Chaos in the Newton-Leipnik system with fractional order

許隆結,陳獻庚,陳俊宏,譚立武,陳文欽,林廣台,康淵
Mechanical Engineering
Engineering

0

Abstract

Abstract
The dynamics of fractional-order systems has attracted increasing
attention in recent years. In this paper, the
dynamics of the Newton－Leipnik system with fractional order was studied
numerically. The system displays many
interesting dynamic behaviors, such as fixed points, periodic motions,
chaotic motions, and transient chaos. It was
found that chaos exists in the fractional-order system with order less
than 3. In this study, the lowest order for this system
to yield chaos is 2.82. A period-doubling route to chaos in the
fractional-order system was also found.

Keyword：Newton－Leipnik system
fractional order