

Abstract Submitted
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2D Chaotic Mixing with Natural Convection LUIS M. DE LA CRUZ, DCI-DGSCA, UNAM, EDUARDO RAMOS, CIE, UNAM — In this work chaotic mixing inside a two dimensional cavity achieved with time dependent natural convection is investigated. The motion of flow is induced by imposing alternating hot and cold temperatures on opposite walls, with this set up no moving walls are required to mix the fluid inside the container. This idea is illustrated by numerically solving the governing equations of natural convection in a two dimensional square cavity with sections of its upper and lower horizontal walls cooled and heated in a periodic manner. These conditions generate a vortex of time dependent intensity that moves its center in a closed loop around the geometrical center of the container. The mixing properties of the flow are visualized by Lagrangian tracking of a collection of points located in arbitrary positions inside of the domain.

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