

## **An Analytical Study on the Vibration Reduction Method of Railway Station Using TPU**

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**Abstract :** In many places, new railway constructions in the city are being used to build a viaduct station to take advantage of the space below the line, for difficulty of securing railway site and disconnections of areas. The space under the viaduct has limited to use by noise and vibration. In order to use it for various purposes, reducing noise and vibration is required. The vibration reduction method for new structures is recently developed enough to use as accommodation, but the reduction method for existing structures is still far-off. In this study, it suggests vibration reduction method by filling vibration reduction material to column members which is path of structure-bone-noise from trains run. Because most of railroad stations are reinforced concrete structures. It compares vibration reduction of station applied the method and original station by FEM analysis. As a result, reduction of vibration acceleration level in bandwidth 15~30Hz can be reduced. Therefore, using this method for viaduct railroad station, vibration of station is expected to be reduced.

**Keywords :** structure borne noise, TPU, viaduct rail station, vibration reduction method

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