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**Shear-induced diffusion of plate-like particles in microchannels**

ROBERTO RUSCONI, HOWARD STONE, Harvard University — We exploit the recent developments of microfluidic technologies to investigate the collective shear-induced diffusion in suspensions of micron-sized particles. Whereas spherical particles do not diffuse on the time scale of our experiments, the results with plate-like clay particles show a strong cross-stream shear-induced diffusivity at low volume fraction ( $\phi_0 \leq 0.01$ ). Moreover, we find a linear dependence of the collective diffusion coefficient with the average shear rate (in the range  $10^2$ – $10^4$  s $^{-1}$ ) and the particle concentration. These data are in good agreement with previous experimental and theoretical results for spheres when rescaled with the particle number density.

Howard Stone

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