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Non-monotonic settling of a sphere in a cornstarch suspension DEVARAJ VAN DER MEER, STEFAN VON KANN, JACCO SNOEIJER, DETLEF LOHSE, University of Twente, NL — Cornstarch suspensions exhibit remarkable behavior. Here, we present two surprising observations for a sphere settling in such a suspension: In the bulk of the liquid the velocity of the sphere oscillates around a terminal value, without damping. Near the bottom the sphere comes to a full stop, but then accelerates again towards a second stop. This stop-go cycle is repeated several times before the object reaches the bottom. We show that common shear thickening or linear viscoelastic models cannot account for the observed phenomena, and propose a minimal jamming model to describe the behavior at the bottom.

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