

Fluctuations in the velocities of sedimenting particles

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The sedimentation velocities of individual particles in a suspension fluctuate with the constantly changing configuration of the particles resulting from long-range multi-particle interactions. Until recently there was a paradox with the magnitude of the fluctuations predicted by theory and numerical simulations to increase with the size of the container, whereas experiments saw no such dependency.

Insight into the paradox has come from careful experiments accompanied by numerical simulations, both studying the variation in time and position of the fluctuations and the small vertical variations of the concentration of the particles.