# Article information:

Negative refraction in a single-phase flexural metamaterial with hyperbolic dispersion - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0022509622003039>

# Article summary:

1. Negative refraction and band-gaps are commonly observed in the wave band structure of photonic/phononic crystals.

2. Locally resonant metamaterials have been developed to recover these properties at low frequencies.

3. This paper proposes a combination of Bloch–Floquet analysis and two-scale asymptotic techniques to derive the dispersion of elastic waves in a flexural metamaterial.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy, providing an overview of the current state of research on negative refraction and band-gaps in photonic/phononic crystals, as well as locally resonant metamaterials for recovering these properties at low frequencies. The authors provide a comprehensive review of existing literature on the topic, including references to relevant studies from the past 20 years. The article also presents a novel approach for deriving the dispersion of elastic waves in a flexural metamaterial using Bloch–Floquet analysis combined with two-scale asymptotic techniques, which is supported by evidence from previous studies.

The article does not appear to be biased or one-sided, presenting both sides equally and exploring counterarguments where appropriate. There is no promotional content or partiality present in the article, and potential risks are noted where applicable. The only potential issue with the article is that it does not provide any missing points of consideration or evidence for some of its claims, which could be addressed by further research into this area.

# Topics for further research:

* Negative refraction photonic crystals
* Locally resonant metamaterials
* Bloch–Floquet analysis
* Two-scale asymptotic techniques
* Flexural metamaterials
* Photonic/phononic band-gaps

# Report location:

<https://www.fullpicture.app/item/47b16c8433fa99ddb4e98550eeb12022>