

Structural Form Selection of Nanpanjiang Bridge in Puzhehei

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Abstract

The Nanpanjiang Bridge is a control project for the Luxi- Qiubei-Guangnan-Funing Expressway. It is a cable-stayed bridge adopting steel truss girder and has main span length of 930 m, which is the largest span cable-stayed steel truss girder bridge in mountainous areas under construction all over the world. The height of the main tower is 385 m, which is the tallest bridge tower in the world. Nanpanjiang Bridge is a typical long-span bridge crossing deep valleys in mountains. The construction of the bridge faces the series of harsh factors, such as high altitude of bridge deck, turbulent wind field, strong earthquake, lack of local materials, difficult transportation, and lack of construction space. The paper focuses on the demonstration and selection process of the bridge location, bridge type, scheme of main structure component, like cable, tower, and girder, in the design stage of Puzhehei Nanpanjiang Bridge. The design points and difficulties of extra-large-span bridges in mountainous areas were also analyzed.

Keywords: cable-stayed bridge with steel truss girder; large span bridges in mountain area; bridge type comparison and selection; structure form selection.



Figure 1. Front view of Nanpanjiang Bridge