**DYNAMIC RESPONSE OF RAILWAY TRACK TRANSITION USING RESILIENT MATERIALS**

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**Abstract.** Recently, railway track Infrastructures has become more developed trends in Southeast Asia, because a lot of benefits such as the convenient of usage, high capacity loaded, and a certain travelling time. But ones of the main important trouble is track transition problems. Cause from the changing of track section, track stiffness will abruptly change, also vertical accelerations and dynamics force rise more on rail. The large damage will happen on track structures and may cause the differential settlement in long terms, more maintenance costs must be considered. In present, China moves forward to be a top in railway infrastructures industry, especially on the development on high-speed train, Thai-Loas-China construction project has been taken new technology of highspeed railway line as slab track system as Chinese Railway Track System (CRTS Type III). On these project, transition part of track between Ballasted track and Slab track can be founded. This paper provides 2 main resilient material structures as Under Sleeper Pads (USPs) and Under Slab Mat (USMs) to reduced track vibration and control the vertical stiffness of track in critical location. From the major advantages of USPs had been helping to reduce ballast degradation, as the same with using USMs on Isolation layers to control track stiffness. Numerical results from dynamic train-track-soil model can be computed form LS-DYNA software and then validated with field measurement, in additional article. Within the past, the solution of transition problems can be solved in many ways, but where mixed method with using USPs and USMs are not found as much, become the main reasons to be more considered on this research to find the solution for reduce more track vibration, impact load, and differential settlement.

**Keywords:** Track transition, Dynamic train-track-soil, Resilient material, Under Sleeper Pads (USPs), Under Slab Mat (USMs).