The IV $^{\rm TH}$ World Congress of Nonlinear Analysts. Workshop on Coupled Problems, Processes, and Phenomena: Modeling, Control, and Analysis. FL, USA, June 30 - July 7, 2004

Combustion Synthesis in Periodic Medium

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Abstract

Solutions of a free-interface problem modeling solid combustion front propagating in combustible mixture with periodically varying concentration of reactant exhibit classical phenomenon of frequency locking. We present numerical simulations showing a variety of locked periodic, quasi-periodic and chaotic solutions, and bifurcation diagrams based on correlation dimension