

Simulation of Ballasted Layer Deformation Using Discrete Element Model

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Discrete Element Model is applied to simulating deformations of granular assemblage under various boundary conditions. This paper shows two latest ones of discrete ballasted track models; one is 'rail-joint model' which has three sleepers consisting of one wooden sleeper and two 'PC3' , with the spans at the actual rail-joint, and the other is a 'cant model' which has a sleeper, 'PC3' , with 75mm of cant. The simulation results using 'rail-joint model' indicate that the impulse caused by vertical difference between jointed rails affects the residual settlement of ballasted layer. Another simulation results using 'cant model' indicate that the direction of loadings according to the running speed affects the motions of ballast grains.