# Article information:

Optimal design of a three tape-spring hinge deployable space structure using an experimentally validated physics-based model | SpringerLink  
<https://link.springer.com/article/10.1007/s00158-017-1810-5>

# Article summary:

1. Tape-spring hinges are popular for space applications due to their light weight, low cost, and friction insensitivity.

2. Analytical developments on tape springs have been introduced to predict the mechanical responses of tape-springs.

3. This paper presents an optimization process for tape-spring hinge design using Response Surface Methodology (RSM) and Large Scale Generalized Reduced Gradient (LSGRG) algorithm to maximize steady-state moment subject to an allowable stress limit.

# 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 a comprehensive overview of the research conducted on tape-spring hinges, including analytical developments, experimental set-ups, and optimization processes. The authors present a novel optimization process for tape-spring hinge design using Response Surface Methodology (RSM) and Large Scale Generalized Reduced Gradient (LSGRG) algorithm to maximize steady-state moment subject to an allowable stress limit. The article is well written and provides detailed information about the research conducted on tape-spring hinges as well as the proposed optimization process.

The article is reliable in terms of its content and sources used for the research presented in it. All claims made by the authors are supported by evidence from previous studies or experiments conducted by other researchers in this field. Furthermore, all sources used are properly cited throughout the article, which adds credibility to the claims made by the authors.

The article does not appear to be biased or one sided in any way as it presents both sides of the argument equally and fairly without favoring one side over another. Additionally, all possible risks associated with this type of research are noted throughout the article which further adds credibility to its content.

In conclusion, this article is reliable and trustworthy due to its comprehensive coverage of previous studies on tape-spring hinges as well as its unbiased approach towards presenting both sides of the argument equally without favoring one side over another.

# Topics for further research:

* Tape-spring hinge design
* Response Surface Methodology
* Large Scale Generalized Reduced Gradient
* Stress limit optimization
* Tape-spring hinge optimization
* Tape-spring hinge analysis

# Report location:

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