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Statics and Dynamics of Force Networks in Dense Particulate Systems[1] LOU KONDIC, New Jersey Institute of Technology, MIROSLAV KRAMAR, ARNAUD GOULLET, KONSTANTIN MISCHAIKOW, Rutgers University — The talk will focus on the properties of force networks found in discrete element simulations of isotropically compressed particulate systems. We will discuss how these properties evolve as the system goes through the jamming transition, with particular focus on the influence of interparticle friction and polydispersity. Then, we will discuss new measures that can be used to quantify the temporal evolution of force networks, and discuss this evolution as the systems go through jamming. The implemented computational technique is based on persistence analysis that allows to consider global properties of force networks. This technique, that has been only very recently applied to particulate matter,[2] allows to extract significant new information, going much beyond separation into "strong" and "weak" force networks. The proposed approach describes the considered networks in a precise and tractable manner, allowing to identify novel features which could be difficult or impossible to describe using other approaches.

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[2]Phys. Rev. E **87**, 0422207 (2013)

Lou Kondic
New Jersey Institute of Technology

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