SCCER – FURIES
Shaping the future Swiss electrical Infrastructure

NEWSLETTER

april - june 2020

FEATURED ARTICLE
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Attend the special SCCER-FURIES session due to be held virtually at SPEEDAM 2020!
On Wednesday 24th June 13.45

Vote now for SCCER-FURIES' start-ups!

FEATURED ARTICLE

Reinforcing international presence

While the focus of SCCERs is mainly on the energy transition in Switzerland, SCCER-FURIES' activities are becoming more and more international as their visibility beyond swiss boarders increases. This broader outreach was a necessity given of the inter-dependencies, particularly with our neighbor countries, in terms of challenges that we face and energy market-related aspects. It has further enabled the transfer of knowledge and technologies across borders along with validation of the replicability and benchmarking of the performance of our solutions.

Indeed, over the years SCCER-FURIES partners are involved in a rising number of international, mostly European, projects. Our activities' results have reached the audience globally through 656 papers, and counting, in peer-reviewed international journals and conferences.

SCCER-FURIES partners have represented the center and Switzerland in multinational forums, such as ISGAN (Prof. Korba from ZHAW and Dr. Demiray from ETHZ-FEN) and IEAs Implementing Agreements (Prof. Munkelwar from IFH-PVLAB), and bilateral events with foreign countries, such as on the Swiss-India collaboration (Prof. Favre-Perrod, HEIA-FR). This reflects the quality of research undertaken under SCCER-FURIES, confirmed by the22 patents developed in the frame of the center over the years.

This international visibility has been further enhanced, through the organization of SCCER-FURIES sessions or high representation of SCCER-FURIES activities at the most prestige events of the power electronics and power system domain. Last September, a well-attended SCCER-FURIES session was organized in the frame of the 21st European Conference on Power Electronics and Applications (EPE'19 ECCE Europe), chaired by Prof. Favre-Perrod. Follow the success of that event, another **SCCER-FURIES Session is organized at the** International Symposium on Power Electronics Electrical Drives Automation and Motion (SPEEDAM) 2020 conference due to be held virtually on Wednesday, 24 of June 2020, chaired by Prof. Carpita. Furthermore, more than **10 presentations on SCCER-FURIES** results will be given at the Power Systems Computation Conference (PSCC) conference between 29 of June and 3 of July 2020.

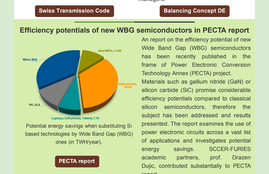
Later this year, SCCER-FURIES partner ZHAW (Prof. Korba) will organize the DynPower International Workshop on Power System Dynamics, the fourth under the umbrella of SCCER-FURIES, that will be held virtually on September 7th.

You are kindly invited to attend these international events and actively participate!

Contact SCCER-FURIES

NEWS

SwissGrid releases "Transmission Code" & "Balancing Concept"



Two key power industry documents have entered into force on 7th of May. Around 4,000 changes were made after revision, provided within collaboration of representatives of the electricity industry in Switzerland. Among others, SCCER-FURIES strategic partners were involved in the process, namely Aepo, Alpiq, BKW, ewz under the leading role of SwissGrid. International and national coordination is becoming increasingly important due to the integration of national markets into the EU internal market and the increasing decentralisation of power generation.

The **Transmission Code (TC)** defines the technical principles and requirements for grid connection to the TS, operation and use of the TS and the rules of the various players, recognized as the national grid code. System operators and owners that are connected directly to the TS, market players and also certain system operators that are connected to the distribution system (DS). Whereby the "**Balancing Concept**" describes how the power market and balance group management work in Switzerland, in particular the interface between Swissgrid and the balance group managers.

Swiss Transmission Code **Balancing Concept DE**

Efficiency potentials of new WBG semiconductors in PECTA report

An report on the efficiency potential of new Wide Band Gap (WBG) semiconductors has been recently published in the frame of Power Electronic Conversion Technology Annex (PECTA) project. Materials such as gallium nitride (GaN) or silicon carbide (SiC) promise considerable efficiency potentials compared to classical silicon semiconductors, therefore the subject has been addressed and results presented. The report examines the use of power electronic circuits across a vast list of applications and investigates potential energy savings. SCCER-FURIES academic partners, prof. Drazen Dujic, contributed substantially to PECTA report.

Potential energy savings when substituting Si based technologies by Wide Band Gap (WBG) ones (in TWh/year).

PECTA report

GridSteer – Lab to the Market highlight of SNSF report

When moving from laboratory towards market, the scientific basis has to be augmented by entrepreneurial action. The way how to transfer research results to the economy and society, is well known to Jagdish Achara and the team of GridSteer as well as Prof. Jean Yves Le Boudec and Prof. Mario Paolone.

Solution provided by the EPFL's spin-off combines software and hardware in intelligent systems to regulate electricity flow in regional distribution grids, Technology, carried out as part of the SNSF's National Research Programme "Energy Turnaround" (NRP 70) was recognized as one of 3 lab-to-the-market highlights in the annual report "Profile 2019-2020". As we learned from the document at year-end 2019, 5,750 SNSF-funded projects were under way.

