

**The Noise Reduction System with Use of Piezoelectric Materials  
Applied to the Railway Vehicles**

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Recently, development of a new lightweight and economical countermeasure for reducing the interior noise of railway vehicle has been required. Therefore, the authors have developed a new noise reduction system with use of piezoelectric materials. The system is composed of panels consisting of thin plates on which piezoelectric materials are stuck, and control circuits. Since a resonant circuit is created between a capacitor of the piezoelectric materials and an inductance in the control circuit, the transmitted noise is reduced in the frequency range near the resonant one. In this paper, we describe the noise reduction system and the results of its application to the ceil panels under pantograph and the floor above the transformer in railway vehicle.