Abstract Submitted
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Elasto-capillary interactions of drops and particles[1] JACCO SNOEIJER, ANUPAM PANDEY, University of Twente, The Netherlands, STEFAN KARPITSCHKA, Max Planck Institute Gottingen, Germany, CHARLOTTE NAWIJN, University of Twente, The Netherlands, LORENZO BOTTO, Queen Mary University of London, UK, BRUNO ANDREOTTI, ENS Paris, France — The interaction of solid particles floating on a liquid interface is popularly known as the Cheerios effect. Here we present similar interactions for particles and droplets on elastic surfaces, mediated by elastic deformation. We start with the Inverted Cheerios effect, by considering liquid drops on a solid gel. Remarkably, the interaction can be tuned from attractive to repulsive, as shown experimentally and theoretically. We then turn to more general cases of particles on elastic layers, for which new interaction laws are derived. An overview is given on the various regimes, including the crossover from purely elastic to purely capillary interfaces.

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