

Effects of Bridge Tower on the aerodynamics of an high-speed train mounted a flat-box girder

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ABSTRACT

Li^[1] conducted a numerical simulation study on the influence of bridge tower wind shielding effects on wind-train-bridge coupled vibration, while Li^[2] employed wind tunnel tests to investigate the impact of bridge tower wind shielding on the aerodynamic parameters of moving trains and train operation safety. Based on these previous studies, this paper primarily focuses on the research conducted using wind tunnel tests to investigate the influence of bridge tower shading on the aerodynamic characteristics of high-speed trains under crosswind conditions.

The overall layout of this experiment is shown in Fig.1. The testing instruments used in the experiment were PSI scanning values and measurement balances. In this experiment, the influence of bridge tower position variations on the aerodynamic characteristics of flat box girders and high-speed trains under different wind yaw angles was investigated.

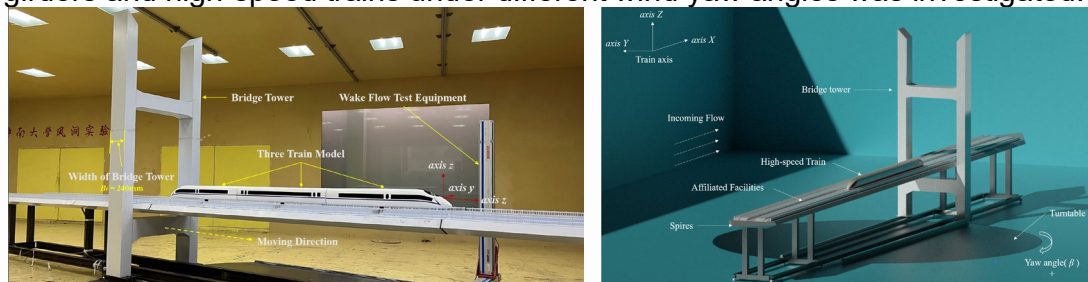


Fig.1 layout of experiment

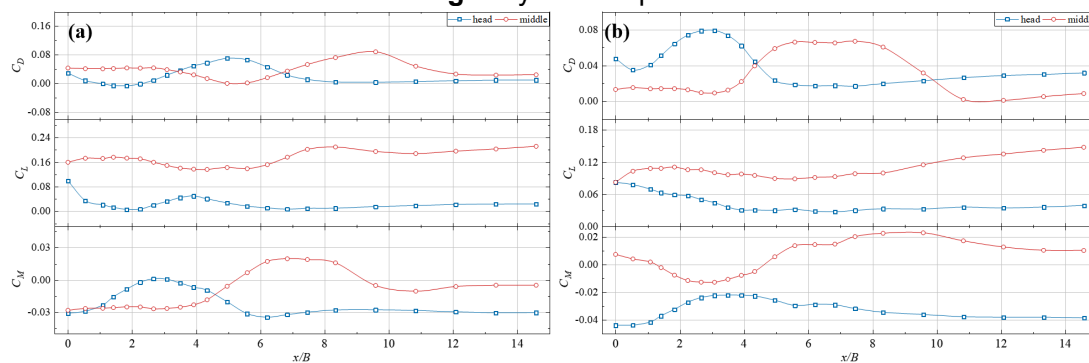


Fig.2 Influence of Bridge Tower Position on Aerodynamic Force of head and middle train at 15° yaw angle□

(a) Windward condition; (b) Leeward condition

REFERENCES

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