# Article information:

Asymmetrical friction damper to improve seismic behavior of tension-only braces: An experimental and analytical study - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0141029622001742>

# Article summary:

1. A new passive mechanical device, the asymmetrical friction damper (AFD), was designed, fabricated and tested to improve the seismic behavior of tension-only braces.

2. An asymmetrical constitutive model was proposed to describe the mechanical properties of the AFD.

3. Nonlinear time history analysis showed that the AFD had better performance in energy dissipation than fluid viscous dissipators (FVDs).

# 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 “Asymmetrical friction damper to improve seismic behavior of tension-only braces: An experimental and analytical study” is a reliable source of information on the potential benefits of using an asymmetrical friction damper (AFD) to improve seismic behavior of tension-only braces (TOBs). The article provides a detailed description of the design, fabrication, and testing process for the AFD as well as an analysis of its performance in comparison with fluid viscous dissipators (FVDs). The authors also provide an asymmetrical constitutive model to describe the mechanical properties of the AFD and propose an equal energy method for optimizing model parameters.

The article is written in a clear and concise manner, making it easy to understand for readers with varying levels of technical knowledge. The authors provide sufficient evidence to support their claims, including twelve tests conducted on the AFD as well as nonlinear time history analysis on a six-story benchmark model. Furthermore, they present both sides equally by providing comparisons between FVDs systems and AFDs systems under different levels of earthquake.

However, there are some points that could be improved upon in this article. For example, while the authors discuss potential risks associated with TOBs such as fracture or slackness due to buckling, they do not provide any evidence or data regarding these risks or how they can be mitigated when using an AFD system instead. Additionally, while they discuss potential applications for TOBs such as out-of-plumb structures caused by prior earthquakes or rocking structures, they do not provide any examples or case studies demonstrating how these applications have been used successfully in practice.

In conclusion, this article is generally reliable and trustworthy source of information on using an asymmetrical friction damper (AFD) to improve seismic behavior of tension-only braces (TOBs). However, there are some points that could be improved upon such as providing more evidence regarding potential risks associated with TOBs and providing examples or case studies demonstrating successful applications for TOBs in practice.

# Topics for further research:

* Asymmetrical Friction Damper Performance
* Seismic Behavior of Tension-Only Braces
* Mitigation of TOB Risks
* Equal Energy Method Optimization
* Nonlinear Time History Analysis
* Out-of-Plumb Structures Caused by Earthquakes

# Report location:

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