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**Jamming and correlated percolation on energetically-evolved graphs** SHILİYANG XU, JENNIFER SCHWARZ, Physics Department, Syracuse University — Numerical simulations suggest that the zero-temperature jamming transition in repulsive soft spheres has an unusual mixed second-order/first-order character whose exponents appear to be in the same universality class as mean-field  $k$ -core percolation. In  $k$ -core percolation model, every occupied site must have at least  $k$  occupied neighbors. The  $k$ -core analogy of jamming is similar to the kinetically constrained analogy of the glass transition where the geometric constraint of  $k = d + 1$  contacts needed for local mechanical stability drives the transition. We now introduce energetics explicitly into the analogy by investigating  $k$ -core percolation on a graph where edges are dynamically evolved with the goal of minimizing an xy-model-type interaction between a node and each of its neighbors. The xy-model-type interaction captures the angular arrangements of jammed configurations at the onset of jamming. Moreover, the graph dynamics captures nonequilibrium aspects of jamming that cannot be captured by static approaches such as a version of rigidity percolation with repulsive forces only.

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