

Elastic bearing effects on the dynamic response of bridges under high-speed moving load

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Abstract: The elastic support systems have drawn considerable attention in the field of engineering, these systems can be used to produce excellent and optimization structural elements in various engineering structures and technologies such as robotic structures, vehicles, buildings, and bridges. In this paper, the dynamic behavior of a bridge with elastic restraints at the supports and subject to a high-speed moving load are treated, the effects of different influencing parameters, like the stiffness of the supports, speed of moving load, and damping are studied. The deflection and acceleration of the bridge are investigated and discussed, the results obtained by the analytical approach show that the above-mentioned parameters play a very important role and contribute largely to the response of the bridge.

Keywords: Elastic bearing, dynamic response, moving load, resonance, bridge.

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