

Cars of Low Weight and Low Consumption

KIT Coordinates New Technology Cluster on Composites (TC²) for Lightweight Vehicle Construction / EUR 9.2 Million Granted by the State

Lightweight construction is a key technology for energy-efficient, low-emission, and inexpensive vehicles. In the new Technology Cluster on Composites (TC²), researchers are working on lightweight fiber-composite structures suited for the production of large series. The project is coordinated by Karlsruhe Institute of Technology (KIT). The Baden-Württemberg Ministry of Science will fund TC² with a total amount of about EUR 9.2 million in the next three years. Another approx. EUR 7.2 million will be contributed by industry.

“Energy consumption of a vehicle directly depends on its weight,” explains TC² project coordinator Timo Müller from the KIT Institute of Vehicle System Technology (FAST). A low weight contributes to the economic efficiency and environmental compatibility of vehicles. Electric vehicles are particularly dependent on lightweight car bodies. Hence, lightweight construction plays a key role for the dissemination of electromobility. Components made of glass or carbon fiber laminates, which have already been applied successfully in aerospace technology and racing sports, can considerably reduce the weight. These materials may replace steel in highly loaded vehicle structures.

Science and industry in Baden-Württemberg play a leading role in lightweight construction. The Technology Cluster on Composites that will take up work this week is aimed at pooling the competences of research institutions in the field of composite materials and at establishing an interface to industry. As KIT is a major partner in the research network in South Germany, which is reflected by the Competence Center for Lightweight Vehicle Construction (KFL) and the Innovation Cluster for Hybrid Lightweight Construction (KITe hy-LITE), it was asked to coordinate the project. “The competences of the partners allow for a holistic approach to lightweight vehicle construction,” says project coordinator Timo Müller.

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The researchers will develop, construct, and study vehicle-relevant demonstration components. Based on the results, it is planned to construct vehicles for urban and regional traffic in further projects with industry partners. The cluster is funded by the State of Baden-Württemberg with a total amount of about EUR 9.2 million. Among others, these funds come from the State Initiative for Electromobility and the European Fund for Regional Development (EFRE). Industry will contribute another about EUR 7.2 million.

The KIT Institutes of Vehicle System Technology, Production Science, Applied Materials - Materials Science and Engineering, Product Engineering, and of Engineering Mechanics participate in the new cluster. Research partners are Stuttgart University, the German Aerospace Center, Fraunhofer Society, the Institute of Textile Technology and Process Engineering Denkendorf, the Universities of Ravensburg-Weingarten, Esslingen, and Constance, and the Automotive Simulation Center Stuttgart. Among the industry partners are Daimler AG, Porsche AG, BASF, Sika, DSM Resins, Menzolit, and Dieffenbacher.

Karlsruhe Institute of Technology (KIT) is a public corporation according to the legislation of the state of Baden-Württemberg. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. KIT focuses on a knowledge triangle that links the tasks of research, teaching, and innovation.

This press release is available on the internet at www.kit.edu.