# Article information:

微机械|免费全文|TPOS MEMS谐振器单相声子晶体中耦合布拉格和局部共振带隙的Q因子增强  
<https://www.mdpi.com/2072-666X/13/8/1217>

# Article summary:

1. This article proposes a single-phase DIH-PnC structure formed by vertically intersecting double “I” holes.

2. Numerical results show that the DIH-PnC has an ultra-wide band gap and strong attenuation performance, attributed to the coupling of Bragg and local resonance mechanisms.

3. The DIH-PnC was introduced into a TPOS resonator, resulting in a Q factor increase of 20,425.1% compared to conventional resonators and 3762.3% compared to cross-hole PnC resonators.

# 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:

This article is generally reliable and trustworthy as it provides detailed information on the proposed single-phase DIH-PnC structure, its numerical results, and its application in TPOS resonators. The authors provide evidence for their claims through numerical simulations and comparisons with existing structures, which adds credibility to their findings. Furthermore, the authors discuss potential risks associated with their proposed structure such as fabrication complexity and cost implications, which demonstrates their awareness of possible limitations of their work.

The only potential bias in this article is that it does not explore counterarguments or alternative solutions to the problem addressed in the paper. However, this does not significantly detract from the overall reliability of the article as it provides sufficient evidence for its claims and conclusions.

# Topics for further research:

* Single-phase DIH-PnC fabrication complexity
* Single-phase DIH-PnC cost implications
* Alternative solutions for TPOS resonators
* Numerical simulations of single-phase DIH-PnC
* Comparison of single-phase DIH-PnC with existing structures
* Advantages of single-phase DIH-PnC for TPOS resonators

# Report location:

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