CONSORTIUM FOR BATTERY INNOVATION

CENELEC
EUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION

Bringing together
the automotive-battery value chain

Workshop on

Automotive Lead Battery Advancements (ALBA)

21-22 May 2025

Turin, 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.

Since eight years now, this **workshop series** (Kloster Eberbach 2017, Alcalá de Henares 2018, Bruges 2019, online 2020, Bergamo 2022, Wolfsburg 2023, Paris 2024) has enabled technical in-depth discussions about hot research topics among the **automotive battery** industry, their suppliers and customers, and research institutes.

Compact plenary talks will expose overviews and summaries to all participants. In break-out sessions, each participant will have the opportunity to **discuss in depth** three of the following topics and plan collaborative work streams associated with them:

- Characterization results and trends for IEC 60095-8 **charge recovery** of both SOC and SOF (state of charge, state of function)
- Which **mechanisms** are limiting SOC recovery and enabling **transient SOF boost**?
- Guidelines to **operate 12V batteries** in battery-electric vehicles, evaluating slow voltage ramps and innovative approaches from other industries
- Smart system integration of **auxiliary and backup batteries**: design trade-offs and SOF monitoring for safety-relevant (**ASIL**) 12V-power applications
- Optimizing **positive active mass (PAM)** for auxiliary and backup batteries
- **AGM saturation** and evolution of side reactions,
- **Engineering tools** for automotive application engineers, including battery sizing based on IEC 60095-8 **pulse-power characterization (PPC)**

A special session will discuss **market trends and challenges** for automotive 12V systems and their batteries, and opportunities for the lead battery supply base.

CBI will also hold the **European Technical Workshop** on 19-20 May at the same location, see separate invitation for CBI member companies.

Working groups are preparing 7 interactive sessions as tentatively outlined on the following pages. The final agenda will be available in April on https://batteryinnovation.org/alba-2025/.

We are looking forward to meeting you in person this May in Italy!

CRC — Charge Recovery of 12V batteries in BEV: Collecting our test data

- Laboratory simulation of repetitive CR for low-mileage cars
- How realistic is a forecast of SOF profiles from simplified discharge tests in IEC CR ?
- How does CR performance age?
- Hysteresis behaviour of SOF recovery
- Benchmarking SOF recovery of AGM and EFB against lithium and sodium ion cells

Christian Mondoloni, *Stellantis*
Markus Hollas*, *Volkswagen*
Markus Saal / Jochen Settelein, *Fraunhofer ISC*
Hürkan Catalkaya, *Inci GS Yuasa*
Ian Wolfe, *EastPenn*
Luca Brisotto / Jesús Valenciano, *Exide*
John Wertz / Jibo Zhang, *Hollingsworth & Vose*
Paul Everill, *Black Diamond*
Shawn Peng, *QS-TEK*
and other presenters

CRM — Mechanisms limiting Charge Recovery of power & energy

- How may PAM structure elevate the discharge voltage? **(pseudo-capacitance & potential plateau)**
- Experimental studies of CR variation with PAM and NAM composition
- Relaxation of the positive electrode potential after charging
- Discussion of acid density effects

Eberhard Meissner
Plamen Nikolov, *BAS*
Eckhard Karden, *CBI*
Jochen Settelein, *Fraunhofer ISC*
Grace Rocha, Moura
Yu Ping, *Camel*
Markus Föhlisch, *Moll Batterien*
and other presenters

FUT — Market trends and technology opportunities

- OEM roadmaps and requirements for low-volt power supply & storage
- international 12V automotive market trends per global region
- EU battery regulation and other regulatory tasks
- CBI activities and OEM support

Lorenzo Zolin, *Stellantis*
Mike Miao *, *Leoch*
Gao Guoxing, *Camel*
José Otávio Peroba, *Moura*
Dustin Lee, *EastPenn Manufacturing*
Kohei Koga, *GS Yuasa / BAJ*
Torsten Hildebrandt, *Clarios*
Begüm Bozkaya, *CBI*
and other presenters

