

Abstract Submitted  
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**Hydrodynamics of confined suspensions** NICOLAS DESREUMAUX, ESPCI, University Pierre et Marie Curie, RAPHAEL JEANNERET, ESPCI, JEAN-BAPTISTE CAUSSIN, ENS Lyon, ERIC LAUGA, UCSD, DENIS BARTOLO, ESPCI — We investigate experimentally and theoretically the dynamics of suspensions flowing in quasi-bidimensional channels. Specifically, we focus on the role of the hydrodynamic interactions on the large-scale behavior of the suspensions. Our experiments demonstrate that density fluctuations propagate on large distances with a non-linear dispersion relation. We then model our system as a collection of interacting potential dipolar singularities. By focusing on the large-scale dynamics, we show that density waves do propagate and that the dispersion relation depends on the local curvature of the density field. This model yields good agreement with our experiments.

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