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Impact of a concentrated suspension drop LOREN JORGENSEN, YOEL FORTERRE, HENRI LHUISSIER, Aix Marseille Univ, CNRS, IUSTI, Marseille, France — We study the deformation of a suspension drop, made of non-Brownian spherical beads suspended in a Newtonian liquid, upon impact onto a flat solid surface. We focus on the range of large particle volume fractions (50% ϕ 64%), extending both below and above the critical volume fraction ϕ_c, at which the steady viscosity diverges, and which also separates the dilatational and contractile responses of a sheared bead pile. Over this range, the drop deformation, as quantified by the maximal contact area with the surface, shows two different trends. For fixed impact conditions, the maximal area decreases with increasing ϕ up to a critical volume fraction ϕ^*, above which it saturates. We will discuss how this maximal deformation depends on the suspending liquid viscosity and the particle size, as well as the relation between ϕ^* and ϕ_c, which we measure independently.

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