PAM — Improvements of positive plate and PAM recipes

- additive effects on formation, pulse power, shallow cycling
- improvement of PAM utilization
- compression by reverse-oriented PE+gel separator
- X-ray and CT in-situ investigations

Francisco Trinidad
Jun Furukawa
Grant Spencer / Marcus Young, *Univ. North Texas*
Eric Miller, *Daramic*
Miguel Garcia / Jesús Valenciano, *Exide*
Thomas Wojcinski, *Hammond*
and other presenters

SAT — Saturation changes over time and location

- Saturation of AGM separator and electrodes in transient charging conditions
- Filling consistency with PE+gel separators versus AGM cells
- Gassing and recombination effects

Campbell Matthews, *ArcActive*
Serubbabel (Abel) Sy* / Eric Miller, *Daramic*
Jibo Zhang / John Wertz, *Hollingsworth & Vose*
Dr. Pritpal Singh *, *Villanova Univ.*
Abderrezak Hammouche, *Clarios*
and other presenters

AUX — Testing and sizing methods for auxiliary & backup batteries

- Case studies for non-starter battery optimization
- IEC 60095-8: template for OEM specifications?
- Field experience and failure mechanisms of 12V batteries in BEV
- Beta version of a PPC-based battery sizing tool
- CBI-SSOF documentation about battery reliability for 12V ASIL

Egbert Lodowicks* / Rolf Naumann*, *Audi*
Luca Brisotto, *Exide*
Jonathan Wirth, *Batterieingenieure*
Bernd Engwicht, *EastPenn Manufacturing*
and other presenters

CSO — 12V charging strategy and operation for BEV

- Publishing an OEM guideline for 12V charging system operation
- Evaluation of charging strategies in simulated drive cycle operation
- float versus zero-current strategies
- slow ramps versus SOC-dependent setpoints
- opportunity / pulsed charging: from traction to 12V ?

Sebastian Mauer, *Moll Batterien*
Jesus Perez, *C&D Trojan*
Rolf Naumann*, *Audi*
Jörg Tiburcy / Sylvain Angoujard, *Clarios*
Roger Zimmermann, *combatec*
Kevin Luo, *Camel*
and other presenters

* remote contribution

The workshops will take place in COMBO, a coworking space and hostel in the heart of the beautiful city of Turin, Italy. (address: Corso Regina Margherita 128, 10152 Torino TO, Italy, https://thisiscombo.com/location/combo-torino/).

Please register at https://batteryinnovation.org/alba-2025/ – and secure your Early Bird Discount **until 28 March**! We will provide agenda updates, and eventually all presentations, under this address, too. Registration fees, as always, are at actual cost, covering seminar rooms, handout material, lunches, coffee breaks, as well as ALBA dinners and cultural tours. Discounts can only be offered for students and retired experts.

Registration fees	by 28 March	later
CBI European Technical Workshop 19-20 May	149 €	
ALBA Speakers' Day 20-21 May (presenters only)	149 €	249 €
Automotive Lead Battery Advancements **ALBA Workshop 21-22 May**	**499** €	**599** €

When planning your travel to and from Turin, you may consider **flying into Milan** (Malpensa MXP or Linate LIN) and taking a convenient **express bus** (approx. 1h50' by Autostradale, Flibco, Flixbus: see departure times under google maps) or high-speed train (Frecciarossa, approx. 2h20' including local train transfer to a Milan station) to Turin because there are only few direct flight connections with the regional Torino TRN airport. There is not actually a point in parking a rental car in Turin for a few days, and our evening events will be all in walking distance from COMBO.

Please book your accommodation

- ❑ without breakfast but join us for the **free ALBA breakfast in COMBO** …
- ❑ … and in **close walking distance** to COMBO, for example: NH Torino Santo Stefano (ca. 330€ per night), Hotel Chelsea (ca. 120 € per night), or inside COMBO (10% **discount code**: CBI25 for private rooms and dorm beds).

For a limited number of participants, Ahlstrom offers a tour to their Mathis plant right after ALBA sessions close on Thursday 22 May (bus departs 14:45 – return approx. 18:30). Established in 1851 Mathis is one of the largest Ahlstrom's plants, including a recently installed line for AGM separators.