

Abstract Submitted
for the DFD08 Meeting of
The American Physical Society

Chaotic advection in pulsed source-sink systems PANKAJ KUMAR, MARK STREMLER, Virginia Tech — Pulsed operation of a source and a sink is a classic approach to generating chaotic advection in the unbounded plane. This approach provides motivation for mixing laminar flows in high-aspect-ratio volumes using an arrangement of sources and sinks. In bounded systems the sources and sinks must operate in pairs in order to conserve volume. When the sources and sinks are arranged on the boundary of a circular domain, particle motions are given explicitly by a discrete mapping. This mapping is used to explore the optimal operating parameters for producing chaos with three different source-sink configurations in a circular domain.

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Date submitted: 04 Aug 2008

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