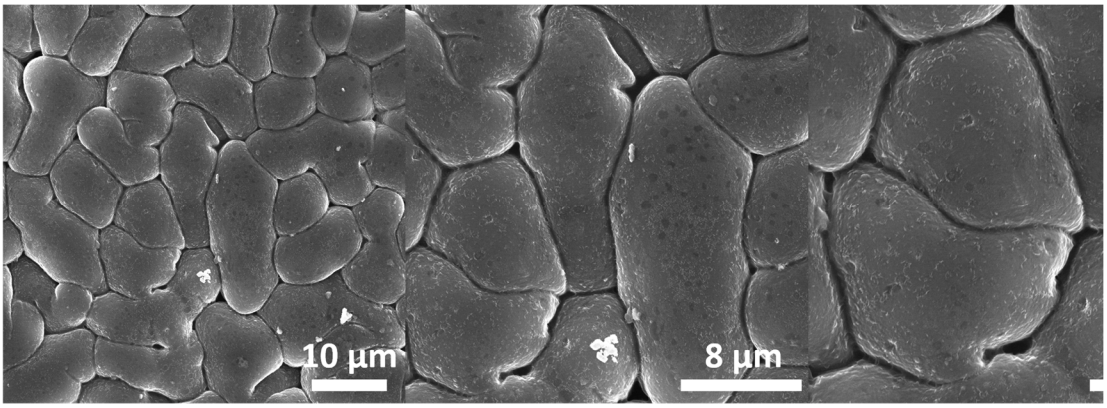
Battery Company theion Receives Third-Party Validation for Ultra-Fast Charging and Safe Battery Anode

- Breakthrough chemistry ideally suited to electric aviation
- Also transformative to electrified mobility, such as automotive and marine
- Solves dendrite related safety issue of lithium metal foil anode
- Over 2,000 cycles reached in symmetrical cells marking a significant technological and safety milestone
- High energy density anode enables ultra-fast charging
- Significant milestone towards theion's goal of achieving 1,000 Wh/kg in lithium-sulfur batteries



Lithium homogeneously plated - without dendrites

BERLIN, 16 May 2024 – Berlin-based battery company *theion* announces a disruptive innovation in battery technology, with its breakthrough anode chemistry.

One of the biggest challenges of batteries using lithium metal as the anode is the formation of dendrites during fast charging and discharging, ultimately creating a safety risk. In line with its research on lithium-sulfur batteries, *theion* has developed a lightweight polymer host with special coatings to replace state-of-the-art anode chemistries such as graphite, silicon-rich graphite or lithium metal foils, and successfully reached over 2,000 charging and discharging cycles. This has been validated by a leading independent research institute in Germany, where the anode showed stable cycling performance in a symmetrical cell configuration.

Unlocking the challenge of a durable, lightweight and energy dense anode is one of the key enablers for lithium-sulfur batteries, offering triple the energy density of today's conventional lithium-ion batteries, at just one-third of the cost while requiring significantly less energy to produce.

"Our new anode design is an important milestone," said **Dr. Ulrich Ehmes, CEO of *theion***; "With our host anode chemistry optimised and tested over several thousand cycles, we have solved the dendrite and fast charging problem of lithium metal anode. This is a key component for our high-performance lithium-sulfur cell".

*"*Our breakthrough in lightweight and fast-charging battery chemistry makes lithium-sulfur batteries ideal for electric powertrains in aviation, such as eVTOLs and traditional prop-driven aircraft" **said Marek Slavik, co-founder of *theion*,** "the fundamental difference between sulfur and existing LFP, NMC or other transition meta-based cathodes is that sulfur, as a multistep redox conversion cathode, is able to release 16 electrons compared to, as an example, an insertion type LFP cathode, which can release just one electron. Ultimately, it is the energy density of 16 versus one electron that will spin the wheels on your electric car or turn the fans or props on an electric aircraft."

Electric Aviation - first addressed market

theion is backed by Team Global – a holding group investing in frontier technology businesses. With a successful track record and significant investments in eVTOL companies, *theion's* place in the portfolio is highly synergetic. In addition, *theion* has generated significant interest from leading players in the aviation industry to support them on their path to electric flight.

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About theion GmbH

Headquartered in Berlin, Germany, *theion* develops sulfur crystal batteries for mobile and stationary applications. By using sulfur, *theion* targets to store up to 3x more energy in its batteries compared to today's generations of batteries. *theion's* proprietary production processes are very cost and energy-efficient complementing the idea of creating a highly sustainable battery.

About Team Global

Team Global is a technology holding with offices in Berlin and Palo Alto; the company is founded and led by CEO Lukasz Gadowski. Team Global invests in frontier technology companies in the sectors of mobility, aerospace, energy and robotics across Asia, Europe and the USA. Notable portfolio companies include Archer Aviation, AutoFlight, Volocopter, Enpal and MILES mobility.

Disclaimer

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