
Temperature control of a composite core for adaptive stiffness and damping

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Abstract

In this talk, a composite structure with adaptive stiffness and damping is presented. The multilayer arrangement includes a viscoelastic layer, whose mechanical properties are controlled through temperature. The temperature field is obtained through resistive layers which are embedded in the composite. Several independent zones are defined, each of them having its temperature regulated according to the expected global stiffness and damping. The space distribution of the temperature is optimized through numerical simulations based on multiphysics finite elements. Experiments are finally shown to illustrate the applicability of the concept.

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