

Numerical Simulation of the Bogie Model in the Curved Section Based on Large-Scale Parallel Finite Element Method

Hiroataka SAKAI Takuya KARATSU

Dynamic contact behavior occurs between wheels and rails while a train is running, which is an unsteady phenomenon and becomes more complicated when passing through a curved section. To examine the mechanism of this phenomenon, the authors have developed a dynamic rolling contact tool, called “Wheel/Rail rolling contact simulator,” using a large-scale parallel finite element method. This tool calculates the contact force in the normal direction between the wheel and the rail and can obtain a precise contact force distribution within the contact surface. In this paper, we reproduce the rolling behavior in the curved section with one bogie model and discuss the behavior in the contact patch of each wheel.