

SCCER SoE Annual Conference 2018

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Hydropower and Geo-Energy in Switzerland: Challenges and Perspectives

13 & 14 September 2018

Horw (LU), Lucerne University of Applied Sciences and Arts



The SCCER-SoE Annual Conference 2018 presents insights into our research highlights, puts a strong emphasis on the project posters, and offers many opportunities for personal exchange. At this year's conference we introduce parallel sessions and two new formats: poster pitches as well as knowledge and technology transfer talks for hydropower and geo-energy stakeholders.

On Thursday, the current state of work in the different work packages in the field of hydro-power and geo-energy is given with presentations and poster pitches. Afterwards, three parallel sessions will be dedicated to (i) the knowledge and technology transfer in hydropower, (ii) geo-energy and (iii) innovation and future supply of electricity.

On Friday, we will focus on the highlights of the hydropower and geo-energy research as well as on the pilot and demonstration projects, which characterize the second phase of the SCCER-SoE implementation.

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Thursday, 13 September 2018

9:00 Registration and coffee

10:00 Session 1: SCCER-SoE Overview Presentations followed by poster pitches

Chair: Ueli Wieland, SCCER-SoE

- 10:00 Welcome
- 10:10 SCCER-SoE moving forward (Domenico Giardini, ETHZ)
- 10:20 Highlights of the geo-energy activities (Lyesse Laloui, EPFL)
- 10:45 Research and innovation in the hydropower domain (Robert Boes, ETHZ)
- 11:10 Innovation Agenda (Cécile Münch-Alligné, HES-SO and Rolf Krause, USI)
- 11:35 Future supply of electricity - highlights, impacts and outlook (Peter Burgherr, PSI)

12:00 Lunch and poster session

14:00 Session 2a: Meeting with industry – New storage lakes in the Alps after glacier retreat: Potential and challenges
Chair: Robert Boes, ETHZ

The talks of this session will be held in German or French and will simultaneously be translated into the other language.

- 14:00 Recherche et innovation dans les infrastructures hydroélectriques périglaciaires (Pedro Manso, EPFL)
- 14:10 Einfluss des Klimawandels auf die Wasserkraftproduktion: Wie ist es in den Wintermonaten? (Manfred Stähli, WSL)
- 14:30 Gletscherbett- und Eisdickenbestimmung in den Schweizer Alpen (Melchior Grab, ETHZ)
- 14:55 Einfluss des Klimawandels auf die Stauraumverlandung in vergletscherten Einzugsgebieten (Daniel Ehrbar, ETHZ)
- 15:20 Wasserkraftpotenzial in den vergletscherten Schweizer Alpen (Robert Boes, ETHZ)
- 15:45 **Coffee and poster session**
- 16:15 Rückzug des Triftgletschers - Chance für einen neuen Speichersee (Benno Schwegler, KWO)
- 16:30 Le projet „Oberaletsch“ (Gaël Micoulet, Alpiq)
- 16:45 Discussion: Further examples are welcome. Please send your suggestions to Ueli Wieland.

Session 2b: Meeting with industry – Innovation in geothermal energy projects
Chair: Lyesse Laloui, EPFL

Agenda will follow.

Session 2c: Highlights from innovation and future supply of electricity
Chair: Peter Burgherr, PSI and Cécile Münch-Alligné, HES-SO

- 14:00 The Nov. 2017 Pohang (South Korea) earthquake of magnitude 5.5: An anthropogenic event with implications for Switzerland? (Stefan Wiemer, ETHZ)
- 14:15 Key factors of future wholesale electricity prices in Switzerland (Martin Densing, PSI)
- 14:30 European policy scenarios of relevance for the Swiss energy transition (tbd)
- 14:45 Swiss electricity mix 2035: bridging energy modelling and public references (Evelina Trutnevyte, UniGe)
- 15:00 Scenarios for the Swiss energy system 2050 (Gianfranco Guidati, SCCER-SoE)
- 15:15 First results from the „Joint activity integrated development processes“ (Olivier Ejderyan, ETHZ)
- 15:30 **Coffee and poster session**
- 16:00 Are hydraulic pressure vessels subject to fatigue and crack propagation? (Samuel Rey-Mermet, HES-SO)
- 16:15 Recent advances in numerical predictions for off-design conditions in hydraulic turbomachines? (David Roos-Launchbury, HSLU)
- 16:30 Towards multi-scale numerical simulations of Pelton turbine hydraulic abrasion (Sebastián Leguizamon, EPFL)
- 16:45 Multi-physics and multi-scale simulations for hydropower and geo-energy (Patrick Zulian, USI)

