

Analysis on Running Safety of Train Quaked by Seismic Motion

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We developed the numerical simulation program, called VDS, to analyze the dynamic behavior of a railway vehicle running on tracks quaked by the seismic motion. After the derailment accident of the Shinkansen train due to Niigata Prefecture Chuetsu Earthquake, it has become more important to clarify the running safety of a train which consists of many carbodies connected each other with couplers and dampers. Therefore we extended the ability of VDS and simulated the dynamic behavior of a Shinkansen train running on vibrating viaducts. In this paper, we describe the modeling and computing method used in the improved program VDS, calculation results of the influence of yaw- and roll-dampers equipped between carbodies on the derailment and the safety assessment method of a train against the seismic vibration whose frequency and amplitude change at random every moment.