



Advanced Light-weight BATteRy systems Optimized for fast
charging, Safety, and Second-life applications

NEWSLETTER

December 2024

 **Powering the Future through Training:**
 **ALBATROSS for Battery Innovation** 



FOLLOW US



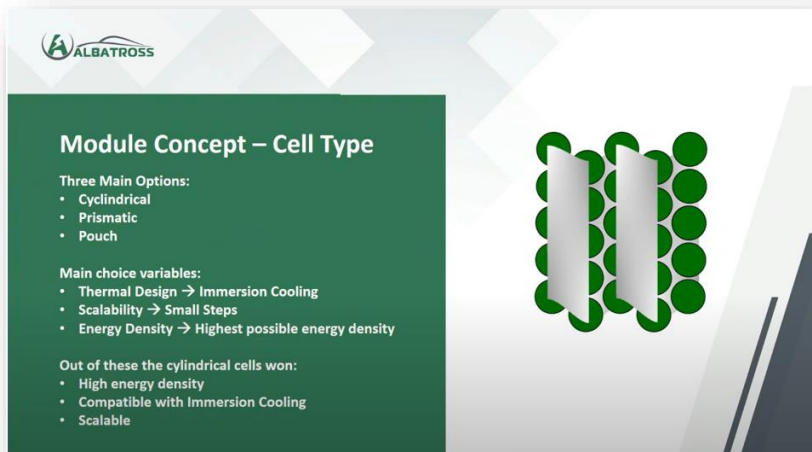
This project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 963580- ALBATROSS

Battery Innovation Training

We are excited to announce the collaborative training session between the ALBATROSS and the COLLABAT event. This event was a hub of innovation and knowledge sharing in the field of battery technology. Here's a recap of the key presentations:

Cleantron Cleantech Batteries

Participants gained valuable insights from Cleantron's real-world experiences in designing and building a partially-immersion cooled modular battery pack. The session highlighted practical challenges and innovative solutions in developing cutting-edge battery technology.



Module Concept – Cell Type

Three Main Options:

- Cylindrical
- Prismatic
- Pouch

Main choice variables:

- Thermal Design → Immersion Cooling
- Scalability → Small Steps
- Energy Density → Highest possible energy density

Out of these the cylindrical cells won:

- High energy density
- Compatible with Immersion Cooling
- Scalable

cleantron[®]
cleantech batteries



Integration Challenges

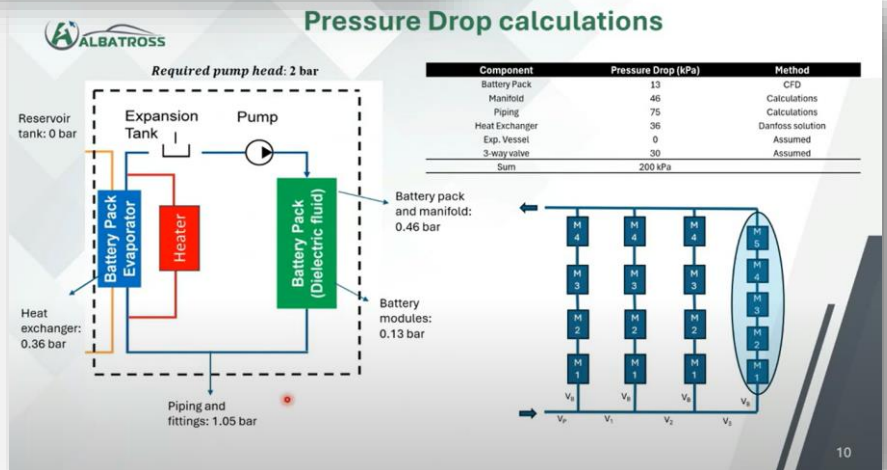
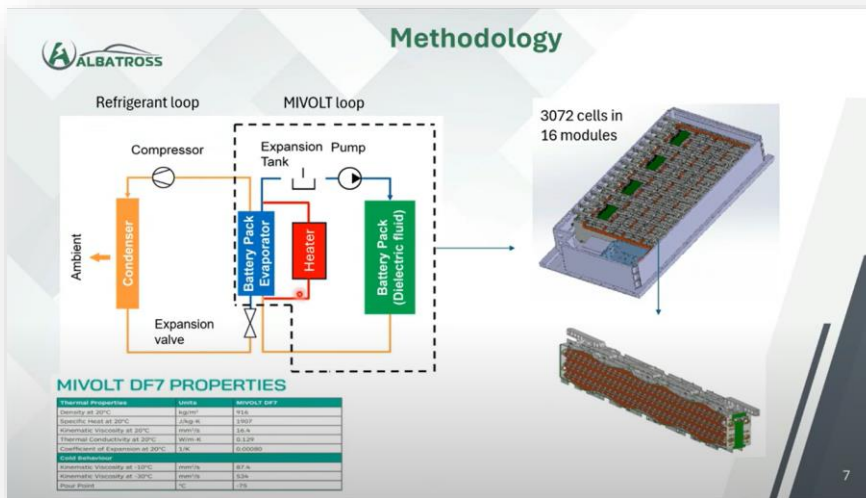
- Assembly Order
 - Sealing
 - Welding
 - Connections
- Assembly Cost
- Design for Assembly, Repair, Reuse and Disassembly



