

Dynamics and control of a double impact oscillator

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Abstract

Bench and mathematical models of a double impact oscillator are considered. The investigation is motivated by a full-size building rig with seismic displacement input through pistons attached to the structure. The models considered include a feedback response corresponding to error in the piston and building displacement.

Fundamental dynamical characteristics are considered for both models, and behaviour is compared. Control strategies are discussed for avoiding low-order impacting.