Fluid Mixing by Active particles NIDHI KHURANA, JERZY BLAWZDZIEWICZ, NICHOLAS T. OUELLETTE, Yale University — For systems with low Reynolds number, mixing is efficient only via chaotic advection. We investigate the dynamics of active particles suspended in chaotic two-dimensional, incompressible fluid flows. The spheroidal particles have their own intrinsic velocity and they strongly affect the bulk mixing dynamics. We observe that swimmers break transport boundaries in the flow that fluid elements could not cross. We also show that in some limits, swimming can lead to interesting phenomena like particle trapping and formation of patterns.

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