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**Dynamic response and control of hysteretic structures** (Conference Paper)

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Abstract

In the paper one considers a multi-storey shear frame which exhibits an elastic-plastic behaviour under a seismic-type action. General considerations are carried out on the advantage of adopting a rule for controlling dynamic oscillations which includes the plastic pattern. The performance of two different feedbacks is tested, showing the simply derivative feedback the most suitable for structures entering the plastic domain, either when controlling each degree of freedom or when dealing with a reduced number of actuating devices. © 2003 Elsevier B.V. All rights reserved.

Author keywords  
 Active vibration control of civil structures; Elastic-plastic vibrating behaviour; Seismic type action

Indexed keywords  
**Engineering controlled terms:** Algorithms; Degrees of freedom (mechanics); Dynamic response; Elastoplasticity; Functions; Hysteresis; Mathematical models; Problem solving; Shear deformation; Vibration control  
**Engineering uncontrolled terms:** Active vibration control of civil structures; Elastic-plastic vibrating behavior; Seismic type action  
**Engineering main heading:** Structural analysis

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Abstract

In the paper one considers a multi-storey shear frame which exhibits an elastic-plastic behaviour under a seismic-type action. General considerations are carried out on the advantage of adopting a rule for controlling dynamic oscillations which includes the plastic pattern. The performance of two different feedbacks is tested, showing the simply derivative feedback the most suitable for structures entering the plastic domain, either when controlling each degree of freedom or when dealing with a reduced number of actuating devices.

Keywords  
 Active vibration control of civil structures; Seismic type action; Elastic-plastic vibrating behaviour

1. Introduction  
 Civil structures, even when equipped with vibration control devices, may enter the plastic domain under dynamic loading conditions. Control rules [10] should, therefore, be designed taking into account the modal non-linear behaviour arising from effective

Article outline

Abstract  
 Keywords  
 1. Introduction  
 2. Plastic control of s.d.o.f. structures  
 3. Asismic control of multi-degree-of-fr...  
 4. Conclusions  
 Acknowledgements  
 References

Figures and tables

Table 1

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