



**NEWS RELEASE**

**Media Contact:**

Hannah Jay

IACMI-The Composites Institute

[hjay@iacmi.org](mailto:hjay@iacmi.org)

**IACMI-The Composites Institute and Oak Ridge National Laboratory Showcase Breakthroughs in Materials, Speeds, and Technologies at IMTS**

**Knoxville, Tenn., September 9, 2018** – [The Institute for Advanced Composites Manufacturing Innovation \(IACMI\)](#), a 160+ member consortium committed to increasing domestic production capacity and manufacturing jobs across the U.S., and Oak Ridge National Laboratory (ORNL) will partner with key industry leaders to showcase significant advancements in materials and speeds for additive manufacturing at the 2018 International Manufacturing Technology Show (IMTS). Visitors will be able to follow the journey of an additively manufactured metal die as it is 3D printed, machined, and used to mold advanced composite parts, all in only a few hours on the exhibit floor.

The project, rightfully named “Die in a Day”, underscores the advantages of additive manufacturing, or 3D printing, to revitalize the fading U.S. tool and die market and diminish fabrication time, which conventionally takes weeks or months, down to a matter of hours. Each day of the show will feature the molding of a different composite part, beginning with the 3D printing of an additively manufactured metal die, or mold, by a Lincoln Electric and [Wolf Robotics](#) metal welding robot. The die will then be machined on a [Mazak](#) computer numerical control (CNC) system before finally being used by IACMI to fabricate parts on a [Wabash MPI](#) compression molding press. Throughout the week, the final parts will be scanned by [Quality Vision International](#) to ensure dimensional tolerances are met.

“Tooling touches nearly everything individuals interact with on a daily basis,” explains Craig Blue, Director of Energy Efficiency and Renewable Energy at ORNL. “The concept of producing a ‘Die in a Day’ not only represents the speed of additive manufacturing, but also how this technology can help revitalize the tool and die industry in the U.S. and provide national capabilities to local ecosystems.”

IACMI and ORNL will also be showcasing prototypes from an innovative project that has successfully produced carbon fiber injection molded automotive fenders using ORNL’s textile-based carbon fiber (TCF). This novel, low-cost fiber was chopped and compounded with [Techmer PM](#) material for molding at the IACMI Scale-Up Research Facility (SURF) in Detroit, Michigan, marking the first ever successful compounding and injection molding of a full-size automotive component with carbon fiber made from textile-grade PAN precursor. This fiber was first developed at the U.S. Department of Energy’s Carbon Fiber Technology Facility (CFTF) in Oak Ridge, Tennessee and was compounded into 10% carbon fiber pellets. Finally, the parts were injection molded using a 3,000-ton Milacron injection molding machine at the IACMI SURF, which is supported financially by Michigan Economic Development Corporation (MEDC), the U.S. Department of Energy, and other private partners, and managed by Michigan State University.



“The injection molded fenders represent a significant milestone in demonstrating the capability of the textile-based carbon fiber to serve the application needs for lightweight automotive parts at lower costs than previously possible,” said Merlin Theodore, the director of the CFTF and IACMI’s Materials and Processes Technology Area Director.

Next steps to the project include injection molding with 40% TCF, a 50:50 blend of the 10% and 40% TCF, and TCF to yield a 25% final loading. Integrating carbon fiber into automotive exterior parts, such as fenders, offers an opportunity to transform the automotive industry by reducing the weight of automotive parts and environmental impact while increasing fuel efficiency.

“Advanced technologies are critical to manufacturing competitiveness,” says John Hopkins, IACMI Chief Executive Officer. “Through our public-private partnerships, IACMI is providing a production relevant environment for innovation in which these technologies can be developed and demonstrated at scale. Our projects allow industry to access a network of unique capabilities and talent that would not be possible without this type of collaboration.”

**About IACMI-The Composites Institute (Booth 338693, South Building, Level 3):**

The Institute for Advanced Composites Manufacturing Innovation (IACMI), managed by the Collaborative Composite Solutions Corporation (CCS), is a partnership of industry, universities, national laboratories, and federal, state and local governments working together to benefit the nation’s energy and economic security by sharing existing resources and co-investing to accelerate innovative research and development in the advanced composites field. CCS is a not-for-profit organization established by [The University of Tennessee Research Foundation](#). The national [Manufacturing USA](#) institute is supported by a \$70 million commitment from the [U.S. Department of Energy’s Advanced Manufacturing Office](#), and over \$180 million committed from IACMI’s partners. Find out more at [IACMI.org](#).

**About ORNL (Booth 431609, West Building, Level 3):**

The Manufacturing Demonstration Facility at ORNL is supported by the Department of Energy’s Office of Energy Efficiency and Renewable Energy, Advanced Manufacturing Office (AMO). AMO supports early-stage research to advance innovation in U.S. manufacturing and promote American economic growth and energy security. ORNL is managed by UT-Battelle for the US Department of Energy’s Office of Science, the single largest supporter of basic research in the physical sciences in the United States. DOE’s Office of Science is working to address some of the most pressing challenges of our time. For more information, please visit <https://science.energy.gov>.