

Abstract Submitted
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Many-body Hydrodynamic Effects in Collective Diffusion of Colloids in a Quasi-One-Dimensional Channel BINHUA LIN, XINLIANG XU, U. of Chicago, BIANXIAO CUI, Stanford U., DAVID VALLEY, STUART A. RICE, U. of Chicago, HAIM DIAMANT, Tel Aviv University — We report the results of experimental, theoretical and Brownian dynamic simulation studies of particle displacements in quasi-one-dimensional colloid suspensions. We infer, from a comparison of theory and experiment, that many-body hydrodynamic interaction determines the long wavelength behavior of the collective diffusion coefficient. The consequence of the many body hydrodynamic interaction is an apparent divergence of the so called hydrodynamic factor in the limit of infinite wavelength.

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