

Method for Evaluating Running Safety of Railway Vehicle by Measuring Bogie Motion

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In order to evaluate a running safety of railway vehicles, measurement of wheel/rail contact force is generally carried out. However, measuring the force is troublesome and costly, because a specially designed wheelset need to be prepared and replaced with the normal one, as well as securing measurers. On the other hand, it is found that the bogie motion, which can be measured relatively easily by using an inertial measurement unit (IMU) or a displacement meter, is highly correlated with the lateral force and wheel load. In this paper, we investigate a simple method to evaluate running safety by estimating lateral force and wheel load from bogie motion data.