

## **“Application of Finite Element Dummies in Frontal Crash Test Simulation”**

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### **Abstract:**

The physical crash tests are time consuming and expensive. Besides that it is impossible to execute these tests under the exact same conditions. Due to these reasons in combination with the improving hard- and software more and more crash simulations that contain finite element dummies are being applied.

This trend cannot only be observed in side impact modes. For frontal and frontal offset impacts, in the past the domain of Multi Body Dynamics (MBD) simulation systems, the specific test devices (Hybrid III Dummy) are improving as Finite Element Analysis (FEA) models and therefore increasingly used for vehicle assessments.

Numerical simulations will be performed using rigid and deformable dummies after which they are compared to physical tests from the Ford database. Deviations in the correlation need to be clarified or if possible minimized for a higher reliability.



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### **Keywords:**

- FE-Dummies
- Crash Tests
- Simulation
- Safety
- Multi-Body Simulation