

Piezoelectromechanical structural elements: vibration control via analog circuits

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ABSTRACT

The concept of distributed passive control of vibrations in structural members has recently attracted the attention of many researchers. The main idea consists in coupling a mechanical structure with an analog passive electric circuit by means of an array of piezoelectric actuators. In a sense we get a multiscale multiphysics metamaterial whose exotic behavior can be exploited in many applications. In particular we can obtain a multimodal vibration control of any kind of structural member. We call piezoelectromechanical structure a mechanical structure coupled with its analog structure by means of piezoelectric transducers.

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