Abstract Submitted
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**Immersed parallel plates: from repulsion to attraction** PAUL CONCUS, Lawrence Berkeley National Laboratory — This mathematical study concerns the behavior of parallel vertical plates of infinite extent and of possibly differing materials dipped into an infinite liquid reservoir. For this classical problem varying modes of behavior can occur, depending on plate separation and contact angles. Under specific conditions the plates will repel each other when sufficiently far apart, with change to large attraction, which can be abrupt, when they are moved closer together. As separation is decreased to a critical value, the liquid/vapor interfaces pass through a family tending to a certain, explicitly known interface yielding zero force. For the initial stages of this procedure computational results depict a striking behavior, that the interfaces in the sequence can actually move away from the limiting interface, not toward it.

Paul Concus
Lawrence Berkeley National Laboratory

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