Nonlinear Dynamics and Systems Theory, **6**(1) (2006) 49–62

An Analysis of Clattering Impacts of a Falling Rod

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Received: April 27, 2005; Revised: January 31, 2006

Abstract: This paper deals with both analytical and quantitative analysis of multiple impacts of a two-dimensional rod. The successions of clattering sequence of a rod dropping to the floor are modeled and analyzed to find out the impact responses as it collides with the ground. The model is described by a system of ordinary differential equations, with a classical contact problem. We conduct a comparison study of the cases where the effect of the gravity is neglected, versus the cases where the gravity is considered. This mathematical analysis can further provide useful information for durability study of the impact on mobile electronic device.

Keywords: *Two-dimensional rod; clattering impacts; analytical and quantitative analysis.*

Mathematics Subject Classification (2000): 70E18, 70F40, 70B10, 70G10.