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The elasticity of nanoparticle networks on liquid droplets YOUNG-HSYANG CHEN, HSUAN-YI CHEN, Department of Physics, National Central University, Taiwan, ALEX LEVINE, Department of Chemistry and Biochemistry, University of California, Los Angeles, California — Inspired by recent experiments on the formation of linked nanoparticle networks [A.D. Dinsmore et al Science, **298**, 1006, (2002)] on the surface of oil-in-water droplets, we study the modification of the droplet surface elasticity due to the formation of a percolating network of linked nanoparticles. What coverage of nanoparticles is required to modify the elasticity of the droplet? Using Brownian dynamics simulations to model the DLCA (diffusion limited cluster aggregation) of nanoparticles on the surface we construct these networks and monitor the appearance of an elastic contribution due to the nanoparticles at a critical nanoparticle area density. This transition is a type of rigidity percolation on a compact surface.

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