

## Vibration-Based Monitoring of Tensioning Stay Cables of an Extradosed Bridge

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**Abstract :** Monitoring the status of tensioning force of stay cables is a significant issue for the assessment of structural safety of extradosed bridges. Moreover, it is known that there is a high correlation between the existing tension force and the vibration frequencies of cables. This paper presents the characteristic of frequencies of stay cables of a field extradosed bridge by using vibration-based monitoring methods. The vibration frequencies of each stay cables were measured in stages from the beginning to the completion of bridge construction. The result shows that the vibration frequency variation trend of different lengths of cables at each measured stage is different. The observed feature can help the application of the bridge long-term monitoring system and contribute to the assessment of bridge safety.

**Keywords :** vibration-based method, extradosed bridges, bridge health monitoring, bridge stay cables

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