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Trapping of Swimming Particles in Chaotic Fluid Flow NIDHI KHURANA, JERZY BLAWZDZIEWICZ, NICHOLAS T. OUELLETTE, Yale University — We computationally study the dynamics of active particles suspended in a two-dimensional chaotic flow. The point-like, spherical particles have their own intrinsic velocity, and can therefore break transport barriers (KAM) tori) in the flow. Even a small amount of swimming significantly affects the mixing. However, small but finite values of the swimming speed can lead to a decrease in mixing efficiency, as swimmers can get stuck in traps that form near elliptic islands in the flow field. We study the statistics of trapping times and its effect on transport dynamics.

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