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Jamming in Granular Polymers and Frictional Granular Assemblies LENA LOPATINA, Kent State University, CHARLES REICHHARDT, CYNTHIA REICHHARDT, Los alamos National Laboratory — Jamming has attracted growing attention as a possible unifying theme for granular materials, glasses and threshold behaviour in materials. Recent results for frictionless granular systems suggest that jamming is a second order phase transition with critical properties. A question of paramount importance is whether this behaviour is universal to more complex systems. To address this issue we have simulated the compression of granular polymers and frictional granular monomers. The jamming density of the granular polymers decreases with increasing chain length due to formation of loops or voids, in agreement with recent experiments [1,2]. For frictional granular monomers the jamming density is depressed relative to a frictionless system, and we observe the formation of voids in the packing, which does not occur in the frictionless case. We discuss our results in terms of the fragile jamming phase recently studied in compression experiments [3]. [1] L.-N. Zou et al, Science, 326 (5951), 408 (2009). [2] C. J. Olson Reichhardt and L. M. Lopatina, Science, 326 (5951), 374 (2009). [3] M. Bandi, M. Rivera, F. Kakzia, and R. Ecke, submitted.

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