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MS4: Non-Classical Problems in Structural Dynamics of Continuous Media

Vibration abatement using sandwich structure with a smart core

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Abstract: The synergy of the layered structure vibration and semi-active control of the intelligent core is emphasized. It will have a significant influence in minimization of vibration amplitudes. Moreover, it will increase the load capacity of the structure, and hence will allow to reduce its weight. Proposed semi-active approaches should significantly improve dynamic properties of structures in relation with the passive analogue. At the same time they should have low energy requirements, making it an attractive alternative to solutions based on the forced control. The obtained control strategies were verified and evaluated during the experimental research on the test stand. For the experimental purposes the intelligent core is made of magnetorheological elastomer MRE. Sandwich structures with a core made of an intelligent elastomer should be used to stabilize motion of various types of engineering structures.

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