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ADVANCED BATTERY POWER CONFERENCE 2021

APRIL 28-29, 2021 IN ESSEN/GERMANY



Conference Chairs

Prof. Dr. Dirk Uwe Sauer, ISEA, RWTH Aachen & HI MS, FZ Jülich

Prof. Dr. Martin Winter, HI MS, FZ Jülich & MEET, WWU Münster

For **Scientific Advisory Board** please visit our website: www.battery-power.eu/en/

DEADLINE: 10/31/2020

The conference „Advanced Battery Power Conference – Battery solutions for automotive and energy supply sector“ will take place in Essen on April 28-29, 2021. Additionally we offer the conference participation on a virtual platform.

With 550 participants in the past years, Advanced Battery Power is one of the largest international scientific battery conferences in Germany and is the established meeting point for scientists and engineers from academia and industry. The conference covers the whole value chain from (new) materials to applications including cells, battery packs and system integration, with focus on performance, synthesis, characterization, manufacturing, engineering and recycling. Once again we expect more than 200 scientific contributions, which will make the conference a unique chance to learn about the latest trends in battery research and application.

The conference will also provide the opportunity to get to know the basics of battery technology during a tutorial-like parallel session. Experienced lecturers will present fundamental and technology specific issues of batteries, especially lithium-ion batteries. This goes along the whole value chain from the electro-chemical essentials to production aspects and integration into applications. This mix of fundamentals and state of the art in research and development will be an excellent occasion to gain a broad insight into the field of battery storage systems. You may join the whole seminar or just selected lectures.

An utmost goal of the conference is fostering the networking between academia and industry. Therefore, we especially encourage scientists and engineers from industry to submit a proposal for a presentation. We are planning to have two sessions only with presentations from industry.

In cooperation with



Organiser



We invite you to share your recent scientific results, research projects, as well as industrial developments and strategies, either in oral or poster presentations, during our symposium. Conference language is English.

Between the lecture sessions, sufficient time will be provided for poster sessions and for informal communication between symposium attendees. Members of universities and students will be granted significant discounts on conference fees.

TOPICS

1. Lithium ion cells: materials and improvements on properties

- › Active components (positive electrode materials, negative electrode materials)
- › Inactive components: electrolytes (solid, liquid, polymer and hybrid electrolyte systems), separators, housings, binders, additives, current collectors
- › Advances in power and energy density
- › Progress in cost reduction
- › New electrode and cell design: concepts and performance
- › Calendar life and cycle life
- › Safety: analysis and improvements on material and cell level
- › Theoretical, fundamental and microscopic models
- › New and advanced analytic methods in laboratories

2. Beyond and beside lithium-ion technology

- › Lithium/air, lithium/sulfur, lithium metal batteries
- › Non-lithium technologies (aluminum, calcium, potassium, sodium, magnesium, zinc, dual ion, etc.)
- › Progress on other battery technologies (any technology potentially suited for automotive or stationary applications)
- › Flow-batteries
- › Supercapacitors (incl. hybrids)

3. Batteries for 12 V and 48 V power systems

- › Requirements
- › Functional safety
- › Advances in lead-acid batteries, incl. technology, management, and diagnostics
- › Field experience and results of SLI batteries
- › Lithium-based batteries for SLI applications
- › Hybrids of lead-acid and lithium-based batteries
- › Hybrids of batteries and supercapacitors

4. Battery systems

- › Battery aging (experimental investigations, modeling, lifetime prediction, etc.)
- › Battery modeling (electrical, thermal, mechanical, performance, lifetime, parameterization, etc.)
- › Parametrization: impedance and physico-chemical approaches
- › Battery diagnostics (SOC, SOH, aging, performance, etc.)
- › Battery management: cell balancing, charge and thermal management, etc.)
- › Test procedures and results from field and laboratory tests on lifetime, performance and safety
- › Reliability of different battery pack designs

5. Automotive and mobile applications

- › Novel use of battery storage systems in automotive applications (requirements, solutions, future technologies, etc.)
- › Advances in battery electric vehicles and plug-in hybrid electric vehicles
- › Future on-board power supply technologies (12 V, 48 V, micro and mild hybrids, topologies, etc.)
- › Impact of ultra-fast charging on battery cell and system design
- › Combined battery systems (lead-acid, supercapacitors, li-ion, etc.)
- › Heavy-duty, public transport and off-road applications
- › Field experience, lifetime and reliability data, new technologies/ applications, requirements and solutions to new applications

6. Stationary battery systems

- › Storage systems for grid stabilization, PV home storage, power supply for fast charging, teaming-up several services to one system, etc.
- › Field experience, operational strategies, lifetime, sizing tools, etc.
- › Vehicle to grid (PHEV and EV as grid elements)
- › Hardware challenges beyond the battery system (power electronics, safety, BMS hardware, EMV, etc.)

7. Production, 2nd life and recycling of battery systems and cells

- › Machinery and procedures for battery and cell manufacturing
- › Production process design and quality control
- › Formation, supply chain, logistics
- › Optimized battery pack design (efficient production, new technologies)
- › Second life / second use concepts, long-term storage of batteries
- › Recycling (all relevant battery materials)
- › Scenarios for battery costs, production capacities, markets

8. Markets

- › Market overview (capacity, manufacturer, chemistries, cell designs, etc.)
- › Market forecast (automotive, stationary, consumables)
- › Availability of raw materials

9. Teaching batteries

- › Educational and didactical concepts
- › University teaching of battery topics
- › Vocational retraining on battery issues

Organiser

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Please send your abstract at latest by **October 31, 2020**
via upload on www.battery-power.eu