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Getting trapped in low-Re turbulence and collaborating your way out ENKELEIDA LUSHI, Courant Institute NYU, and Imperial College London, MICHAEL J. SHELLEY, Courant Institute, New York University — We present an efficient numerical method to compute the dynamics of thousands of self-motile rod-like micro-swimmers that interact directly via the fluid flow they collectively generate. Using this method, we study the dynamics of rod-like swimmer particles in a background cellular vortical flow and show that hydrodynamic and steric interactions, the number of swimmers and system size, as well as the swimming mechanism ("Pusher" vs. "Puller"), have an effect on whether the swimmers get trapped in vortices or can escape them.

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