17:00 Aperitif and poster session

18:15 Dinner

Friday, 14 September 2018

8:00	Registration and coffee	
9:00	Session 3a: Hydropower Chair: Robert Boes, ETHZ	Session 3b: Geo-energy Chair: Lyesse Laloui, EPFL
9:00	The worldwide hydropower potential of periglacial environments (Vanessa Round, WSL and Daniel Farinotti, WSL)	9:00 Characterization of fractured rocks based on seismic measurements and geophysical borehole logs (Klaus Holliger, UNIL)
9:15	Measuring and modeling subglacial sediment transport in the Swiss Alps (Ian Delaney, ETHZ)	9:15 Numerical models for the design of hydraulic stimulation (Brice Lecampion, EPFL)
9:30	Orifices as throttle for surge tank adaptations during a refurbishment by increase of installed capacity (Nicolas Adam, EPFL)	9:30 SCCER international collaboration - the example of supercritical geothermal resources in Iceland (Thomas Driesner, ETHZ)
9:45	Bottom outlet hydraulics (Benjamin Hohermuth, ETHZ)	9:45 Mechanical response of Opalinus clay during CO ₂ injection (Alberto Minardi, EPFL)
10:00	Venting of turbidity currents against reservoir sedimentation (Sabine Chamoun, EPFL)	10:00 Thermo-hydraulic well testing for characterization and management of heat storage projects (Reza Sohrabi, UniNE and Benoît Valley, UniNE)
10:15	Linking biological and hydro-morphological river characteristics as means to assess and mitigate impacts on hydropower operation (Severin Stähly, EPFL)	10:15 Reservoir stimulation's effect on depletion-induced seismicity (Barnaby Fryer, EPFL)
10:30	Coffee and poster session	10:30 Coffee and poster session
11:00	Riverbed and surface composition adjustments in a gravel-bed river subject to repeated sediment bypass tunnel operations (Annunziato Siviglia, ETHZ)	11:00 How does 3D displacement data from a fault reactivation experiment improve the estimation of the in-situ stress? (Maria Kakurina, UniNE)
11:15	Small-scale hydropower plants in Alpine streams - studying ecological effects across different scales (Christine Weber, Eawag)	11:15 On the anisotropy of mechanical properties in Grimsel granite (Nejati Morteza, ETHZ)
11:30	Multiobjective optimal operation of Alpine hydropower systems (Daniela Anghileri, ETHZ)	11:30 Fracture growth and comparison to analytical solution for an in-situ hydraulic fracturing experiment (Nathan Dutler, UniNE)
11:45	Simulation of high-resolution gridded climate variables for present and future climates (Nadav Peleg, ETHZ)	11:45 Complex interplay between hydraulic shearing and hydraulic fracturing observed during in-situ stimulations (Hannes Krietsch, ETHZ)
12:00	Lunch and poster session	
14:00	Session 4: Demonstrators Chair: Ernesto Casartelli, HSLU	
14:00	Poster award	
14:10	Grimsel In-situ Stimulation Project: What we can learn from scaled experiments (Joseph Doetsch, ETHZ) Bedretto Deep Underground Lab: Status of the implementation and planned experiments (Marian Hertrich, ETHZ)	
14:35	Reservoir engineering for a heat exchanger in Haute Sorne (tbd)	
14:45	Exploration of the Geneva Basin for geothermal resources: An integrated approach with classical and unconventional methods (Matteo Lupi, UniGe)	
15:00	CO ₂ sequestration: Progress in the ELEGANCY-ACT project (Alba Zappone, ETHZ)	
15:15	SmallFlex: Demonstrator for flexible small hydropower plants (Cécile Münch-Alligné, HES-SO)	
15:30	SEDMIX - using a stirring device for controlled release of fine sediments from storage reservoirs (Azin Amini, EPFL)	
15:45	Operation of a complex Alpine hydropower scheme across four decades: Inferring behaviour patterns through data science (José Pedro Matos, Stucki SA and EPFL)	
16:00	Closure (Domenico Giardini, ETHZ)	

