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Shrinking spinning fire ant rafts HUNGTANG KO, DAVID HU, Georgia Institute of Technology — Fire ants make rafts to stay afloat during flooding seasons. The ability to respond to different fluid environments is critical to raft sustainability. To investigate the response, we built an experiment setup to create two fluid conditions for the fire ant raft: rigid-body rotation and Taylor-Couette vortex. We found that following a rapid expansion phase, the fire ant raft shrinks at a much longer time scale under all conditions. We discovered that the additional shear from the Couette vortex help stabilize the ant raft while the centrifugal force didn't have appreciable effects. Furthermore, the result suggests that rotation can inhibit the exploration behavior of individual fire ants on the raft..

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