Universal, non-Debye scaling in the density of states for jammed amorphous systems ERIC CORWIN, Univ of Oregon, ALEXIS PONCET, cole Normale Suprieure — The presence of anomalous modes in amorphous packings close to jamming is well known: the density of states of packings close to jamming goes to a constant at low frequency. But the scaling at higher densities is still unclear. Naively, one might expect to find simple Debye scaling. However, newly available theories for systems thought to belong to the same universality class as jamming predict anomolous, non-Debye scaling, but are only strictly applicable to the infinite dimensional case. Do these (mean-field) predictions bring some information about finite-dimensional systems? Here we study packings of soft spheres in dimensions 3 through 7 and show that indeed, far from jamming, we find a universal non-Debye scaling in the density of states, consistent with the mean-field predictions.

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