

Abstract Submitted
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The Dynamics of Ratcheting States in Cellular Flames MICHAEL GORMAN, University of Houston — Cellular flames form ordered states of two concentric rings of brighter, hotter cells, separated by darker, cooler cusps and folds. In ratcheting states one or both rings of cells rotate slowly (~ 1 deg/sec), speeding up and slowing down in a manner characteristic, which depends on the numbers of cells in the inner and outer rings and the degree of coupling between the two rings. We present measurements of the velocities of 4 such states and video clips of the motions of 20 other ratcheting states. The characteristics of these states have not yet been explained. The nature of ratcheting motion has not yet been described in the context of bifurcations with symmetry.

Michael Gorman
University of Houston

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