Global in time solutions for the two-phase gravity Stokes flow

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Abstract: The gravity-Stokes system serves as a fundamental model for understanding the dynamics of incompressible fluids in certain regimes. We focus on the scenario where two fluids of different densities interact in a two-dimensional region without mixing. The density difference together with the gravity influence induce the dynamics of the two fluids and hence the evolution of the free interface arising between them. Through a contour dynamics approach, we address questions such as the existence of global solutions for this system and their asymptotic behavior, making emphasis on the properties of the free boundary. This talk is based in joint work with F. Gancedo and R. Granero Belinchón.

References: