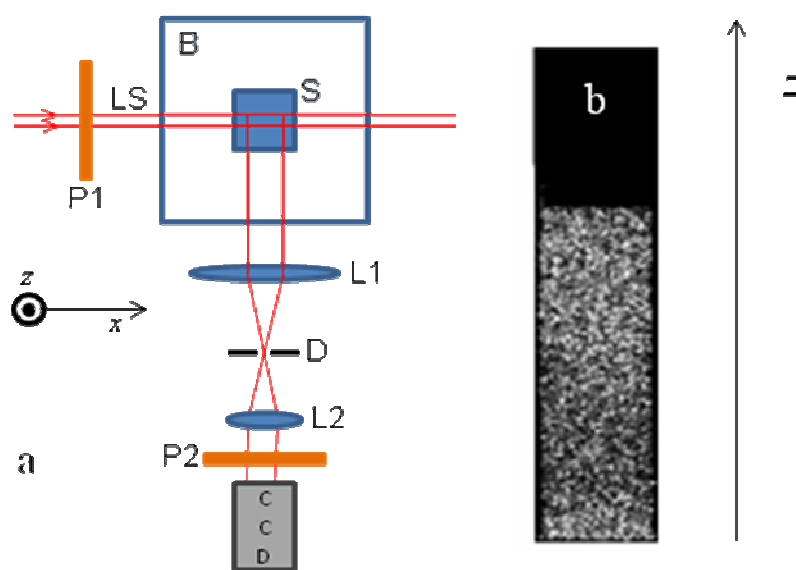


Figure SM1. a): sketch of the experimental setup. LS: laser sheet; P1 and P2: crossed polarizers with transmitting axis in the z and x direction, respectively; B: water bath for controlling the temperature; S: sample; L1 and L2: confocal lenses for imaging; D: diaphragm in the mutual focal plane of L1 and L2, to control the range of the scattering angles that are accepted and hence the speckle size. Also shown are the x and z axis.

b) CCD image of the sample. The speckled bright column is the gel. The cell width is 3 mm.

[1] Stefano Buzzaccaro, Roberto Rusconi, and Roberto Piazza, Phys. Rev. Lett. **99**, 098301 (2007).