



CONSORTIUM FOR
**BATTERY
INNOVATION**

CENELEC
EUROPEAN COMMITTEE
FOR ELECTROTECHNICAL STANDARDIZATION

**DCA & Heat
goes live again**

Workshop on **Automotive Lead Battery Advancements (ALBA)**

12-13 July 2022

Bergamo, Italy

The *Consortium for Battery Innovation* (CBI) in collaboration with *European Committee for Electrotechnical Standardization* (CENELEC TC21X WG3) are holding a workshop bringing together global technical experts from the advanced lead battery and automotive industries.

Three live editions of “**DCA & Heat**” **workshop series** have enabled technical in-depth discussions about hot research topics among the automotive battery industry, their suppliers and customers, and research institutes (Kloster Eberbach 2017, Alcalá de Henares 2018, Bruges 2019). During the travel-restricted pandemic years, two online editions and several content-related experts working groups have kept this spirit. We are excited to announce a new face-to-face edition of this workshop series – under a new name that reflects the widened scope of topics as it evolved over the past 5 years.

This year’s event will address the following topics:

- New **durability test methods** for shallow-cycle life, high-temperature endurance, and float charging of automotive batteries
- New requirements and test method development for **12V auxiliary** (automotive non-starter) batteries, including pulse power, rechargeability and peak voltage absorption
- **Mechanisms and morphology** limitations for charge acceptance – on time scales ranging from seconds (DCA) to hours
- **Test cells and cell testing** – open exchange about laboratory methods, this year with a special focus on high-temperature tests and truly recombinant AGM cells
- **Functional Safety** – new requirements *versus* state of the art for battery design and process quality, supporting battery diagnostics, commodity and aftermarket concepts
- Inhomogeneous and sudden **failure mechanisms** and their impact on vehicle reliability: cell defects (“shorts”), open connections, icing, etc.

Compact plenary talks will expose up-to-date material on each of the topics to all participants. In subsequent break-out sessions, each participant will have the opportunity to discuss in depth two of the topics (A or B or C) and plan collaborative work streams associated with them.

CBI will also hold a Battery Academy on 11-12 July and the European Technical Workshop on 14 July at the same location. We are looking forward to meeting you in person this summer in Italy!

Tuesday 11:00

Interactive wrap-up of DCA&Heat workshops since 2017

Tuesday 13:00 & 15:00

Technical Session 1: plenary talks & break-out discussion

1A	AUX battery requirements & tests
<ul style="list-style-type: none">➤ Toward a new IEC standard for 12V batteries that are not (only) starter batteries➤ Charge acceptance: Can we accelerate SOC recovery?➤ 12V pulse-power characterization: mapping methods and a new standard test	Luca Brisotto, <i>Exide</i> Stuart McKenzie / Shane Christie, <i>ArcActive</i> Eckhard Karden, <i>Ford</i> Sosuke Fujita, <i>BAJ</i> Roberto Aliberti, <i>Flamm</i> and other presenters
1B	Understanding inhomogeneous and sudden failures
<ul style="list-style-type: none">➤ Real-world statistics: How frequent are non-classical failures?➤ Facts and misperceptions about shorts and cell defects: Only predictable failures?➤ Open connections and broken welds:➤ Electrical investigations during ice-crystal formation	Sylvain Angoujard, <i>Clarios</i> Bernd Engwicht, <i>EastPenn Manufacturing</i> Christian Mondoloni, <i>Stellantis</i> Helmut Diermaier, <i>Banner</i> Yukiyasu Nagata / Eckhard Karden, <i>Ford</i> and other presenters
1C	Test cells and cell testing - best practices
<ul style="list-style-type: none">➤ Key parameters and solutions for representative AGM test cells➤ Experiences with high-temperature cell testing➤ Exhibits of test cell designs➤ Next version of the CBI cell-test manual	Matt Raiford, <i>CBI</i> Paul Everill, <i>Black Diamond</i> Shane Christie, <i>ArcActive</i> Shawn Peng, <i>C&D Trojan</i> Sophia Bauknecht, <i>TU Berlin</i> Nate Leibensperger, <i>EastPenn Manufacturing</i> Daniel Charles, <i>Hollingsworth & Vose</i> Abderrezak Hammouche, <i>Clarios</i> Jesús Valenciano, <i>Exide</i> and other presenters

Tuesday 16:30

Automotive Battery Application Trends

Depending on OEM travel policies, speakers may be participating in person or via video link.

