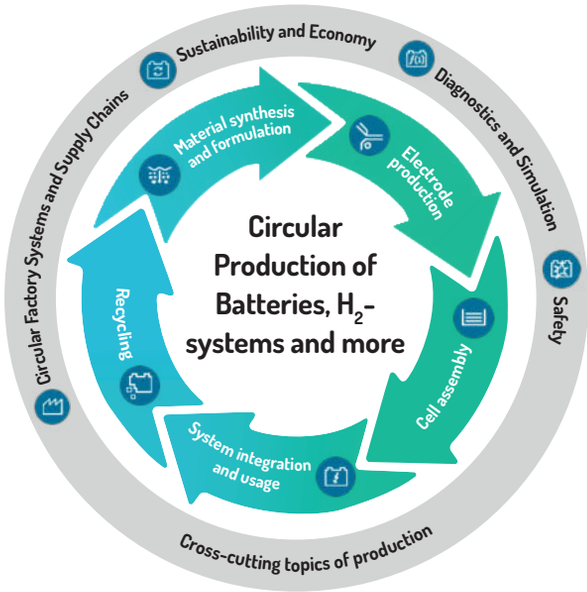
Transdisciplinary Research

The partners of the BLB+ network are focusing on research into sustainable and circular production of batteries and hydrogen systems, with a focus on next-generation technologies and applications.



- **Production & Recycling:** Development and optimization of manufacturing and recycling processes.
- **Quality:** Testing of inline and offline measurement technology and integration into tracking & tracing.
- **Diagnostics & Characterization:** Characterization and testing of materials and cells, development of diagnostic methods, including non-invasive and post-mortem procedures.
- **Digitalization:** Multi-scale simulation, AI application and modeling from the molecule to the supply chain.
- **Sustainability:** Technology-oriented ecological and economic assessment and optimization of processes, process chains, and supply chains.
- In addition to the current and next batteries also application-oriented research on **membrane-based systems** such as fuel cells and flow batteries.

Get in touch



1 Executive Board of BLB: Prof. Dr.-Ing. Arno Kwade, Prof. Dr. Thomas Spengler, Prof. Dr.-Ing. Christoph Herrmann (blb-cpc@tu-braunschweig.de)

2 Executive Board of CPC: Prof. Dr.-Ing. Arno Kwade, Prof. Dr.-Ing. Daniel Schröder, Prof. Dr.-Ing. Sabrina Zellmer (blb-cpc@tu-braunschweig.de)

3 Site Manager of Fraunhofer ZESS:
Dr.-Ing. Jutta Janßen (jutta.janssen@ist.fraunhofer.de)

Partners

Technische Universität Braunschweig · TU Clausthal · Fraunhofer IST · PTB · Leibniz Universität Hannover · iTUBS



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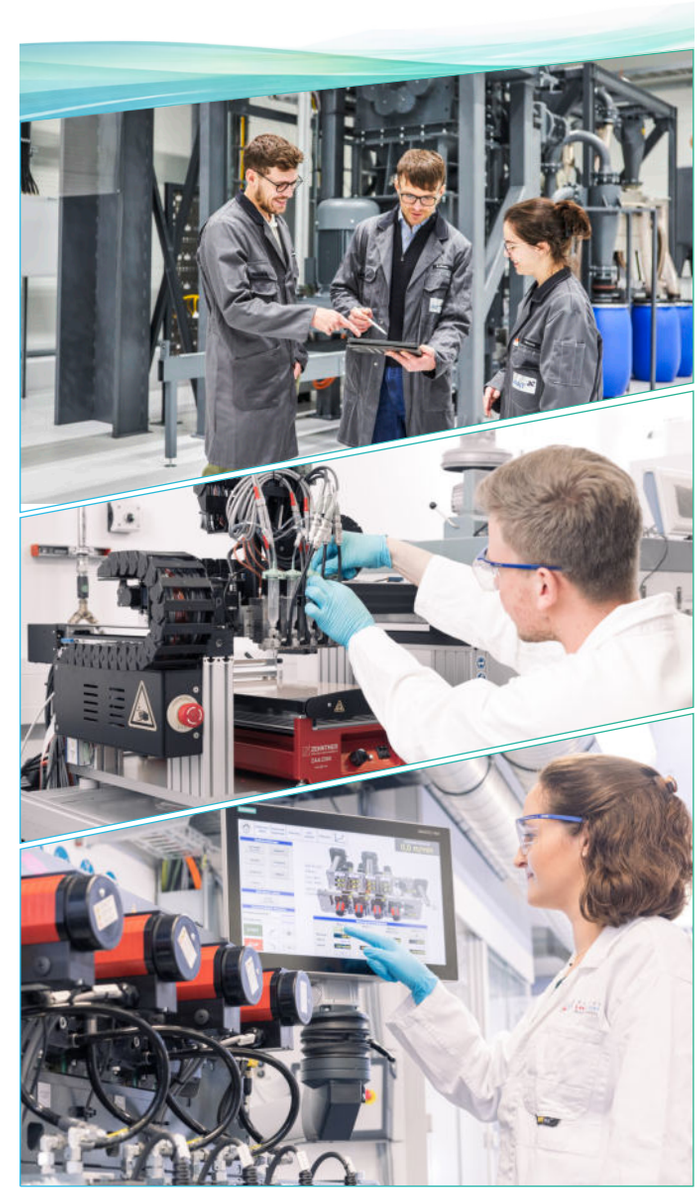
BLB+ Braunschweig Labfactories for Batteries and more

