# Article information:

Experimental investigation on aerodynamic interference of two kinds of suspension bridge hangers - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0889974619300258>

# Article summary:

1. Aerodynamic interference between cables of suspension bridge hangers can cause large amplitude vibrations, which can lead to safety and serviceability issues.

2. Two types of cable test models with smooth and rough surfaces were manufactured to investigate the aerodynamic interference between parallel wire strand (PWS) and wire rope (WR) hangers.

3. Wind tunnel tests showed that the WR cable is more suitable for use as a hanger due to its lower unstable region and increasing oscillation amplitude with wind velocity, while the PWS cable had a larger variation amplitude in force coefficients.

# 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 presents an experimental investigation on the aerodynamic interference of two types of suspension bridge hangers, namely parallel wire strands (PWS) and wire ropes (WR). The study aims to compare the features of wake-induced vibration of the PWS and WR hangers by conducting wind tunnel tests. The article provides detailed information about the test models, wind tunnel setup, and parameters for force measurement and vibration measurement tests.

The article is well-structured and provides a comprehensive overview of the study. However, there are some potential biases and limitations that need to be considered. Firstly, the study only focuses on two types of cables used in suspension bridge hangers, which may not represent all possible cable configurations. Secondly, the study uses test models with lower mass per unit length than real hangers, which may affect the flow-induced response. Thirdly, the structural damping ratio used in the tests is higher than that of real hangers, which may affect the critical wind velocity for wake-induced vibration.

The article does not provide any counterarguments or alternative perspectives on the topic. It also does not discuss any potential risks associated with wake-induced vibrations in suspension bridge hangers. Additionally, there is no discussion about how these findings can be applied to improve the design or safety of suspension bridges.

Overall, while this article provides valuable insights into aerodynamic interference between cables in suspension bridge hangers, it has some limitations that need to be considered when interpreting its findings.

# Topics for further research:

* Risks associated with wake-induced vibrations in suspension bridge hangers
* Alternative cable configurations for suspension bridge hangers
* Real-world mass per unit length of suspension bridge hangers
* Critical wind velocity for wake-induced vibration in suspension bridge hangers
* Improving the design and safety of suspension bridges
* Aerodynamic interference in other components of suspension bridges

# Report location:

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