



The energy system faces big challenges in the future. The CO₂ footprint of fossil primary energy, and its impact on climate, along with the risks (and costs) of nuclear power supply forbid the business as usual options if the Paris climate targets and the social decline of the (nuclear) risks are respected.

On the contrary, a significant increase in efficiency and the installation of renewable power supplies is required to a large extend. In the EU (28) about 16 000 TWh/a (32MWh/person/a) of site energy need to be replaced/saved by 2050. Since todays fossil and nuclear systems are operated in a demand driven mode (variable demand), the system can handle only a limited share of fluctuations caused by the supply characteristics of wind and solar power. In order to meet the variable demand with the fluctuating supply, the energy system needs to be highly flexible in the temporal- and spatial dimension. Reinforced electrical grids, energy storage and the coupling of sectors, in combination with the additional capacity of renewable power supply from a climate-friendly and nuclear-free future energy system.

This summer school offers the cutting-edge know-how on energy storage technology from the fundamentals to the applications. Each day is dedicated to a particular field of technology. A comprehensive overview on battery, heat storage, hydrogen, life cycle- and socio economic aspects as well as “electricity to chemicals” technologies will be provided by experts in the field (not complete):

Prof. Dr. Maksym Kovalenko (ETZH/Empa), Dr. Corsin Battaglia (Empa), Prof. Dr. Petr Novak (PSI/ETHZ), Prof. Dr. Axel Fuerst (BFH); Dr. Andreas Haselbacher (ETHZ), Prof. Sophia Haussener (EPFL); Prof. Dr. Andreas Züttel(EPFL/Empa), Prof. Dr. Hubert Girault (EPFL), Prof. Dr. Gabor Laurenczy (EPFL), Prof. Dr. Kevin Sivula (EPFL), Prof. Dr. Christophe Copéret (ETHZ), Dr. Peter Broekmann (Uni Bern), Prof. Thomas J. Schmidt (PSI), Prof. Dr. Jörg Worlitschek (HSLU) Dr. David Parra (Uni Genf), Prof. Dr. Markus Friedl....

The event is limited to 30 participants with natural science or engineering background at a level of PhD students, or Post-docs from Universities and for Scientific Assistants of Universities of Applied Science.

The days start with the introduction to the scope and scale of the problem, the fundamentals of each technology in focus, show todays applications and prototype systems, and finally end with a Workshop (see the program).

	30.6	1.7.	2.7.	3.7.	4.7.	5.7.
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	Arrival	Batteries	Heat Storage	Hydrogen	Assessment and Life Cycle Analysis	Synthetic Fuels
08:30		Scope & Context		Production	Scope & Context	
10:00		Coffee Break				
10:30		Fundamentals	Storage	Models	Fundamentals	
12:00		Lunch				
13:00		Application		Scenarios	Application	
14:30		Coffee Break				
15:00		Arrival		Workshop		
16:30		Registration	End of the day/ break, free time			
17:30	Plenary talk on energy transition					
18:30	Dinner					

The school takes place in the scenic surrounding of the Bernese Oberland and high above Lake Thun. The admission fee (not more than 600 CHF) covers accommodation, meals and printouts for the entire week.