

Abstract Submitted
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Hydrodynamic Interaction of Colloid Suspension in Ribbon Channels¹ BINHUA LIN, SERGEY NOVIKOV, STUART A. RICE, University of Chicago — We report the results of an experimental study of hydrodynamic interaction in colloid suspensions that are intermediate between quasi-one-dimensional (q1D) and quasi-two-dimensional (q2D) systems. Specifically, the systems examined are one-layer deep colloid suspensions confined in ribbon channels with widths from one to twelve particle diameters. The current research follows up our earlier studies of the structure of q1D ribbon colloid suspension as a function of the ribbon width, of pair diffusion in single-file q1D channels and planar q2D colloid suspensions. Given the stratification of the density distribution transverse to the ribbon channel, the pair diffusion coefficient within one stratum behaves as if the colloids are confined in a single-file q1D channel, and the diffusion coefficient does not vary from stratum to stratum across the channel. When the stratification of the transverse density distribution in the ribbon channel is disregarded, the pair diffusion coefficient for the confined suspension differs from that in an infinite q2D suspension.

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