

Key informations

- **When:** July 08-11, 2024
- **Where:** UTBM/FEMTO-ST-Energy Dpt and FCLAB, Belfort – France
- **Who:** PhD and Engineer Students, researchers, R&D staff...
- **What:** Panel sessions, lectures, trainings, interactive, social event “Gala diner”

• Registration fees:

- €250* (early bird, before June 10th, 2024)
- €350* (standard registration, after June 10th 2024)
- Including: all lectures and meetings participation, Summer School bag and proceedings, lunches and coffee breaks, banquet, gala diner, cultural program

Online registration : <http://www.utbm.fr/summer-school-fclab>

*a reduction of 25€ will be applied for inscriptions from FEMTO-ST and LEMTA

• Contacts:

- **Summer School Chair:** Pr. Abdesslem Djerdir - abdesslem.djerdir@utbm.fr
- **Summer School registration manager:** Dr. Daniela Chrenko - daniela.chrenko@utbm.fr
- **Summer School organizing committee:** Mrs. Carine Diez - karine.diez@univ-fcomte.fr, Mrs. Isabelle Christen - isabelle.christen@univ-fcomte.fr, Mrs. Sophie Granon - sophie.granon@femto-st.fr, Mrs. Silvia Nikolova - silviya.nikolova@univ-fcomte.fr, Mrs. Laurence Mary - laurence.mary@utbm.fr, Mrs. Pauline Doxin - pauline.doxin@utbm.fr, Mrs. Camille Schaeffer - camille.schaeffer@utbm.fr
- **Website:** <http://www.utbm.fr/summer-school-fclab>

• Scientific committee

- **Chair:** Pr. Abdesslem Djerdir (FEMTO-ST, FC LAB, GdR SEEDS)
- **Co-chair:** Dr. Daniela Chrenko (FEMTO-ST, FC LAB, GdR SEEDS)
- **Industrial relations:** Pr. Salah Laghrouche (FEMTO-ST, FC LAB, GdR SEEDS)
- **Members:** David Bouquain, Djafar Chabane, Issam Salhi, Elina Breaz, Elodie Pahon, Youcef Ait-Amirat

Organised by



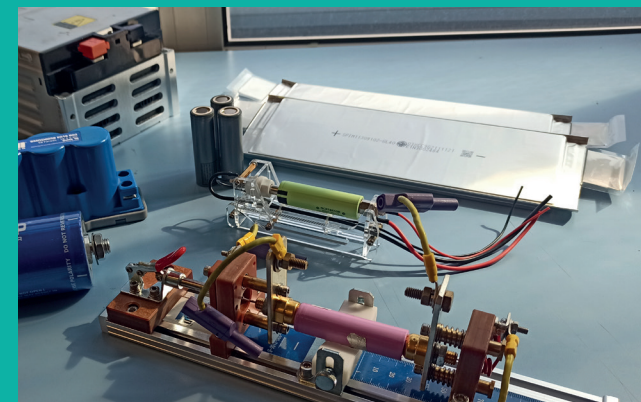
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INTERNATIONAL SUMMER SCHOOL

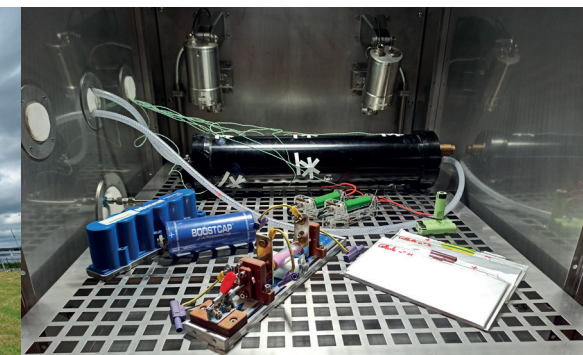
July 8-11, 2024

Electrochemical and Hydrogen Energy Storage for Mobility and Microgrids



INTERNATIONAL SUMMER SCHOOL

Electrochemical and Hydrogen Energy Storage for Mobility and Microgrids



Summary

From 8 to 11 July 2024, the energy department of FEMTO-ST and FCLAB, the CNRS research group SEEDS and the CNRS research federation FRH2, in UTBM Belfort - France, an International Summer school on the topic of Electrochemical and Hydrogen Energy Storage. The summer school is intended for PhD, engineer and master students, and engineers interested in the latest developments in future mobility and micro-grid systems.

