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Contact: Nicole Casal Moore, [734-647-7087](tel:734-647-7087), [ncmoore@umich.edu](mailto:ncmoore@umich.edu)

Jane Sugiyama, [734-763-2908](tel:734-763-2908), [janesugi@umich.edu](mailto:janesugi@umich.edu)

U-M has a satellite uplink TV studio and an ISDN radio line for interviews.

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## **U-M battery startup enters \$1.5M joint venture**

ANN ARBOR—In an effort to make safer, longer-lasting lithium-ion batteries for technologies like electric vehicles, smartphones and laptops, a University of Michigan startup has formed a \$1.5 million joint venture with two major players in the industry.

Ann Arbor-based Elegus Technologies recently announced their new partnership with Michigan-based lithium-ion battery manufacturing companies XALT Energy and Energy Power Systems. Additional terms of the joint venture were not disclosed.

Elegus has developed an advanced battery separator that allows for increased energy density in lithium-ion cells without compromising safety. Increased energy density means longer battery life, which translates to greater range-per-charge for an electric vehicle, for example.

Elegus' separator is made from nanofibers extracted from Kevlar, the tough material in bulletproof vests. It blocks the formation of dendrites—metal tendrils that can grow and bridge across the electrodes, short the circuit and even cause a fire. Limiting dendrite growth is one of battery developers' biggest challenges.

"I think this joint venture will showcase the power of collaboration between Michigan companies towards a common goal," said Elegus CEO John Hennessy, a 2014 U-M Master of Entrepreneurship graduate. "In our industry, it's a bit rare for a startup like us to pair up with large manufacturers. And it's great that we have overlap in what we're all trying to solve. Lithium-ion battery safety issues still persist, but instead of accepting those issues as inherent to battery technology, we're working together to find a better solution."

Dennis Townsend, chairman of the XALT's board of directors, is equally enthusiastic.

"The Elegus separator will be the solution that will enable XALT to achieve its higher energy roadmap while maintaining safety," Townsend said. "As improvements in technology allow higher and higher energy density in lithium-ion batteries, safety issues

become far more challenging. Elegus' advanced separator solution provides excellent electrical performance and dimensional integrity."

A long list of U-M people and programs helped Elegus arrive at this milestone. The technology was initially invented in the lab of Nick Kotov, the Joseph B. and Florence V. Cejka Professor of Engineering and a professor of chemical engineering, biomedical engineering, materials science and engineering and macromolecular science and engineering. Kotov was introduced to Hennessy and the eventual Elegus CFO Long Qian through a Master of Entrepreneurship program offered jointly by Michigan Engineering and the Ross School of Business.

During the master's program, the team refined the technology and took the first step toward commercialization, which led them to participate in the National Science Foundation's I-Corps program. I-Corps helps fledgling companies discover their customer base and focus their products. U-M's Tech Transfer office helped the team formally launch the company and license the technology.

Hennessy specifically credited the Michigan Translational Research and Commercialization Transportation program, run jointly by the U-M Center for Entrepreneurship and Tech Transfer.

"The MTRAC program was there for us for the longest amount of time," he said. "Beyond the funding the program offered, the countless hours of advising and industry connections made were invaluable and crucial to securing this investment."

Hennessy credits Jay Ellis, MTRAC transportation program director; Meera Vijan, a mentor-in-residence at the Tech Transfer Venture Center; and Mike Psarouthakis, assistant director of the Venture Center.

"We are pleased to see Elegus partner with a Michigan-based company," Ellis said. "This is a shining example of how the state of Michigan and U-M continue to foster an ecosystem for entrepreneurs and innovation."

Elegus has also received \$175,000 in funding as a part of the Michigan Economic Development Corporation's Entrepreneur and Innovation initiative, which focuses on establishing Michigan as the place to create and grow a business by providing high-tech startup companies with access to a variety of resources.

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