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Spotlight on *Structures*

Editor's Featured Article

The Featured Article for Volume 75 of *Structures* is now available. Associate Editor, Mario D'Aniello, has selected a paper on the dynamic behaviour of suspension bridges during erection.

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Multi-stage flutter suppression of a suspension bridge during erection with temporary countermeasures

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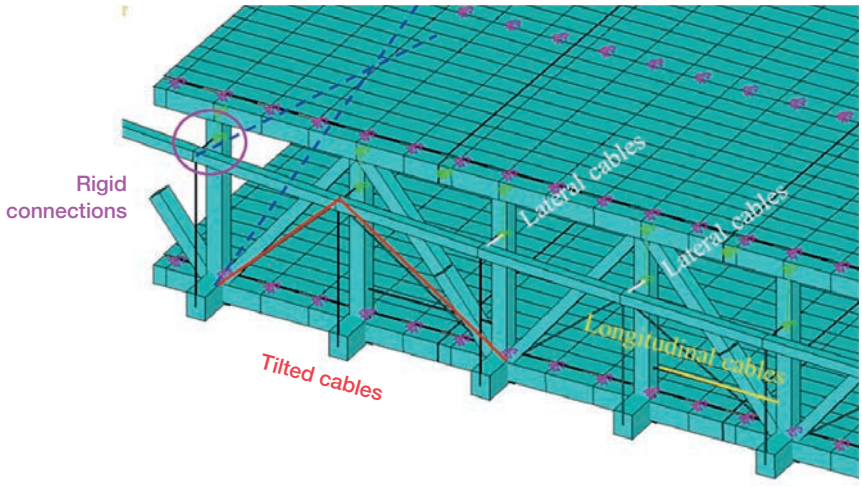
Suspension bridges with a double main span have been frequently adopted to enhance the spanning capability. The dynamic behaviour in a main span is directly correlated with that of the other main span, thus leading to the different performance of the flutter stability of this type of bridge. The bridge exhibits more flexible dynamic characteristics when it is being erected, and the dynamic relationship between the two main spans changes constantly. The structural dynamic parameters should be accurately determined to evaluate the flutter stability. This study takes a long-span, double-main-span suspension bridge located in coastal areas as an example. The modal analysis was conducted to investigate the evolution of the dynamic characteristics of the bridge in the erection process. The critical flutter state of the bridge was determined based on the structural dynamic parameters and complex modal characteristics. Multi-stage structural countermeasures were developed to increase the flutter stability of the bridge in different erection periods. As revealed by the results of this study, the overall stiffness of the bridge changed constantly in the building process, thus leading to complicated dynamic characteristics. The two anti-symmetrical modal combinations exhibited similar modal characteristics because of limited participation of side-span girders. They had a worse flutter performance in the middle erection period, which can be enhanced by installing reasonable flexible cables on the cable-girder system or temporary connections between girder segments, especially for the latter. The two symmetrical modal combinations exhibited different modal characteristics when the participation of side-span girders became significant. They had worse flutter performance in both the initial and middle erection periods. Adding ballasts on girders is effective in the initial period, while adding pier constraints on side-span girders accompanied by setting storm ropes or cross cables is more practicable in the middle period.

→| Read the full paper at **https://doi.org/10.1016/j.istruc.2025.108803**

Cross cables (connecting the cables and lower chord members on two sides)



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