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Dynamic force measurement of rearrangements in a 2D network of droplets SOLOMON BARKLEY, MATILDA BACKHOLM, KARI DALNOKI-VERESS, McMaster University — The interaction between two liquid droplets in an immiscible liquid is well understood. However, the emulsions relevant to biological and industrial processes involve high concentrations of these droplets, and multibody effects cannot be ignored. As droplets rearrange in response to a disturbance, the importance of individual pair-wise interactions between droplets changes with the geometry of neighbours. Here we report on an experimental setup consisting of a two- dimensional network of monodisperse droplets stabilized with a surfactant. The system is studied with micropipette deflection, which permits direct measurement of forces along with simultaneous imaging of the droplet network. One micropipette is used to apply a tensile or compressive force to the droplet cluster, while a second pipette acts as a force-transducing cantilever, deflecting in response to rearrangements of the droplets.

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