

COMET CENTRE

BATTERY4LIFE GMBH

RESEARCH PROGRAMME: BATTERY4LIFE – OPTIMIZED SAFETY AND INCREASED SUSTAINABILITY OF BATTERIES



Battery4Life

Main location: Graz (Styria)

Other locations: none

Thematic area: Energy & Environment, Mobility

Thematic focuses

- **Prediction and Optimization**
Analysis and optimization of the behavior of electrical energy storage systems based on lithium-ion technologies under increased loads. Using experiments, numerical simulations, and artificial intelligence.
- **Degradation Mechanism**
In-depth research into the degradation of lithium-ion batteries under various boundary conditions to analyze the aging path and safety behavior of differently aged battery cells. Both experimental and simulation methods are used to numerically model degradation.
- **Monitoring and Failure Prognosis**
Monitoring the performance and safety of lithium-ion batteries to ensure a long and safe battery life during both their first and second life cycles. Development of novel measurement methods for determining key indicators (e.g., "state of safety") and qualification methods.
- **Cross-Cutting Battery Safety Research on Sustainability (Technical | Legal | Socio-Economic Perspectives)**
Multi- and interdisciplinary consideration of battery safety for the most sustainable use of batteries throughout their life cycle phases.

Planned realisation and outcomes

Battery4Life is dedicated to improving the safety and sustainability of lithium-ion battery technologies. To this end, research is being conducted to gain a deep understanding of battery behavior in critical situations in both mobile and stationary applications. In addition to purely technical aspects, legal and socio-economic issues across life cycle phases are also considered. Safe operation is a clear focus in order to achieve the longest possible service life, both in the vehicle and through subsequent use.

History of establishment

Building on many years of experience in research collaborations on general vehicle safety, TU Graz began focusing specifically on battery safety research in 2010. This was actively pursued with the two COMET projects SafeBattery (2017-2021) and SafeLIB (2021-2025). With the additional establishment of the BSCG (Battery Safety Center Graz) at the Vehicle Safety Institute in 2020, a core facility was created at TU Graz that provides Battery4Life with empirical research.

Battery4Life GmbH was founded on April 1, 2025, by the shareholders TU Graz, AVL DiTEST, MAGNA STEYR Fahrzeugtechnik, and the University of Graz to mark the Centre's launch.

COMET FACTSHEET

Selected company partners (max. 10):

1. Audi AG
2. AVL DiTEST GmbH
3. AVL LIST GmbH
4. Dr. Ing. h.c. F. Porsche AG
5. Dr. Steffan Datentechnik Ges.m.b.H.
6. ESI Group
7. Infineon Technologies Austria AG
8. MAGNA STEYR Fahrzeugtechnik GmbH & Co KG
9. Mercedes-Benz Energy GmbH
10. RIMAC Technology d.o.o

Selected scientific partners (max. 5):

1. Johannes Kepler Universität Linz
2. Know-Center GmbH
3. Technische Universität Graz
4. Universität Graz
5. Virtual Vehicle GmbH

Selected international¹ partners (max. 5):

1. AMVALOR (ENSAM Institute of Technology Arts et Métiers), France
2. CSEM Battery Innovation Hub, Switzerland
3. RWTH Aachen (CARL), Germany
4. Temple University (Electric Vehicle Safety Lab), USA
5. Vrije Universiteit Brussel, Belgium

Duration: 01.04.2025 - 31.03.2033 (4+4 years)
Staff employed at the Centre: 16 FTE, thereof 13 scientists (end of year 2025)

Management: Assoc.Prof. Dipl.-Ing. Dr.techn. Christian Ellersdorfer, CEO & CSO
Dipl.-Ing. Dr.techn. Jörg Moser, Authorized Signatory & CTO
Mag. Heimo Theuretzbacher-Fritz, Authorized Signatory & CFO

Contact: Battery4Life GmbH
Inffeldgasse 23/I, 8010 Graz, Österreich
+43 664 60873 6037
office@battery4life.at
<https://www.battery4life.at>

Status 04.06.2025

The COMET Centre is funded within COMET – Competence Centers for Excellent Technologies – by BMIMI, BMWET as well as the co-financing federal provinces [Styria, Upper Austria]. The COMET programme is managed by FFG. www.ffg.at/comet

¹ Partners with headquarters outside Austria