

Abstract Submitted  
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**The ant raft** NATHAN MLOT, DAVID HU, SOLOMON EQUABAI, Georgia Institute of Technology — To survive floods, fire ants link their arms together to assemble a raft with their own bodies. Because ants are nearly as dense as water, this cooperative behavior requires that a portion of the ant colony must sacrifice itself by remaining underwater to support the colony's weight. Surprisingly, few ants drown during this process due to a striking metamorphosis of the raft: as we show using time-lapse photography, the raft morphs from a spherical to a pancake shape. This pancake configuration—a monolayer of floating ants supporting their dry counterparts—allows all ants to both breathe and remain united as a colony. Data is presented in the form of the dimensions and the rates of formation of the ant raft. We use the statics of small floating bodies to account for the equilibrium raft size as a function of the initial mass and density of the ants.

David Hu  
Georgia Institute of Technology

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