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A sphere packing slideshow MIRANDA HOLMES-CERFON, Courant Institute of Mathematical Sciences, STEVEN GORTLER, MICHAEL BRENNER, Harvard University — We have enumerated all the ways to arrange n ¡= 13+ spheres as a cluster that is nonlinearly rigid. We have discovered many packings that are hypostatic, namely they have fewer than the 3n-6 contacts required to be linearly rigid. Simple scaling arguments explain why these are thermodynamically important when the spheres are colloids interacting with a short-range potential. We discuss these clusters, as well as other surprises that came up along the way. ("+" means we have enumerated only a particular kind of cluster for n=14, 15, and beyond.)

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