- Safety and reliability requirements for 12 V auxiliary batteries
Christian Mondoloni and Alexis Riera, *Stellantis*
- Diagnostics for 12 V batteries in ASIL applications: A generic approach for interfaces and verification
Egbert Lodowicks and Rolf Naumann, *Audi*
- Suggestions for joint test activities on battery durability in new vehicle architectures
Yukiyasu Nagata and Eckhard Karden, *Ford*
- The talks will be followed by a plenary discussion.

Wednesday 9:00 & 11:00

Technical Session 2: plenary talks & break-out discussion

2A	New durability tests
<ul style="list-style-type: none">➤ Shallow-cycling: new microhybrid life test (MHT2)➤ High-Temperature Endurance test with improved field correlation (HTE, nKLT)➤ Float life for automotive batteries, charging strategies for 12V batteries in electric vehicles	Torsten Hildebrandt, <i>Clarios</i> Egbert Lodowicks, <i>Audi</i> Jonathan Wirth, <i>BatterieIngenieure</i> José Otávio Peroba, <i>Moura</i> Thomas Spinks / Thomas Verghese, <i>Energys</i> Sylvain Angoujard, <i>Clarios</i> and other presenters
2B	Mechanisms and morphology limiting charge acceptance
<ul style="list-style-type: none">➤ NAM-structure characterization with regard to DCA memory effects➤ From seconds (DCA) to minutes – from negative to positive limitation?➤ Ways to improve PAM chargeability➤ Investigations on oxygen reduction as driver for sulfation	Ian Wolfe, <i>EastPenn Manufacturing</i> Paul Everill, <i>BlackDiamond</i> Shane Christie, <i>ArcActive</i> Eberhard Meissner Begüm Bozkaya, <i>CBI</i> Nadine Dehnert, <i>Clarios</i> and other presenters
2C	What Functional Safety means for 12V batteries
<ul style="list-style-type: none">➤ Design and process controls to assure reliability against sudden faults➤ Dynamic performance testing to support robust & generic battery diagnostics➤ Voltage stabilization: peak current absorption capability	Luca Brisotto, <i>Exide</i> Bernd Engwicht, <i>EastPenn Manufacturing</i> Alexis Riera, <i>Stellantis</i> Rolf Naumann, <i>Audi</i> Eckhard Karden, <i>Ford</i> Geoffrey May, <i>Focus Consulting</i> and other presenters

Wednesday 13:30

Closing Discussion: Feedback & next steps

Wednesday 15:00

Interactive discussion of new test results from CBI members & projects

The ALBA workshop will begin on Tuesday 12 July (11am) and finish in the early afternoon of Wednesday 13 July (3pm). Later during the same afternoon, participants will have the opportunity to discuss recent results with researchers from CBI projects and members. The ALBA workshop will be preceded by a new Battery Academy about technology fundamentals on 11-12 July, and followed on 14 July by CBI's European Technical Workshop, to discuss ongoing projects.

All three events will take place at [Centro Congressi Giovanni XXIII](#) in Bergamo, Italy. Of the 3 Milano **airports**, transfer time is by far minimal from Bergamo Orio al Serio. For **online registration**, updates on the **workshop agenda**, and **hotel offerings** please visit CBI's website: <https://batteryinnovation.org/dca-heat-workshop/>.

Participation fees will be at actual cost, like for the previous events, and reduced further for students and retired experts. The registration fee covers the cost of seminar rooms and handout material, the cultural tour, as well as Tuesday dinner, lunches, coffee breaks. Please contact [Anita Wright](#) to obtain a discount code.

Taking Covid infection risk seriously, we urge participants to respect distancing. Further, we request that attendees take a COVID test (antigen or PCR) within 48 hours prior to arriving at the event and our event staff will ask for a verbal attestation to your test timing and results when you check in. We encourage self-protection by wearing masks.