

Report on 6th KMM-VIN Industrial Workshop (IW6)

The 6th KMM-VIN Industrial Workshop (IW6) on “Innovative Material Solutions for Transport Applications” was held on 7th -8th April 2016 at the University of Hertfordshire, Hatfield, UK.

A total of 31 delegates heard keynote lectures from Jaguar/Land Rover (JLR), Centro Ricerche Fiat (CRF), Knowledge Transfer Network (KTN) UK, Ionbond Netherlands and Politecnico di Torino. The lectures from JLR and CRF focussed on the key drivers and material requirements for current and new generations of vehicle body structures including high strength steels, aluminium and polymer composites as well as the joining technologies required for dissimilar materials. Andrew Haggie from JLR presented the challenges facing the automotive industry in balancing the design-manufacturing-functionality triangle and showcased examples of how materials solutions have addressed these for Jaguar LandRover vehicles. Flavia Gili from CRF presented how CRF Global Materials Labs are evaluating the characteristics of materials to maximize their technical performances in operating conditions and to add new functionalities whilst preserving safety, assuring comfort of passengers and complying with international environmental regulations.

Ajay Kapadia from KTN gave an overview of the opportunities in the rail industry for composite materials including vehicle bodies and interiors and some projects that have been developing products for these markets and Robert Quarshie discussed the key trends, drivers and technology challenges that the aerospace supply chain faces in serving their markets with innovative materials solutions and provided examples of the R&D requirements of the sector.

Gerry van der Kolk from Ionbond Netherlands presented data on vacuum coating technologies for use in the automotive industry to support the development of electrically driven cars as well as the development of combustion engine technology that is more energy and fuel efficient.

Valentina Casalegno from Politecnico di Torino discussed innovative joining technologies for dissimilar materials for automotive and aerospace components developed at GLANCE (the Glasses, Ceramics and Composites research group of Politecnico di Torino). This included a new car brake disc obtained by joining one or more wear-resistant composite inserts to a lightweight alloy bulk material, to obtain lighter components and to improve energy efficiency.

A further 12 talks presented information and data on topics such as ultralight veils with carbon nanotubes for automotive applications, laser welding and cutting of long fibre reinforced thermoplastic composites, the development of a silicon nitride material for a micro gas turbine impeller and fatigue lifetime estimation of railway axles based on numerical modeling.