

Acoustic Metamaterials And Phononic Crystals Preamble

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Acoustic Metamaterials And Phononic Crystals

PCs can be classified into two categories: acoustic phononic crystals (APCs) with a fluid matrix, and elastic phononic crystals (EPCs) with an elastic solid matrix. In this article, we will mainly focus on APCs since most research has been conducted in this field.

Phononic crystals and acoustic metamaterials - ScienceDirect

The emphasis is on acoustic wave propagation phenomena at interfaces such as refraction, especially unusual refractive properties and negative refraction. A thorough discussion of the mechanisms leading to such refractive phenomena includes local resonances in metamaterials and scattering in phononic crystals.

Acoustic Metamaterials and Phononic Crystals (Springer ...

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Acoustic Metamaterials and Phononic Crystals | Pierre A ...

Phononic crystals have been proposed about two decades ago and some important characteristics such as acoustic band structure and negative refraction have stimulated fundamental and practical studies in acoustic materials and devices since then. To carefully engineer a phononic crystal in an acoustic...

(PDF) Phononic Crystals and Acoustic Metamaterials

Phononic crystals and acoustic metamaterials have been decidedly demonstrating their potential and promising applications in the acoustic wave spectrum both for now and the future. In this Special Issue, we would like to invite all contributions related to phononic crystals and acoustic metamaterials.

Crystals | Special Issue : Recent Advances In Phononic ...

This comprehensive book presents all aspects of acoustic metamaterials and phononic crystals. The emphasis is on acoustic wave propagation phenomena at interfaces such as refraction, especially unusual refractive properties and negative refraction. A thorough discussion of the mechanisms leading to such refractive phenomena includes local resonances in metamaterials and scattering in phononic crystals.

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Acoustic Metamaterials and Phononic Crystals | SpringerLink

Acoustic metamaterials and phononic crystals: Towards the total control of the wave propagation Abstract: Classical waves, including elastic waves (acoustic waves) and electromagnetic waves (optical waves and microwaves), are described by conventional wave-propagation functions. Elastic waves were the first waveforms to be understood in ...

Acoustic metamaterials and phononic crystals: Towards the ...

Phononic crystals and acoustic metamaterials are periodic structures whose effective properties can be tailored at will to achieve extreme control on wave propagation. Their refractive index is obtained from the homogenization of the infinite periodic system, but it is possible to locally change...

(PDF) Gradient Index phononic crystals and metamaterials

Phononic crystals are synthetic materials that are formed by periodic variation of the acoustic properties of the material (i.e., elasticity and mass). One of the main properties of the phononic crystals is the possibility of having a phononic bandgap .

Acoustic metamaterial - Wikipedia

Phononic crystals are rather unique materials that can be engineered with a particular band gap. As the demand for these materials continues to grow, so does the interest in simulating them, specifically to optimize their band gaps. COMSOL Multiphysics, as we'll show you here, can be used to perform such studies.

Modeling Phononic Band Gap Materials and Structures ...

Acoustic tunneling through artificial structures: From phononic crystals to acoustic metamaterials 1. Introduction. The propagation of acoustic waves in phononic crystals (PCs)... 2. Acoustic tunneling through PC slabs. Here we give a simple review for... 3. Acoustic tunneling through metamaterial ...

Acoustic tunneling through artificial structures: From ...

PHONONICS 2017 Is the fourth conference dedicated to analysis and manipulation of phonons (vibrations in solids), connecting researchers interested in phononic crystals, acoustic/thermal metamaterials, wave propagation in periodic structures, nano-scale phonon transport, optomechanics and phonon coupling.

The 4th International Conference on Phononic Crystals ...

Topological acoustic systems exhibit exotic properties including zero refraction, but typically only in a small region of frequency space. In this work, a zero-index acoustic metamaterial is ...

Topologically protected zero refraction of elastic waves ...

Theory and Design of Acoustic Metamaterials. Editor(s): P. Frank Pai; Guoliang Huang. Published: 2015. ... This book presents the most recent theoretical developments and numerical/experimental validations of new metamaterials and phononic crystals for the broadband absorption of elastic waves and vibrations in structures. These nine chapters ...

Theory and Design of Acoustic Metamaterials

This comprehensive book presents all aspects of acoustic metamaterials and phononic crystals. The emphasis is on acoustic wave propagation phenomena at interfaces such as refraction, especially unusual refractive properties and negative refraction.

Amazon.com: Acoustic Metamaterials and Phononic Crystals ...

Acoustic metamaterials and phononic crystals Published: (2013) Acoustic metamaterials negative refraction, imaging, lensing and cloaking / Published: (2013) Theory and design of acoustic metamaterials / Published: (2015)

Phononic crystals : artificial crystals for sonic ...

Phononic Metamaterials & Acoustofluidics.. ACOUSTIC RADIATION FORCES Miniaturization of complete laboratory protocols on chips (aka. lab-on-chip systems) is one of the most exciting and lasting triumphs of engineering and biochemical sciences during the last two decades.

Phononic Metamaterials — UCSC NanoEngineering Group

EXPLORING PHONONIC CRYSTAL TUNABILITY USING DIELECTRIC ELASTOMERS Phononic crystals are to vibration and acoustics what photonic crystals are to light. The fundamental idea is the same – periodic materials that exhibit frequency ranges where vibration/sound/light cannot pass – termed band gaps. This is a very active research field, and my research is aimed at exploring...