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Statistics and Correlations of Conserved Quantities in Mechanically Stable Packings of Frictionless Disks Above Jamming[1] STEPHEN TEITEL, YEGANG WU, Univ of Rochester — We consider mechanically stable packings of soft-core, frictionless, bidisperse disks in two dimensions above the jamming transition. Using an algorithm that generates packings with an isotropic global stress tensor, we compute the distribution of various conserved quantities on compact subclusters of particles, as a function of the total system stress and the cluster size. We consider the stress on the cluster, the Maxwell-Cremona force-tile area, the Voronoi volume, and the numbers of small and big particles in the cluster, and we compute the averages, variances and correlations among these different quantities. We compare two different ensembles of clusters: (i) clusters defined by a fixed radius, and (ii) clusters defined by a fixed number of particles. We find several significant differences between these two ensembles and we comment on the implications of our findings for maximum entropy models of jammed packings.

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