Ph. D. Thesis (OUMAROU Sanda Abbo) :

Title : COMPORTEMENT IMPRÉVISIBLES GÉNÉRÉS PAR DES DISPOSITIFS DE CONTRÔLE DES VIBRATIONS DES POUTRES

Abstract

The study carried out in the thesis deals with the impact of the implementation of a control strategy on the dynamics of an articulated beam submitted to additive and parametric charges of sinusoidal, pressure or explosive nature.

After the modeling of the system under control, appropriate numerical and mathematical methods have been used to analyze the effects of the parametric and additive excitations.

The results show that as the intensity of the control increases the following phenomena are observed:

- A destabilisation of the equilibrium position.

- A destabilisation of homoclinic orbits.

- The appearance of the horseshoe chaos.

Moreover the inefficiency of the control in case of explosions is established.