**Friction reduces degrees of freedom: implications in dense suspensions**

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A dense suspension is a flowable material composed of a liquid very highly loaded with solid particles, closely approaching the jamming fraction at which the material is able to withstand load without flow, forming a fragile porous solid. Examples are cements and coatings, certain foodstuff pastes, and mud. The rheology of these materials involves quite complicated behaviors: these include development of a yield stress, strong shear thinning and thickening, and shear-induced jamming. Based on our discrete-particle simulations, the role of frictional interactions on these behaviors will be addressed. A key point to note is that frictional interactions between particles result in coupling of the degrees of freedom of the particles, and resulting correlations in motion. From the simulations, the contact networks that arise and their relationship to the bulk properties will be described, with statistical mechanical approaches based on describing the fluctuations of particle motion (translational and rotational) and their spatial correlations applied to describe, insofar as we currently understand, the behavior associated with discontinuous shear thickening (an abrupt change from one stress to a larger value as shear rate is increased) and shear jamming.