Electrostatic cancellation of gravity effects in liquid mixtures

Yoav Tsori[1] and Ludwik Leibler[2]
[1]*Physique de la Matière Condensée, Collège de France, Paris, France*
and Department of Chemical Engineering, Ben-Gurion University, 84105 Beer-Sheva, Israel
[2]*Laboratoire Matière Molle & Chimie (UMR 167) ESPCI, 10 rue Vauquelin, 75231 Paris Cedex 05, France*
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We point out that a spatially varying electric field can be used to cancel the effect of gravity in liquid mixtures by coupling to the different components' permittivities. Cancellation occurs if the system under consideration is small enough. For a simple "wedge" electrode geometry we show that the required system size and voltage are practical, and easily realizable in the laboratory. Thus this setup might be a simple alternative to other options such as the space shuttle, drop-tower, or magnetic levitation experiments.

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