Flowing properties of quasi-2D emulsions in Couette geometry
CARLOS ORELLANA, ERIC WEEKS, Emory University — We study the flow
of dense emulsion in a quasi-two-dimensional Couette geometry. Our samples are
oil-in-water emulsions confined between two close-spaced parallel plates, so that the
droplets are deformed into pancake shapes. By means of microscopy, we measure
the droplet positions and their deformation, which is related to the stress on the
individual droplet. In this system without static coulomb friction, we observe a
continuous transition from affine motion to topological rearrangements that span
the whole system as the area fraction is increased. We compare our results to
granular experiments and simulations.

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