

Press Release

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CHRISTIANE GROHER WINS THE AIT POSTER AWARD 2022

Annual competition promotes the entrepreneurial spirit of young scientists

Innovative research must not be an end in itself - it needs to be commercially viable in order to benefit the general public. The AIT Austrian Institute of Technology organizes the annual AIT Poster Award in order to anchor the know-how for this in young researchers as early as possible.

This year, 12 diploma students, doctoral students and junior scientists from six AIT Centers took part in the competition - and the winners have now been honored: Christiane Groher from the Center for Low-Emission Transport was awarded first place and prize money of 1,500 euros for her contribution in the field of battery research. The lifetime of lithium-ion batteries (LIB) is limited by degradation phenomena of cell components. One of these components is the liquid electrolyte, which is responsible for transporting lithium ions between the anode and cathode. However, the organic solvents and inorganic salt of the electrolyte tend to decompose during battery operation. The decomposition reactions lead to the formation of gaseous degradation products that can participate in further reactions, which can lead to a reduction in the capacity and lifetime of the cell. One way to reduce or even eliminate these degradation reactions is to use electrolyte additives. These additives are the central topic of the PhD thesis of Christiane Groher, who is completing her PhD studies within the framework of the OPERION project funded by the FFG in cooperation with the Vienna University of Technology. Using the operando GCMS method developed at AIT, she analyzes complex gas mixtures in LIB that can arise during cell formation and overcharging, and tries to improve the safety, lifetime and performance of LIB by using new electrolyte compositions.

AIT Poster Award with support from Lower Austria

Since 2010, the AIT Poster Award has been supported by Lower Austria's tech incubator accent and the venture capital fund tecnet equity. "Even though the competition was strong this year, Christiane Groher deserved to win. tecnet is always pleased to support young scientific talents like her from the first research results to start-up foundation," explains Doris Agneter, Managing Director of tecnet equity.

Second place went to Lukas Neidhart, also from the Center for Low-Emission Transport. To increase the energy density of lithium-ion batteries, increasing the active materials plays an important role - this can be realized, among other things, by producing thicker electrodes. Since this is difficult to realize due to new challenges, for example caused by the floating of binders, Lukas Neidhart has used the multi-layer approach. This involves applying several electrode layers one after the other, which also has the advantage that the electrode composition can be varied across the cross section. In terms of sustainability, the processing at AIT is of course carried out using water instead of the toxic solvent used according to the state of the art.

"As a Tough Tech Incubator, accent supports ambitious researchers like the AIT Poster Award participants in putting forward-looking ideas into practice. I am pleased that events like this one draw attention not only to scientific innovations but also to the relevance of a rousing presentation," says Michael Moll, Managing Director of accent Inkubator GmbH.

Using artificial intelligence to combat hate speech

"Hate speech on the Internet remains a relevant topic. It influences political processes, opinion formation and journalism. A manual fact check is possible - but lengthy and expensive. An "explainable AI" provides a remedy - it specifically tracks down hate speech and conspiracy theories on the Internet. This is demonstrated by the third-place winner of this year's AIT Poster Award, Daria Liakhovets, from the Center for Digital Safety & Security.

"Research institutions like us are always on the lookout for new talent; we want to build them up and provide them with targeted support. For us, promotion also means making the young talents aware of the economic potential of their projects as early as possible," says Prof. Wolfgang Knoll, AIT Managing Director, summarizing the goal of the AIT Poster Award.

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