

GRM Engineers Week 2015

Building on over a decade of development and application of composite analysis and optimisation methods, GRM are delighted to be supporting Jaguar Land Rover in their research activities into affordable composite BIW design. As part of the current research project VARCITY, undertaken as part of InnovateUK's IDP7 Low Carbon Vehicles Programme, GRM have supported Jaguar Land Rover in the development of an efficient composite analysis and optimisation workflow.

The work –to-date was recently presented at the 2014 [Advanced Engineering UK](#) Event and the complete presentation can be found on our website at the link below.

[Composite Body-in-White Development using GENESIS](#)

Composite Body-in-White Development using GENESIS



Jaguar Land Rover (JLR) are pioneers and world leaders in Aluminium Body Structures being one of the biggest research and development investors. Common to all major Automotive manufacturers, JLR has a need to reduce CO2 emissions. To achieve this, the vehicles being

produced need to take advantage of the latest materials technology available, of which composites is one. Composite materials offer solutions that are lightweight, stiff, high strength, highly tailorable, efficient and deliver efficient energy absorption.

Composite Laminate Development Process

Each panel of the vehicle BIW progresses through 3 stages of laminate development from CAD surface release; initial ply pattern development (topometry), combined sizing and topometry of developed laminates and communication of the fixed laminate back to CAD environment.

Composite Modeller

In order to practically support the demands of an OEM development process, GRM have developed a composite modeller tool within VR&D GENESIS' user environment, able to link efficiently with other 3rd party CAD and FEA tools including:

- CATIA
- Simulia Abaqus
- Laminate Tools
- ANSA
- LS-DYNA

Through the application of the composite modeller tool and GENESIS' unique composite optimisation capabilities, JLR are able to efficiently develop optimal laminate definitions, ensuring the data is transferable between their design and FEA environments.

