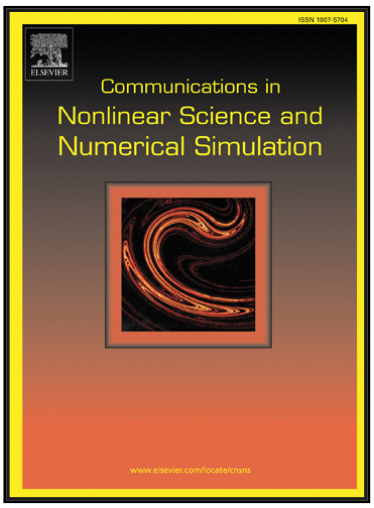

Walking dynamics of the passive compass-gait model under OGY-based control: Emergence of bifurcations and chaos

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Highlights

- A simplified OGY-based control method of the compass-gait biped model is proposed.
- We analyze the walking dynamics under control via bifurcation diagrams.
- We show the emergence of bifurcations and chaos.
- The period-doubling bifurcation, the cyclic-fold bifurcation, the period remerging, and the period bubbling are exhibited.
- A comparison between nonlinear phenomena displayed in the impulsive hybrid nonlinear dynamics and the hybrid Poincaré map is achieved.