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Percolating Clusters in Systems of Gapped Rigid Rings.[1] CHRISTOPHER LASOTA, ARIEL HELFER, Kenyon College — We have examined the behavior of kinetically agitated collections of rigid rings with angular gaps in them. For small gap angles, large clusters form readily and are sufficiently tangled so that they may be raised vertically under gravitational stresses without decomposing. Using gravity as a stressor under semi-static conditions, we have measured average cluster size as a function of the gap angle and witness what appears to be a second order percolation phase transition. The critical gap angle depends somewhat on the relative thickness of the ring material compared to the ring diameter. Although friction is necessary for the formation of clusters, it appears that cluster formation is dominated by geometry effects.

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