Sustainable and circular production of batteries, H2-systems and more

A regional network of research centers in Braunschweig

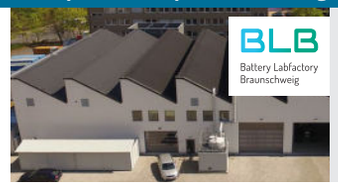


A regional network of research centers

Braunschweig Labfactories for Batteries and more (BLB+) is a regional network of the leading research institutions and centers in Lower Saxony. These centers advance excellent research in the field of batteries, H2-systems and future applications.

Within the network, the following three research centers present their research activities:

Battery Labfactory Braunschweig



Interdisciplinary battery research with LIB pilot lines for production and recycling.

Center for Circular Production of Next Batteries and Fuel Cells



Interdisciplinary research on the circular economy of next-generation batteries and fuel cells.

Fraunhofer Center for Energy Storage and Systems ZESS



Innovations for energy storage, such as solid-state batteries and sodium-ion batteries, as well as hydrogen technology.

The concentration of expertise in one location creates a unique center for energy storage research in Europe.

True to the motto **"From the lab to application"**, the research centers cover **TRL levels 1 to 7**, and represent the largest circular battery production research pilot plant in Europe.

Hotspot & Ecosystem



- A growing number of battery companies are establishing operations in the **Braunschweig/Lower Saxony region**, leading to rapid development of a comprehensive battery ecosystem.
- Building on our experience since 2007, Braunschweig has been established as an **international battery hotspot** for research on the sustainable circular production of next-gen energy storage and conversion systems, particularly solid-state batteries and fuel cells.
- One key objective of the partners is the **transfer** of research results to industry through close collaboration, as well as through education and training at the **EducationLab** of the Battery Labfactory Braunschweig.



Together, the facilities of BLB, CPC and Fraunhofer ZESS cover:

- **10.000 m² infrastructure** for research, with a total of:
  - **1.500 m²** Pilot line for cell production
  - **900 m²** Dry room space in 9 dry rooms
  - **750 m²** Diagnostics and Analytics
  - **1.300 m²** Laboratory for Circular Production

Object of Research	
	• Lithium & Sodium-ion batteries • Lithium-sulfur batteries • Solid-state batteries • Metal-oxygen batteries • PEM fuel cells • Redox-flow batteries

Joint Key Facts and Figures of the Partners

Battery production research since **2007**

> 200
employees, i.e. professors, researchers, technicians and students working on energy storage systems

> 950
peer-reviewed scientific publications since 2015

> 110 m. €
in third-party funding acquired by BLB

Joint Labfactory with **> 25**
members of various institutes in the fields of chemistry, engineering and metrology

Member of the most relevant associations and initiatives on a **national** and **international level** (LiPLANET, BEPA, ...)

Host of **International Battery Production Conference (IBPC)** since 2018

> 200
ongoing and completed third-party funded projects

> 100
graduates (Ph.D. /M.Sc. /B.Sc.) specializing in battery technologies each year, e.g. from our **Battery and Hydrogen Technology** degree program