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**Marginal rigidity and history dependence in packings of attractive athermal emulsions** DYLAN BARGTEIL, LEA-LAETITIA PONTANI, JASNA BRUJIC, New York Univ NYU — The geometry and stress through particulate packings depends on the method of preparation and the interaction potential between the particles. Previously, we discovered that creaming frictionless, athermal emulsions with a short-range depletion attraction leads to an initial increase in the packing density above random close packing, followed by a monotonic decrease in density (Jorjadze et al, PNAS, 2011). This decrease is because the attractive force stabilizes loose voids, thus reducing the average coordination number,  $\langle z \rangle$ , of the packing. In order to understand the mechanism of packing creation, we investigate whether the final density is influenced by the polydispersity or the initial volume fraction of droplets, as it is in frictional packings. Finally, we compress the attractive packings by centrifugation to probe the scaling laws of pressure versus density and  $\langle z \rangle$  and compare them with those found in repulsive packings (Jorjadze et al, PRL, 2013).

[1] I. Jorjadze, L. Pontani, K. A. Newhall, and J. Brujic, Proc. Natl. Acad. Sci. U.S.A. 108, 4286 (2011).

[2] I. Jorjadze, L.-L. Pontani and J. Brujic, Phys. Rev. Lett. 110, 048302 (2013).

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