

Abstract Submitted  
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**Jamming with attractive interactions**<sup>1</sup> COREY O'HERN, GREGG LOIS, Departments of Mechanical Engineering and Physics, Yale University, JERZY BLAWZDZIEWICZ, Department of Mechanical Engineering, Yale University — We numerically study the effects of cohesion on granular solids using a minimal model relevant to various experimental settings. The inclusion of a small amount of attraction between contacting grains is shown to significantly alter even the qualitative features of both the attainable mechanically stable packings and their material response. The structure of the jammed packings formed using energy minimization techniques varies from dilute and heterogeneous gel-like states with large void spaces to dense and homogeneous packings reminiscent of the random close packed state. The mechanical response exhibits stability under tension and a much greater sensitivity to plastic events produced by non-affine grain motion. In elastic regions the values of the moduli depend on geometric features of the packing.

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