Registration

Personal and poster registration is required until 1 September 2018 [on this website](#). Entrance is free.

Call for Posters

Academic research partners are expected to present their project on a poster. Poster registration is required until 1 September 2018 [on this website](#). All posters will be displayed on both conference days.

Formatting instructions:

- A0 size, vertical / portrait format only
- If a project is funded by the SCCER-SoE, the authors are required to use this [poster template](#).

The top three posters made by PhD students will be awarded by a committee.

Accommodation

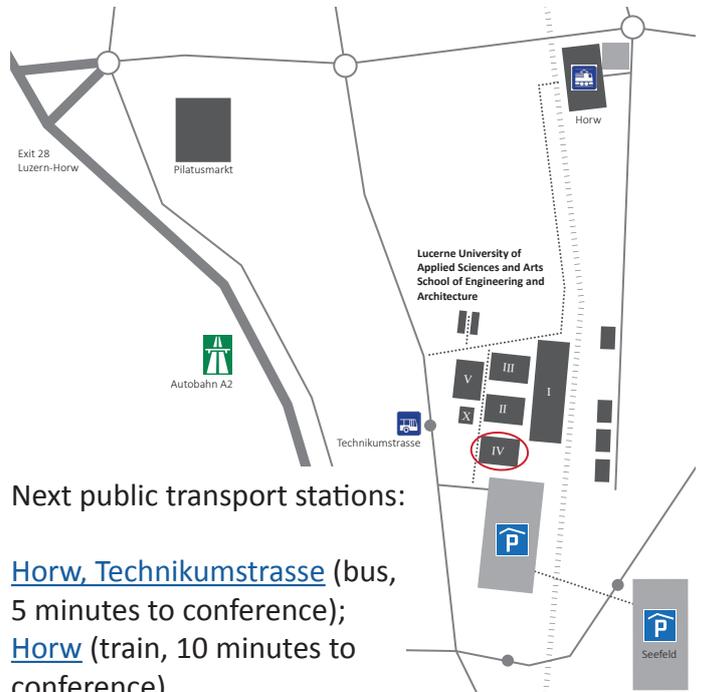
If required, accommodation needs to be arranged independently. The following hotels close to Lucerne main station offer rooms at special discounted rates on a first-come-first-served basis (single use, incl. breakfast):

- [Hotel Waldstätterhof](#), CHF 160, book on website with code: HSLU
- [AMERON Collection Hotel Flora](#), CHF 155, book by e-mail (reservation@flora-hotel.ch) with code: HSLU+
- [Hotel Astoria](#), CHF 180, book on website with code: Campus-LU
- [Hotel Cascada](#), 20% discount on daily rate, book on website with code: cascada2018
- [Continental Park Hotel](#), CHF 200, book on website with code: Campus2018
- [Radisson Blu Hotel](#), CHF 190, book by e-mail (reservations.lucerne@radissonblu.com) or phone (+41 41 369 90 01) with code: SCCER-SoE

Location

[Lucerne University of Applied Sciences and Arts](#)
[School of Engineering and Architecture](#)

Building IV
Technikumstrasse 21
6048 Horw



Next public transport stations:

[Horw, Technikumstrasse](#) (bus, 5 minutes to conference);
[Horw](#) (train, 10 minutes to conference)

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Academic Research Partners



Cooperation Partners

