

Controlling Chaos in Hénon Map by the Constant Feedback Method

HAO Jian-Hong,¹ XU Hai-Bo,² and YU Jin-Jiang^{2,3}

¹ Department of Information Engineering, North China Electric Power University, Beijing 102206, China

² Institute of Applied Physics and Computational Mathematics, Beijing 100088, China

³ Department of Physics, Shijiazhuang College, Shijiazhuang 050801, China

(Received: 2006-9-11; Revised:)

Abstract: We demonstrate the constant feedback and the modified constant feedback method to the Hénon map. Using the convergence of the chaotic orbit in finite time, we can control the system from chaos to the stable fixed point, and even to the stable period-2 orbit or higher periodic orbit by the action of a proper feedback strength and pulse interval. We also find that the multi-steady solutions appear with the same control strength and different initial conditions. The aim of this control method is explicit and the feedback strength is easy to determine. The method is robust under the presence of weak external noise.

PACS: 05.45.Gg

Key words: constant feedback, modified constant feedback, finite time convergence zone, Hénon map, multi-steady solutions

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