

## **Visualisation of Wheel/Rail Contact Area during the Running-in Process using Ultrasound**

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Margin against wheel-climb derailment decreases if the friction coefficient in the wheel/rail contact is too high. This has been thought to happen more frequently just after wheel machining. We investigate how the friction coefficient changes with evolution of the wheel/rail interface during the running-in. In the experiments, we used a full-scale wheel/rail contact rig and an ultrasonic array transducer mounted in the rail. Using the results of ultrasonic measurements, the stiffness of the contact interface were determined. It is found that the contact stiffness appears to be positively correlated with the friction coefficient. The study leads to recommendation on how to manage wheel to mitigate the problems of wheel-climb derailment.