Battery Innovation Training

University of Nottingham

The latest research on partial immersion cooling solutions for lithium-ion battery thermal management was showcased. Attendees learned about advancements that could revolutionize battery efficiency and safety.



FOLLOW US



Battery Innovation Training

FEV Türkiye

The presentation covered developments of a system with cloud connectivity and AI-based algorithms crafted within ALBATROSS and that are detailed in our previous newsletter. The session provided an understanding of how these innovations can enhance battery performance and integration.

FEV

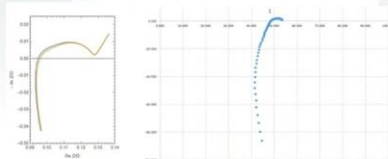


ALBATROSS: Advanced Light-weight Battery systems Optimized for fast charging, Safety, and Second-life applications

EIS Circuit Example Results

Brief Information

- Normal EIS devices can only measure one cell.
- However, CMU will be able to measure 24 series connected cells.
- CMU uses a special switch technique to connect all 24 cells to measurement circuit.
- These concept was verified on real hardware and received promising results. As further studies, the concept needs to be developed.



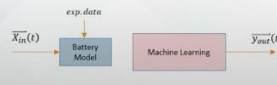
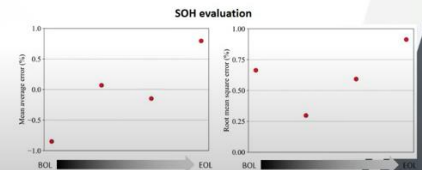
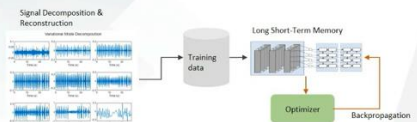
Theoretical vs measured EIS results



ALBATROSS: Advanced Light-weight Battery systems Optimized for fast charging, Safety, and Second-life applications

SOH estimation using Long-Short Term Memory Model

- SOH estimation based on LSTM
- Battery test bench data
 - Each between 400 and 700 ageing cycles
 - Capacity tests during ageing
 - 1 Hz sampling rate
- NMC cells, also applied to LFP cells
- SOH accuracy of <1%
- Applicable to vehicle data using battery model



FOLLOW US



Battery Innovation Training

The event was an enriching experience, allowing experts to connect, exchange ideas, and stay at the forefront of battery technology advancements.

It was a great opportunity for participants to expand their knowledge and network with industry leaders.

AGENDA

14.00 General introduction of the COLLABAT Cluster

- Keynote speech
- Introduction to the 4 funding projects: Albatross, Helios, Liberty, Marbel
- Welcome 2 new joining EV battery projects to continue the Cluster: iBattman and InnoBMS

14.45 Battery Systems Design: Next-Gen EV-Battery Solutions

- Presentations from the 4 funding projects showcasing their final results
- Panel discussion

15.35 COFFEE BREAK

16.05 Battery Pack Innovation for High-Performance Systems

- Presentations from the 4 funding projects highlighting some specific technologies & innovations (e.g. ultrafast charging, sensorisation, thermal management systems, new algorithms)
- Panel discussion

16.55 BMS - The brain of batteries

- Short pitches from all 6 projects (e.g. real-time monitoring and data analytics, novel models and algorithms, flexible BMS, wireless BMS, reliable and secure connections)
- Panel discussion

17.45 Wrap-up & Outlook

18.00 Workshop closing



You can view the full training session at <https://shorturl.at/TzjVa>  



FOLLOW US



GET UPDATED WITH OUR RECENT ACTIVITY



This project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 963580- ALBATROSS



Advanced Light-weight BATteRy systems Optimized for fast charging, Safety, and Second-life applications

WWW.ALBATROSS-H2020.EU