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Dynamic response of the damping pad floating slab track caused by vehicle-track interaction

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Abstract: The paper investigates the dynamic response of the damping pad floating slab systems of railway under the action of vehicle. The parameters of the damping floating slab are determined by Harmonic response analysis. A vehicle-slab-track model is presented in this paper, which consists of the vehicle and floating slab track subsystem. The vehicle is modeled as a multi-body system, and the track supported by the rail-pads as an Euler beam supported by uniformly distributed springs, and the float slab with the damping pad as a beam with free ends resting on an elastic foundation. The running safety of vehicles on the floating slab track at various train speeds is examined. The resonance mechanism and conditions of vehicle-track system are investigated through theoretical derivations and numerical simulations.

Key Words: *Dynamic response; Slab track; Resonance; Vehicle*

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