

# **Modelling Self Pierced Rivet Joint Failures in Automotive Crash Structures**

**P. K. C. Wood, C. A. Schley**

IARC, University of Warwick, Coventry, England

**M. Buckley**

Jaguar and Land Rover

## **ABSTRACT**

This project has developed a model and method to predict self pierced riveted joint interlock failures in aluminium alloy sheet using explicit finite element simulation. Interlock failure is dependent on rivet direction. The model and technique are capable of industrial application at full vehicle crash analysis level. A general framework to validate joint failure models for use in crash simulation tools has been established; typically by developing highly detailed physics based models of various joint configurations supported with experimental data, through to model capable of industrial application.