Impact and blast mitigation using locally resonant woodpile metamaterials

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PII: S0734-743X(16)30706-0
DOI: 10.1016/j.ijimpeng.2016.09.006
Reference: IE 2741

To appear in: *International Journal of Impact Engineering*

Received date: 20 November 2015
Revised date: 19 July 2016
Accepted date: 14 September 2016

Please cite this article as: Eunho Kim , Jinkyu Yang , HuiYun Hwang , Chang Won Shul , Impact and blast mitigation using locally resonant woodpile metamaterials, *International Journal of Impact Engineering* (2016), doi: 10.1016/j.ijimpeng.2016.09.006

Highlights

- Nonlinear elastic metamaterials are investigated for impact/blast mitigation purposes.
- An optimized configuration of nonlinear elastic metamaterials is obtained using a genetic algorithm
- An efficient impact attenuation mechanism is reported based on local resonances of nonlinear elastic metamaterials.
- This resonance-based impact mitigation mechanism is verified computationally and experimentally.