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The viscous forces acting on quasi-2D emulsions under fast flow CARLOS ORELLANA, XIA HONG, JANNA LOWENSOHN, ERIC WEEKS, Emory University — We study the flow of dense emulsions in a quasi-two-dimensional sample chamber. Our samples are oil-in-water emulsions confined between two close-spaced parallel plates, so that the oil droplets are deformed into pancake shapes. By means of microscopy, we measure the droplet positions and their deformation, which is related to the forces on the individual droplet. Here we study the velocity dependence of the force on the droplets, and show that the main contribution is from the viscous friction between droplets rather than from viscous drag from the two confining plates. Our results can be applied to study the forces and rearrangements in fast flow in amorphous materials.

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