

Batteries, Super Capacitors, Fuel Cells & Energy Storage Systems seminar

August 29, 2018 – Asker, Norway

The seminar program focuses on present and future needs of portable and stationary electrochemical energy sources and highlights the latest technological developments designed to satisfy application requirements.

The program reviews primary, rechargeable, reserve batteries, fuel cells, ultra-capacitors systems and their accessories.

The seminar program reviews typical cycle life aspects of designing and manufacturing energy source solutions: from application energy requirements, power source electrical and mechanical design, cells selection, cells evaluation tests, battery prototype, acceptance tests, design and manufacturing techniques, testing, mass production, safety issues, transportation, use and disposal.

Special focus is given to battery design and testing aspects which are vital tools for battery solution.

The program trains attendees on safety issues along the energy source solution cycle life.

The program focuses on electric vehicle and Batteries, Super Capacitors, Fuel Cells and Metal Air systems for EV's.

Key Benefits

Batteries & Fuel Cells Seminar provides:

- Full review of current and future electrochemical energy sources.
- Training on cells selection, design, manufacturing, testing, safety, and transportation and disposal aspects of energy sources.
- Basic knowledge for new industry members entering the field.
- Expands the knowledge of industry members already working in the field.
- Training on Energy Sources Database software – a vital tool for optimal energy source design.

Seminar Program Topics

- Battery Essentials
- Rechargeable batteries
- Lithium rechargeable cell Manufacturing process
- Battery chargers
- Battery design process
- Grid Storage Batteries
- Fast Charging Batteries
- Battery safety

Seminar Schedule

August 29, 2018

Seminar Location

Asker Kulturhus
Meetingroom 3, Strøket 15A
N-1383 Asker, Norway

Local Partner

Hans H. Schive
Mr. Erik Hagelien
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Tel: +47-66-760512

Who Should Attend?

- Battery and energy sources users
- Pack assemblers
- Cell makers
- Energy sources suppliers
- Academic researchers
- R&D engineers
- Market researchers
- Safety supervisors
- Battery shippers and disposals
- E-Mobility industry members
- Others industry members

About Shmuel De-Leon

Shmuel De-Leon is Founder and CEO of Shmuel De-Leon Energy, Ltd.

Shmuel is a leading international expert in the business of Power Sources, Energy storage and Ev's.

Prior to founding the company, Shmuel held for over 20 years various positions as a power sources, engineering and quality control team manager.

Shmuel holds BSc. in mechanical engineering from Tel-Aviv University and MBA in quality control and reliability engineering from the Technion Institute in Haifa as well as an Electronic Technician's diploma.

Shmuel De-Leon Energy Ltd. provides unique tools for the energy sources industry, such as Consulting, Training, Conference organizer, Market research reports Market research reports Energy Sources Database, Market research reports , Energy Sources Solutions, Industry News weekly newsletter.

Seminar Pricing

| | Commercial | Academic * |
|--------------------------|-------------|-------------|
| <u>Registration cost</u> | € 300 + VAT | € 150 + VAT |

* Copy of an Academic Institute ID is required

** 10% discount for 3+ group attendees

*** Pricing includes hard copy print out of all seminar presentations, lunch & refreshments

Sponsor & Exhibit Opportunities

Exhibitor and Sponsor will receive:

- 1 roll-up display at the seminar room
- Advertisement materials on a side table in the seminar room
- Logo in the seminar program, agenda and seminar web site
- Extra 10% discount on attending the seminar

Pricing: € 500 + VAT

Seminar Schedule & Agenda

Wednesday, August 29, 2018

08:00 – 08:30 Registration

08:30 – 08:45 Hans H. Schive Presentation

08:45 – 09:45 Battery Essentials

This session introduces a historical prospective of batteries, detailed battery definitions and features (electrical, mechanical, standards, etc.). Module 1 lays the foundation for the attendants to share a common “battery language” and provides all the background needed for upcoming modules.

09:45 – 11:15 Rechargeable batteries

This session reviews and compares rechargeable batteries chemistries (Nickel Cadmium, Nickel Metal Hydride, Rechargeable Alkaline, Lithium Ion and Lithium Polymer).

11:15 – 11:30 Coffee Break

11:30 – 11:45 Lithium Rechargeable Cells Manufacturing Process

This session reviews manufacturing process techniques for conventional and pouch cells.

11:45 – 12:00 Chargers

This session reviews battery chargers, charging techniques per battery chemistry, charging problems and solutions, personal chargers, industrial chargers and charger types by charging time.

12:00 – 12:30 Charging Li-Ion Cells, Mr. Jan Fredrik Haugen, CTO, Mascot Electronics

12:30 – 13:30 Lunch Break

13:30 – 14:30 Battery Design Process & Optimization

This session introduces battery design processes (cell and raw materials selection, cell level testing, battery design documents, battery electrical, mechanical and safety design and final verification tests (electrical, mechanical, safety).

14:30 – 15:00 Grid Storage batteries

This session introduces the grid storage market and solutions

15:00 – 15:30 BMZ Grid Storage Systems, Mr. Lukas Gazda, Business Development Director, BMZ GmbH

15:30 – 15:45 Coffee Break

15:45 – 16:05 Battery life cycle Power Electronic testing products “tools” required for today’s demanding Lithium industry, Mr. Kevin Campbell, Digatron Power Electronics GmbH

16:05 – 17:30 Battery Safety

This session introduces the safety risks along the battery cycle life and provides safety guidelines for safety event elimination. This module also addresses the procedures involved in handling safety events, including first aid.

**Pre-Registration Form - Energy Storage Seminar
(August 29, 2018)**

Contact Details (*Required)

Company * First Name* Last Name*

Title City* Zip Code*

Street* Country* State

Phone* Mobile Fax

Email*

*Please complete the registration form and return to:

Shmuel De-Leon Energy LTD.
10 Mazal Arie, Hod Hasharon Israel 4536045
Tel: 972-77-5010792 email: shmuel@sdle.co.il

Or to:

Hans H. Schive / Mr. Erik Hagelien
Tel: +47-66-760512 www.schive.no email: erik.hagelien@schive.no

* Remarks:

- Cancellation of registration must be made in writing only.
- In case that the seminar will have to be cancelled due to force majeure, due to speaker's preventions or due to lack of participants, the participants will be informed accordingly no later than 7 days before the event. The event fee will be refunded in this case.
- In case of cancellation of the seminar up to 7 days before the event, a claim for compensation for travel or accommodation costs is excluded.