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Dynamics and elasticity of fire ant aggregations ALBERTO FERNANDEZ-NIEVES, MICHAEL TENNENBAUM, ZHONGYANG LIU, DAVID HU, Georgia Institute of Technology — Fire ants, *Solenopsis invicta*, form aggregations that are able to drip and spread like simple liquids, but that can also store energy and maintain a shape like elastic solids. They are an active material where the constituent particles constantly transform chemical energy into work. We find that fire ant aggregations shear thin and exhibit a stress cutoff below which they are able to oppose the applied stress. In the linear regime, the dynamics is fractal-like with both storage and shear moduli that overlap for over three orders of magnitude and that are power law with frequency. This dynamic behavior, characteristic of polymer gels and the gelation point, gives way to a predominantly elastic regime at higher ant densities. In comparison, dead ants are always solid-like.

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