

Accepted Manuscript

Band structures of elastic SH waves in nanoscale multi-layered functionally graded phononic crystals with/without nonlocal interface imperfections by using a local RBF collocation method

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PII: S0894-9166(16)30217-8
DOI: [10.1016/j.camss.2017.07.012](https://doi.org/10.1016/j.camss.2017.07.012)
Reference: CAMSS 46



To appear in: *Acta Mechanica Solida Sinica*

Received date: 8 September 2016
Revised date: 7 July 2017
Accepted date: 7 July 2017

Please cite this article as: Zhizhong Yan , Chunqiu Wei , Chuanzeng Zhang , Band structures of elastic SH waves in nanoscale multi-layered functionally graded phononic crystals with/without nonlocal interface imperfections by using a local RBF collocation method, *Acta Mechanica Solida Sinica* (2017), doi: [10.1016/j.camss.2017.07.012](https://doi.org/10.1016/j.camss.2017.07.012)

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Highlights

- A novel radial basis function method based on the Eringen nonlocal elasticity theory is developed to calculate the band structures of the nanoscale phononic crystals with functionally graded (FG) interlayers.
- The effects of nonlocal interface imperfections are considered by comparing with the nonlocal perfect interfaces.
- The influences of the FG and homogeneous interlayers, the material component number, the nonlocal interface imperfections, the nanoscale size and the incidence angle on the cut-off frequency and band structures in the ternary and quaternary laminates are comparatively investigated.

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