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LIFT and Center for Automotive Research Seek to Optimize New Joining Methods for Auto Industry

Study will evaluate and test various materials and joining technologies and make recommendations

DETROIT – LIFT—Lightweight Innovations For Tomorrow, a national manufacturing innovation institute operated by the American Lightweight Materials Manufacturing Innovation Institute (ALMMII), today announced a new project with the Center for Automotive Research (CAR) to test and evaluate mixed-material joining technologies.

As the automotive industry continues to search for new and innovative ways to save on weight, cost and production time, automakers and suppliers are looking to a wider range of materials, including different types of metals and polymer composites. Joining dissimilar materials is one of the major barriers in implementing the right material for the right application strategy. The industry has been developing innovative processes for mixed-material applications, but the road to production is slow. New technologies will require independent testing and validation in a controlled environment.

This project, part of LIFT's Fast Forge program, is led by LIFT and CAR, and partners include CAR's Coalition for Lightweighting Materials (CALM) working group and LIFT members. The project team will test various joining technologies and recommend the most optimal joining technologies for specific material combinations. The results of this study will be published in the public domain and shared at various industry events. Thereby, increasing awareness and reducing the technology qualification barrier.

"Mixed materials are the future for not just the auto industry, but other industries as well, as they look to save on weight, time and ultimately cost," said Hadrian

Rori, chief technology officer, LIFT. “As we look toward a Smart Manufacturing future, testing, studying and validating those materials is critical to supporting the industry.”

The result will include a detailed catalogue containing information on innovative mixed-material joining technologies, including selection criteria, computer-aided engineering results, physical testing data for various combinations and application-specific recommendations for the industry.

“LIFT is the right organization to partner with on this project,” said Abhay Vadhavkar, Director of Materials and Manufacturing Technology, CAR. “With both LIFT and CAR here in Southeast Michigan, the epicenter of the auto industry, it is a perfect fit to team up to advance the materials technology into the future.”

The project, valued at \$500,000, will take place in three phases to be completed by October 31, 2019. The three phases are:

- Data collection, survey, and application specific technology selections;
- Computer Aided Simulation Studies;
- Coupon-level testing;
- Ranking of technologies for each material combination for specific applications, including: front structure, underbody, roof, body sides, rear-end and closures.

The “Fast Forge” program at LIFT is designed to solicit exciting new lightweight materials project ideas and put teams together to quickly develop those new technologies. More information on how to submit project ideas can be found at www.lift.technology/lift-fast-forge.

For more information on the Center for Automotive Research (CAR), please visit www.cargroup.org.

ABOUT LIFT

LIFT, operated by the American Lightweight Materials Manufacturing Innovation Institute (ALMMII), is a Detroit-based, public-private partnership committed to the development and deployment of advanced lightweight material manufacturing technologies, and implementing education and training initiatives to better prepare the workforce today and in the future. LIFT is one of the founding institutes of Manufacturing USA and is funded in part by the Department of Defense with management through the Office of Naval Research. Visit www.lift.technology or follow on Twitter [@NewsFromLIFT](https://twitter.com/NewsFromLIFT) to learn more.

ABOUT Center for Automotive Research

The Center for Automotive Research (CAR) is an independent non-profit whose mission is to conduct unbiased research on significant issues related to the future direction of the global automotive industry, as well as organize and conduct forums of value to the automotive community. CAR performs numerous studies for federal, state and local governments, corporations, associations, and foundations and has a mixed portfolio of funding from its contract research work, events, working groups, and Automotive Community Partnership and Affiliates Programs.