Numerical Dynamics Simulation of Train Set
Running on Ballasted Track after Derailment

Masahito KUZUTA Takefumi MIYAMOTO Kenji UEKI

Upon a train set derails, its dynamic motion should be affected by the change of running resistance when the wheels run over sleepers. Therefore, it is important to determine the change of running resistance experimentally and theoretically. Authors made a model vehicle of 1 to 10 scale, and carried out running tests under which the vehicle ran colliding against model iron sleepers. Authors also conducted running tests under which a real single bogie fell onto ballast or a concrete sleeper. Based on these experiments we have developed a numerical simulation, which is able to calculate the dynamical motion of train set when a derailment occurs, and computed dynamical motion of 5 cars after their derailment.