

PRESS RELEASE

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Soteria Battery Innovation Group Signs Exclusive License and Option for a Battery Safety Technology by Oak Ridge National Laboratory

Soteria Battery Innovation Group (BIG) has exclusively licensed and optioned a technology developed by the Department of Energy's Oak Ridge National Laboratory designed to eliminate thermal runaway in lithium ion batteries due to mechanical damage. The technology complements Soteria's existing battery safety technology.

The licensed technology is for electrodes and foils for lithium ion batteries that are designed to break in a pre-defined geometry when the battery is physically damaged, effectively isolating the damaged part. This can minimize the associated generated heat and avoid thermal runaway, or uncontrolled increasing temperature, thus rendering the battery safe.



The pre-defined slit pattern on the electrode breaks into smaller electrodes, each too small to ignite thermal runaway.

“This technology can dramatically improve battery safety upon mechanical, thermal and electrical damage,” said ORNL’s Jianlin Li, a principle investigator of the technology. “This can simplify battery design and lead to higher energy density and lower cost.”

Combining the technology with Soteria’s own current collector technology was selected in 2019 for a \$750,000 DOE Technology Commercialization Fund project, “Li-on batteries with Safer Current Collectors,” with support from the DOE Office of Energy Efficiency and Renewable Energy, Vehicle Technologies Office.

The technology will be especially effective in vehicles, where physical damage can occur in automobile accidents and other mechanical events. The market for batteries for electric vehicles is expected to grow to over 2,000 gigawatt hours by 2030 according to Bloomberg New Energy Finance, resulting in over \$200 billion in battery consumption.

Soteria BIG is dedicated to eliminating lithium ion battery fires. “While our initial innovations to eliminate battery fires came from our own labs, our vision is bigger than we could accomplish on our own. This technology enables us to deliver safety in physical damage situations in large, high

power batteries that our original technology might not have addressed,” said Carl Hu, Soteria BIG’s chief technology officer.

This option makes the technology immediately available to Soteria BIG Consortium members for R&D and product development. When the option is exercised, a license to practice the technology commercially will be available to the entire industry through the Soteria BIG Consortium.



Jianlin Li employs ORNL’s world-class battery research facility to validate the innovative safety technology.

“Oak Ridge National Laboratory researchers create technology to solve the most important challenges in battery development, including making lithium ion batteries as safe as possible,” said Moe Khaleel, ORNL’s deputy for projects. “Soteria Battery Innovation Group is an excellent partner that will quickly facilitate the introduction of ORNL’s world-class battery technologies to a wide range of companies and organizations.”

“Our goal is to gather the best lithium ion battery safety technology from national labs, universities, or wherever it comes from, and make it available to the entire industry. In this way, and only in this way, can we ensure broad access to the technology needed to make batteries safe, ensuring their safe use in electric vehicles, air taxis, energy storage for solar and wind, electric and hybrid marine, military and other applications,” said Brian Morin, Soteria BIG’s chief executive officer.

Soteria’s consortium consists of over 70 participants including Oak Ridge National Laboratory, NASA, Mercedes, DuPont, Motorola, Bosch and Applied Materials. Participants come from the entire supply chain, including suppliers of raw materials and equipment used to produce Soteria’s battery safety architecture, to component manufacturers, cell and pack manufacturers, and end users. Soteria’s business model both provides a supply chain that is acceptable to the automotive, electronics and battery industries, and also allows access to the technology to any supply chain that an end user might choose.

Additional information about the consortium and the Soteria technology can be found at www.soteriabig.com. The story of the founding of the company can be found on [Power Sources Online](#).

For ORNL licensing information, contact www.ornl.gov/partnerships.

About Soteria Battery Innovation Group Inc

Soteria Battery Innovation Group Inc is an advanced technology development and licensing company that has formed a consortium to promote a light, safe and cost-effective architecture for lithium ion batteries. Soteria BIG was founded in 2017 by Brian Morin and Carl Hu, and is

headquartered in Greenville, SC. For more information contact Amy Brinson at (864) 609-4165 or Amy.Brinson@SoteriaBIG.com or visit our website at www.soteriabig.com.

About Oak Ridge National Laboratory

UT-Battelle manages ORNL for the Department of Energy's Office of Science, the single largest supporter of basic research in the physical sciences in the United States. The Office of Science is working to address some of the most pressing challenges of our time. For more information, please visit energy.gov/science.