

Semi-Active Decentralized Vibration Damping Strategy in Two-Dimensional Frame Structures  
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Vibration damping is a very important aspect of engineering practice. The basic strategy of coping with vibrations is to properly design the structure, which will either eliminate or at least limit this phenomenon. When structural changes are not sufficient, a vibration damping system shall be introduced.

We have developed a semi-active vibration damping system for 2D frame structures which proved to be efficient in various load conditions. Mitigation of vibration amplitudes, with very satisfying results, can be achieved both in free, as well as in forced vibrations which can have harmonic or purely random characteristics. In all cases numerical findings were confirmed with experimental investigations conducted on a similar structure, which authenticates the quality of the proposed control algorithm.

Decentralization of the control system contributes to improving the safety and efficiency of the control. It also simplifies its implementation in the real structure, which is an additional advantage over the centralized control systems.

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