Motivation and objectives

In a world in the midst of an energy transition, sustainable mobility, and the resilience of energy microgrids have become major imperatives to ensure a cleaner and more secure energy future. Electrochemical storage and the use of hydrogen are emerging as key solutions to address these challenges, providing efficient, clean, and versatile energy storage opportunities. The Summer School on Electrochemical and Hydrogen Energy Storage for Mobility and Microgrids aims to bring together key players from industry and research to explore these cutting-edge technologies and catalyze innovation in these vital areas.

During four days, the knowledge acquired by the speakers through their academic and industrial research projects in the field of electrochemical and hydrogen energy storage will be transmitted through seminars, courses, tutorials, and practical demonstrations. The aim is to deepen participants' knowledge by providing them with advanced training focused on the applications of electrochemical storage and

hydrogen in the field of mobility and energy microgrids. Attendees will have the opportunity to explore the latest technological advances, best practices, and relevant case studies in these ever-evolving fields. An interdisciplinary approach will be implemented by bringing together experts from various fields such as chemistry, physics, electrical engineering, thermal engineering, and control. This diversity of expertise will foster a holistic understanding of the challenges and opportunities related to electrochemical and hydrogen storage for mobility and microgrids. The summer school also aims to facilitate the sharing of experiences and best practices between participants, researchers and industrialists through presentations and interactive discussions. These stimulating exchanges will encourage the emergence of collaborations and innovative research projects in the field. This will provide PhD students, engineering, and master's students as well as young professionals with the opportunity to develop their professional network by interacting with academic and industry experts.

Program

Day 1 08/07/2024		Day 2 09/07/2024		Day 3 10/07/2024		Day 4 11/07/2024	
Panel Session 1		Panel Session 2		Courses Session 3		Courses Session 4	
08:00	Reception and Registration	08:15	Reception	08:00	Course 3 - Electrochemical storage (Dr. Issam Salhi, UTBM)	08:00	Course 4 - HIL for energy storage (Prof. David Bouquain & Dr. Youcef Ait-Amirat, UFC)
08:45	Opening session	08:30	Conf 4 - Academic: SoX Battery diagnostics & prognostics (Prof. Mohamed Benbouzid, UBO)	09:30	Coffee - Break	09:30	Coffee - Break
09:00	Conf 1 - Industrial: Electrochemical storage (Dr. Romain Tabusse, SWOOP ENERGY) Hydrogen storage (Mr Emmanuel Bouteleux, MINCATEC)	09:30	Conf 5 - Academic : ENERGETICS European project - AI based to improve Energy Storage (Dr. Tedjani Mesbahi, INSA Strasbourg & Dr. Daniela Chrenko, UTBM)	09:45	Training Course 3	09:45	Training Course 4
09:45	Conf 2 - Academic: Activities within TNO, focus on Hydrogen - ICE (Mr. Thomas Dankers, TNO, Netherlands)	10:30	Coffee - Break	11:15	Plenary Course 1 Thermal Solar Energy Storage and Heat exchange (Prof. Mounir Aksas, ER ² SD)	11:15	Plenary Course 2 HYD-DRIVE - A World's first hydrogen-powered semi-trailer (Prof. Abdeslem Djerdir & Dr. Nadhir Lebaal, UTBM)
10:45	Coffee - Break	10:45	Conf 6 - Industrial: Energy management of Fuel Cells Supplied by Solid Hydrogen Tank For Autonomy Prolongation and Electricity Generation (Dr. Ramzi Saidi, MINCATEC)	12:15	Lunch	12:15	Lunch
11:00	Conf 3 - Academic: Materials for Batteries (Prof. Ismael Saadoune, UM6P)	12:00	Conf 7 - Academic: Mechanical behaviour and damage of materials for low and high pressure hydrogen tanks (Dr. Anne Maynadier, UFC)	14:00	Cultural program	14:00	Visits of platforms UTBM & UFC
12:15	Lunch	12:30	Lunch	15:30	Coffee - Break	15:30	Coffee - Break
Courses Session 1		Courses Session 2		Half Day Break		Half Day Break	
14:00	Courses 1 - H2 storage (Dr. Djafar Chabane, UTBM & Dr. Santiago Suarez, LAPLACE)	14:00	Courses 2 - Impedence spectrometry (Dr. Elodie Pahon, UTBM)	14:00	Courses 2 - Impedence spectrometry (Dr. Elodie Pahon, UTBM)	14:00	Courses 1 - H2 storage (Dr. Djafar Chabane, UTBM & Dr. Santiago Suarez, LAPLACE)
15:30	Coffee - Break	15:30	Coffee - Break	15:45	Training of Course 2	15:45	Training of Course 1
15:45	Training of Course 1	15:45	Training of Course 2	17:15	End day 1	17:15	End day 2
17:15	End day 1	17:15	End day 2	20:00	Gala Dinner	20:00	End of Summer School