# Article information:

Unfolding engineering metamaterials design: Relaxed micromorphic modeling of large-scale acoustic meta-structures - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0022509622001855>

# Article summary:

1. This paper presents a unit cell that exhibits a band-gap in the lower acoustic domain, and shows how the relaxed micromorphic model can be used for metamaterials’ design at large scales.

2. Experiments are conducted to confirm that the metamaterials’ response is in agreement with the theoretical design.

3. A finite-size structure is designed that is able to focus elastic energy in a confined region, enabling its possible use for optimizing complex structures.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article provides an overview of the potential applications of metamaterials and their ability to show exceptional static/dynamic features such as negative Poisson’s ratio, twist in response to being pushed or pulled, band-gaps, cloaking, focusing, channeling, negative refraction etc. The authors present a unit cell showing a band-gap in the lower acoustic domain and demonstrate how the relaxed micromorphic model can be used for metamaterials’ design at large scales. Experiments are conducted to confirm that the metamaterials’ response is in agreement with the theoretical design and a finite-size structure is designed that is able to focus elastic energy in a confined region.

The article appears to be reliable and trustworthy as it provides evidence from experiments conducted to support its claims and presents both sides of an argument equally. The authors also provide references for further reading on related topics which adds credibility to their work. However, there are some points of consideration missing from this article such as potential risks associated with using these materials or any other unexplored counterarguments which could have been explored further by the authors. Additionally, there is no promotional content present in this article which makes it more credible and trustworthy.

# Topics for further research:

* Metamaterials applications
* Negative Poisson's ratio
* Metamaterials design
* Elastic energy focusing
* Potential risks of metamaterials
* Counterarguments for metamaterials

# Report location:

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