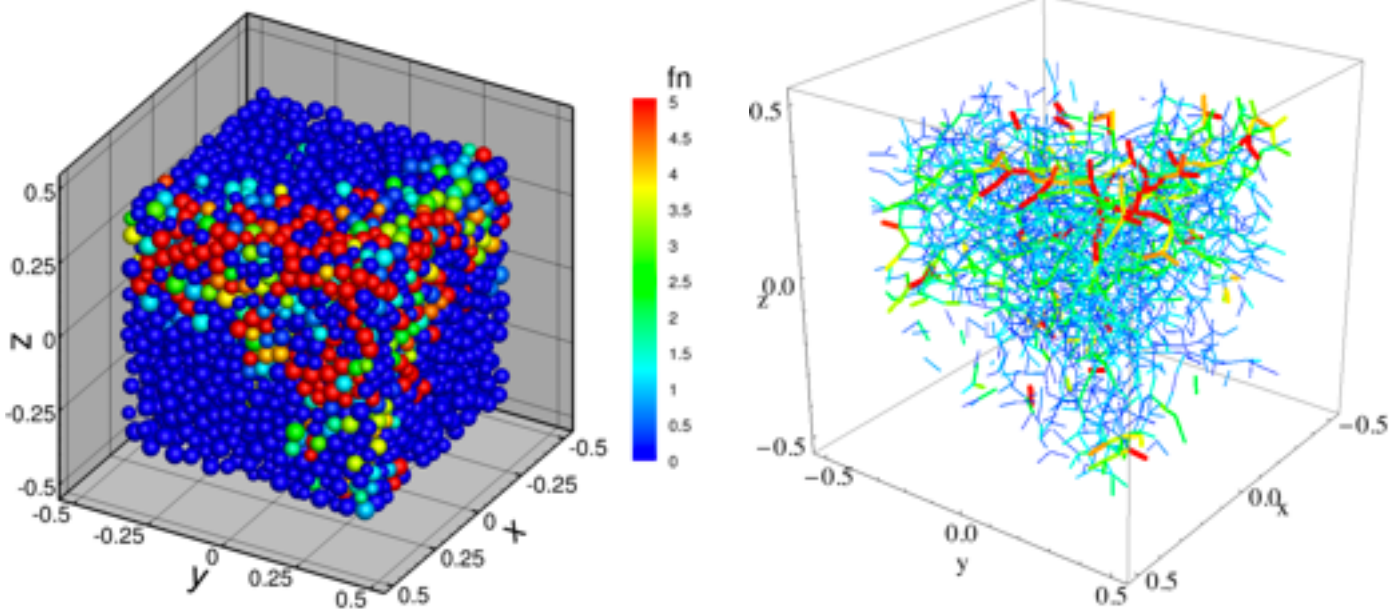


Dense Granular Matter: from wave propagation to force networks

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In the first part of this talk, we will discuss computational results regarding response of a dense granular system to externally imposed perturbations. In particular, we will concentrate on the role of the lengthscale introduced by the perturbations, on the differences in the propagation mechanisms between jammed and unjammed granular systems, and on perspectives regarding application of continuum models to this problem.

Realizing that particle scale properties may often play an important role, in the second part of the talk we will discuss our initial attempts to characterize force networks in these systems. These attempts are based on application of algebraic topology techniques to analyze and quantify static and dynamic features of force network structure. These techniques have already allowed to identify the influence of material parameters on force networks for a variety of system properties.

