CASE STUDY

ETH zürich BATTRION

BATTRION: FAST CHARGING ELECTRODES FOR LITHIUM BATTERIES

Problem – Challenge

The performance of lithium-ion batteries depends strongly on the microstructure of the employed porous electrodes and more specifically on how well it enables the flow of charges through its structure. An important aspect is the tortuosity – or "wiggliness" – of the structure. The fewer bends and turns are present in the material, the faster the charges can flow and the battery charges.

Solution

Graphite particles are aligned during the fabrication process of porous lithium ion battery electrodes using a magnetic field. This method allows the orientation of the micrometer-sized particles in a way that reduces the tortuosity of the porous electrodes while allowing increased packing density. This way, the charging time of lithium-ion batteries can be significantly reduced.

Founded in 2015, Battrion is a spin-off of the Swiss Federal Institute of Technology (ETH Zurich). Battrion operates a research lab and production facility in Dübendorf, Zurich where it develops its Aligned Graphite® technology, a fabrication technology for lithium-ion batteries that improves the microstructure of negative electrodes. The technology significantly increases the charge- and discharge performance of lithium-ion batteries and is particularly suited for electric vehicles and high-performance applications. Battrion produces and markets standardized and customized negative electrodes with Aligned Graphite® and additionally offers its technology on a license basis.

More information can be found at: http://www.battrion.com