

OPTIMAL DESIGN OF COMPOSITE STRUCTURES AND MATERIALS FOR PHONONIC APPLICATIONS

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Composite materials and structures have been designed to exhibit simultaneously high stiffness and high damping [1]. Interestingly, one of the most promising composite architectures is suggestive of an effective structural design for phononic application in which there exist tuned appendages to engender stopbands in the vibrational/acoustic response of the structures.

In this presentation, we will highlight our recent developments in the design of phononic composite materials and structures that exhibit desirable stopband response, while maintaining structural stiffness and also can include dissipative materials for low-frequency attenuation.

REFERENCES

- [1] J. Meaud, T. Sain, G.M. Hulbert and A.M. Waas, Analysis and optimal design of layered composites with high stiffness and high damping, *IJSS*, Vol. **50**, pp. 1342-1353, 2013.