

Abstract Submitted  
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**Characterizing dense granular systems by percolation and statistical properties of force networks**<sup>1</sup> LENKA KOVALCINOVA, ARNAUD GOULLET, LOU KONDIC, New Jersey Inst of Tech — We consider a two dimensional granular systems compressed isotropically within a square box, We study the force networks, including evolution of their statistical and percolation properties. Using the information about the total forces between the particles, the number of contacts and forming clusters, we identify the phase transition in granular systems, as well as distinguish between the system that do and do not crystallize. We discuss the influence of various physical parameters including the speed of compression on jamming and percolation transitions, and on force statistics. For systems without cohesion, we find that the jamming and percolation transitions coincide in the quasistatic limit. In the last part of the talk, we will present preliminary results discussing the degree to which our finding extend to cohesive systems.

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