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Study on chaos in a plane driven square cavity. (Chinese. English summary) Zbl 07404431

Summary: In this paper, we study the characteristics of the chaos in a plane driven square cavity by applying a consistent fourth-order compact finite difference scheme recently developed by us. By means of chaotic time series analysis, we qualitatively and quantitatively study the plane driven flow system in a square cavity with high Re. From steady state to chaotic state, the chaotic characteristics are given in detail.

MSC:
37D45 Strange attractors, chaotic dynamics of systems with hyperbolic behavior
76M20 Finite difference methods applied to problems in fluid mechanics

Keywords:
plane driven square cavity; numerical simulation; time series analysis; chaotic characteristics