

**A Simple Analysis Model for Contact between Wheelset Members and Track Structures Using MBD**

Keiichi GOTO    Masamichi SOGABE    Makoto TANABE

Tsutomu WATANABE    Munemasa TOKUNAGA

In this study, we have constructed an efficient contact model between wheelset members and track structures to express collision phenomenon between them during an earthquake. Specifically, we set contact detection points on the multi-body vehicle model and the contact surfaces on the track structures modeled by FEM. The contact force between the contact detection points and the track structures is calculated by the penalty method. In addition, we have incorporated the model into the numerical analytical program DIASTARS III that is able to simulate the railway vehicle behavior before and after derailment. Finally, to validate the proposed model, we have conducted the analysis that the wheelset members contacted the track structures after derailment during the earthquake.