

Experimental Investigation of the Effects of Topography Around the Tunnel Portal on the Micro-pressure Wave

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When a high speed train enters a tunnel, a micro-pressure wave radiates out from its exit portal. The micro-pressure wave can cause wayside environmental problems. Topography around the tunnel exit portal affects the peak value of the micro-pressure wave. In this paper, model experiments using a train model launcher were performed for investigating the effects of topography around the tunnel portal on the micro-pressure wave. Four types of topography models, infinite flat ground, one side excavation, both sides excavation and elevated bridge, were used to measure the spatial distribution of the peak values of the micro-pressure waves. Furthermore, a modification of a prediction model for the peak value of the micro-pressure wave radiation was made on the basis of experimental results.