

## **Analysis of Pressure Variation Caused at Nose and Tail Passage of Short Trains**

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The pressure variation caused by a high-speed train passage affects structures on the ground and causes some environmental problems. Past studies assume that the effect of the train nose passage is independent from that of the tail passage for long trains (composed of 16 cars), and analyze only the effect of the nose passage. However, the superposition of the effect of the nose and tail is not negligible for short trains (composed of less than 10 cars). In this study, a model experiment and theoretical analysis on the pressure variation at the nose and tail passage are performed for short trains. The results show that, because of the superposition, the negative peak amplitude is greater than the positive peak amplitude for observation points located at over 1/10 of the train length away from the train, and the distance between two zero-points of the pressure variation is not the same as the train length. The proposed line source model based on the typical potential theory takes the effect of both of nose and tail configurations into account. The prediction results of the model are in good agreement in the waveforms and peak amplitude of the pressure variation with those of the model experiment.