# Article information:

Strongly coupled piezoelectric cantilevers for broadband vibration energy harvesting-所有数据库  
<https://www.webofscience.com/wos/alldb/full-record/WOS:000579393800049>

# Article summary:

1. This article presents a method to design strongly coupled piezoelectric cantilevers with very high global electromechanical coupling coefficients k(2) (> 10%).

2. The article provides design guidelines and experiments that validate them, showing that a long proof mass is an effective configuration to maximize the global electromechanical coupling coefficient.

3. Three prototypes exhibit some of the strongest squared global electromechanical coupling coefficients k(2) of the state-of-the-art of piezoelectric harvesters, demonstrating a wide bandwidth behavior and harvesting enough power (more than 100 μW) to supply a WSN over a frequency bandwidth as large as 21%.

# 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 presents a method for designing strongly coupled piezoelectric cantilevers with very high global electromechanical coupling coefficients k(2). The authors provide design guidelines and experiments that validate them, showing that a long proof mass is an effective configuration to maximize the global electromechanical coupling coefficient. The article also presents three prototypes which demonstrate some of the strongest squared global electromechanical coupling coefficients k(2) of the state-of-the-art of piezoelectric harvesters, demonstrating a wide bandwidth behavior and harvesting enough power (more than 100 μW) to supply a WSN over a frequency bandwidth as large as 21%.

The article appears to be well researched and reliable in its claims. It provides detailed information on the research methods used, including analytical approaches based on Rayleigh-Ritz method and two degrees-of-freedom model, experimental validation, and results from three prototypes. Furthermore, it cites relevant literature in support of its claims.

However, there are some potential biases in the article which should be noted. For example, it does not explore any counterarguments or alternative solutions to the problem presented in the paper. Additionally, it does not discuss any possible risks associated with using this technology or present both sides equally when discussing potential applications for this technology. Finally, there is no discussion about how this technology could be improved upon or what further research needs to be done in order to make it more efficient or effective.

# Topics for further research:

* Alternative solutions for piezoelectric harvesters
* Risks associated with piezoelectric harvesters
* Potential applications of piezoelectric harvesters
* Improving efficiency of piezoelectric harvesters
* Further research for piezoelectric harvesters
* Counterarguments for piezoelectric harvesters

# Report location:

<https://www.fullpicture.app/item/7bbd27be5e293e816ebc1d23a9c8a412>