Interparticle contact networks of granular packings below jamming BHASKAR SEN GUPTA, THIBAULT BERTRAND, COREY S. O'HERN, Yale University, MARK D. SHATTUCK, City College of New York — We employ computer simulations to investigate the structural properties of interparticle contact networks in granular packings of bidisperse disks below jamming onset at which the system becomes solid-like. We show that the properties of the contact networks are highly sensitive to changes in the packing-generation protocol and its numerical implementation. Thus, we formulate an analytical method to implement steepest descent of hard, athermal particles undergoing isotropic compression, which allows us to calculate the number of contacts as a function of packing fraction. These results represent an important first step in developing a theoretical description of shear- and compression-induced jamming in frictional granular media.

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