Evolution of force networks in dense particulate matter[1] LOU KONDIC, NJIT, MIRO KRAMAR, ARNAUD GOULLET, KONSTANTIN MISCHAIKOW, Rutgers —

We present novel methods used to describe temporal evolution of force networks in dense particulate matter. The methods, based on algebraic topology, allow to quantify the evolution of these networks in precise terms. Different measures that we have developed allow to distinguish between local and global changes of the networks and furthermore illustrate strong dependence of the evolution itself on the state of the system. We will focus in particular on discussing the crucial factors that determine the time scales on which the networks evolve.

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Date submitted: 15 Nov 2013   Electronic form version 1.4