

**Rail Surface Fatigue Assessment Using Numerical Simulation
of Concurrence of Short Crack Propagation and Wear**

Akira NAMURA Fumihiro URAKAWA
Hiraku TANIMOTO Daichi NAKAJIMA

In recent years, rail head checks have occurred at the gauge corner of the head of the head hardened high rail in the curve sections with a curve radius of 600m to 800m. Therefore, we have developed a numerical model to simulate the concurrence of short crack propagation and wear at railhead. We performed simulations of curve running of one vehicle using versatile multibody dynamics analysis software to comprehend wheel loads, lateral forces and contact positions of a wheel and the rail and so on at the time of curve passage. We inputted the result of simulations into a finite element analysis of rolling contact between wheel and rail. Simulations were performed to study the effect of curve radius and rail steel grade.