

Meet the SPINMATE Partners!

MEET:  **Fraunhofer**
ISC



Introducing Fraunhofer Institut für Silicatforschung (ISCF): The Fraunhofer R&D Center Electromobility Bavaria (FZEB) of the Fraunhofer ISC is located in Würzburg in southern Germany and deals with multiple modern aspects of lithium-ion battery technology. The FZEB is divided into several subgroups, with the Process Development group focusing on electrode and cell production, solid-state batteries and recycling processes. The main objective is to upscale from laboratory to pilot scale.

<https://www.fzeb.fraunhofer.de/>

WWW.SPINMATE.EU

Hello Andreas and Philip! Thank you for this opportunity to meet you and talk about SPINMATE. To kick-off, could you give us, in your own words, a short introduction to ISCF, and your role there?

The **Fraunhofer Institute for Silicate Research ISC** is one of the leading European R&D centers for material-based research and development in the fields of energy, environment and health. With a permanent staff of about 380 scientists and technicians the Institute works to develop innovative materials and technologies for sustainable products and make essential contributions to solving the major global issues and challenges of the future.

Our group the **Fraunhofer R&D Center for Electromobility Bavaria** is focusing on future battery materials and also on the processes and analytics. We are two research scientists in the field of battery manufacturing and testing.

To someone reading this who is still not familiar with SPINMATE, how would you describe it in simple terms, and how do you distinguish it from other projects or initiatives?

In **SPINMATE** we are focussing not only on the development of individual components of next-generation batteries, but also interactions between the different components. Furthermore, we also produce large-scale batteries which are comparable to commercial state-of-the-art lithium-ion batteries.

In comparison to other projects, in **SPINMATE** the material development and the production capability of the batteries will be considered and optimized at the same time.

ISCF takes an active role on the development and optimisation of cell components, particularly on the optimisation of raw material and full cell integration. Could you tell us more about these processes and which will be the main outcomes?

Next-generation batteries will use lithium metal as one component in the cell. One problem is the immediate formation of blocking surface species due to reaction with water or air. We are therefore using a patented sandblasting technique, similar to the one your dentist uses to clean your teeth, to clean the surface of the lithium metal. For validation, we integrate the freshly cleaned lithium into the batteries. This optimization step increases the performance of the batteries.

ISCF will also be highly involved on the assessment and validation of SSB cells performances and ageing. Which are the main challenges to demonstrate that the cell prototypes will fulfil established requirements and end-user usage conditions?

Those current prototypes of next-generation batteries require further development to meet industry and customer requirements. Key challenges include lithium metal cycling stability, electrolyte stability and, depending on the type of electrolyte, higher operating temperatures.

What are you personally most enthusiastic about achieving during SPINMATE?

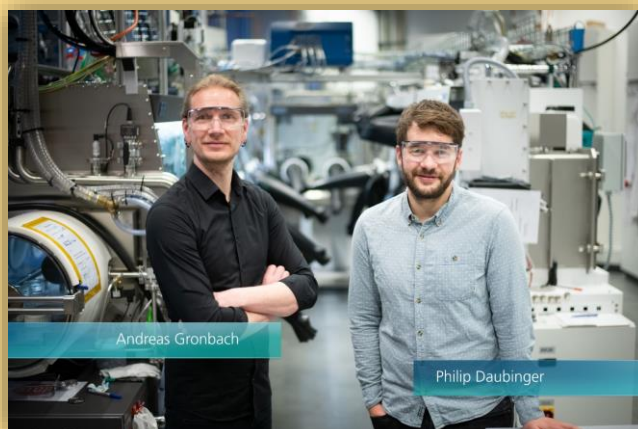
For us personally, the most interesting development is that of semi-automatic sandblasting. We see a huge potential for optimization of the technique and its benefit for the battery performance. Furthermore, we imagine to see those processes in battery production in a few years.

ISCF is a leading R&D centre on energy and resource efficiency. How your collaboration in SPINMATE will contribute to support ISCF position as process development of lithium-based batteries experts?

Our collaboration in **SPINMATE** will further engage our process know-how for next generation batteries, especially in combination with current material properties and developments. The development of next-generation prototypes requires an interdisciplinary approach, which is strongly supported within this consortium.

Certainly, there will be readers interested to meet you and discuss your experience in SPINMATE. Which events will be possible to meet ISCF in the upcoming months (name of the event, date, location)?

We will be at the International Battery Seminar & Exhibit end of March in Orlando, USA and at the Advanced Battery Power Conference end of April in Aachen, Germany.



Andreas Gronbach

Senior Expert Lithium-Ion Process Development



Philip Daubinger

Research scientist



INOVA+ – responsible for implementing the communication and dissemination activities in SPINMATE – conducted a series of interviews to the SPINMATE partners. If you would like to know more about the project partners, visit our online channels.

SPINMATE Website: www.spinmate.eu

SPINMATE Social media channels:



Contact info: info@spinmate.eu



SPINMATE project has received funding from the European Union's Horizon Europe Framework Programme under Grant Agreement No 101069712