

Abstract Submitted  
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**Capillary attraction between floating cylinders** HARISH N. DIXIT, GEORGE M. (BUD) HOMSY, Mathematics Department, University of British Columbia — Capillary attraction between floating particles is a phenomenon of everyday experience and causes the particles at fluid interfaces to agglomerate. This is sometimes called the “Cheerios effect.” The calculation of the force of attraction for even simple particle shapes is enormously difficult due to the presence of nonlinearity in the equations governing the interface shape. Most of the earlier approaches to obtain analytical expression for the force of attraction rely on the “superposition principle” by linearizing the Young-Laplace equation. We use a systematic perturbation technique in the limit of small Bond number. We present asymptotic solutions in a static configuration obtained for two problems: (i) attraction between two isolated cylinders, and (ii) attraction for an infinite array of cylinders. It is also found that the background curvature of an interface modifies the force of attraction. These forces are important in many technological applications: one such example is the problem of dip-coating of plates which will be discussed during the meeting.

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