

Abstract Submitted
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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 these 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. We use this mapping to explore the optimal
operating parameters for producing chaos in pulsed source-sink systems.

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