GridSteer website **Profile 2019-2020**

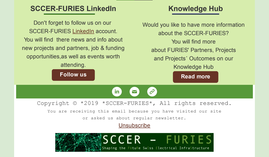
SUPSI & Hive Power released MBTR package

Within the framework of SCCER-FURIES, as part of SUPSI lab activities and collaboration with the Hive Power, a Multivariate Boosted Tree Regressor (MBTR) has been developed by Lorenzo Nespoli and Vasco Medici. Released in May, this python package, trained in parameter space, can handle arbitrary multivariate losses, as long as their gradient and Hessian are known.

In the accompanied paper researchers show that multivariate trees can outperform their univariate counterpart when the predictions are multivariate. Moreover, the algorithm allows to arbitrarily regularize the predictions, so that properties like smoothness, consistency and functional relations can be enforced. Always pleased to support SCCER-FURIES academic partners work, our sincere congratulations go to the team on the occasion of this achievement!

Read paper on MBTR **Contact Lab**

Urbio planning sustainable cities with interactive optimization



Stemming from research in the FURIES project, Urbio was incorporated in January 2020 in Sion, next to the Energypolis campus where it originated. The EPFL-spinoff has started to commercialize an innovative decision support software combining human expertise with multi-objective optimization methods. Its mission is to support the key actors of the energy transition plan urban energy infrastructure faster and with significant cost and environmental gains.

Contact Urbio

SFOE's article on the EPFL-Power Electronic Laboratory

On May 20th, SFOE released an article on activities undertaken by SCCER-FURIES partner, Power Electronic Laboratory led by Prof. Dr. Drazen Dujic. The article focuses on two SFOE-supported projects of PEL (a) a three-year research project, where PEL collaborates with ABB on the use of direct current on the medium voltage networks, in particular on ensuring grid stability, even with increasing application of renewable energies.

and (b)a 4-years research project, where several SCCER-FURIES partners are involved, on the use of the hydropower plants for energy storage and provision of ancillary services. A test bench has been installed in Laboratory of Power Electronics for testing the operating behavior of the MMC under various conditions.

MVDC report **Hardware report** **SFOE article (FR)**

The switch in knowledge dissemination due to COVID-2019

As of March 16th, Swiss government decided the national-level lock-down and even the last open high education institute in Switzerland suspended its activities. Measures put into place provoked the change of how the knowledge is disseminated. For the last few months e-learning has become an integral component to information exchange between lecturers and students.

Both of them were challenged to seek for new approaches and tools of collaborating that will enable them maintaining a high-quality knowledge transfer.

Teaching methodologies that are efficient in physical classrooms were not necessary the same in the virtual ones. At the same, virtual tools could create some new opportunities by providing for instance more room for interaction among participants. With the question about the future of this hybrid model, sharing know-how is essential in order to establish best practices for e-learning.

At this occasion, **our partner Dr. Eva Schüpbach brought to our attention her book on e-learning.** The book is accessible through her ResearchGate account and we encourage to SCCER-FURIES community to have a look or more.

E-book (DE) **Contact Dr Schüpbach** **E-book (EN)**

EVENTS

Due to measures undertaken in order to constrain spread of COVID-19, most of the events in past months have been postponed. Please find below updated information and some new propositions.
SPEEDAM - SCCER-FURIES special session
24 - 26 June 2020; @ held virtually
PSCC2020 - Power Systems Computation Conference
29 June - 3 July 2020; @ held virtually
PHD Summer School Mont-Soleil
10-15 August 2020; organized by BFH & EPFL
4th International Workshop DynPower
7 September 2020; @ Caisnothealter in Winterthur
SCCER BIOSWEET Annual Conference
10 September 2020; @ Centre Général Guisan in Pully
SCCER-FURIES Annual Conference
28 October 2020; @ SwissTech Convention Center
7th SCCER Mobility Annual Conference
23 November 2020; @ ETH Zurich (ML E-floor)

For more and up to date information, please follow us on our LinkedIn page.

OPPORTUNITIES

FUNDING

ERA-Net Call for expression an interest - Living labs and testbeds for energy
Deadline: 30.06.2020
(SNSF) Practice-to-Science
Deadline: 15.07.2020
Innosuisse R&D - E4E
Deadline: 30.07.2020
(SFOE) SWEET - SWIss Energy research for the Energy Transition
Deadline: first call in summer 2020
(SNSF) Call for PRIMA grants (women researchers)
Deadline: 1.11.2020
(Innosuisse) Flagship projects
Deadline: to be defined in 2020

CAREER

Researcher (w/m) in intelligent energy systems team
@SUPSI

PhD Position - Engineering the Policy-Enabled Transition to Sustainable Multi-Energy Microgrids
@ETHZ

Project Researcher Specialist
@USI

System Engineer Traction (80-100%)
@ABB

STAY IN TOUCH

SCCER-FURIES LinkedIn

Don't forget to follow us on our SCCER-FURIES LinkedIn account. You will find there news and info about new projects and partners, job & funding opportunities as well as events worth attending.

Follow us

Knowledge Hub

Would you like to have more information about the SCCER-FURIES?
You will find more about FURIES' Partners, Projects and Projects' Outcomes on our Knowledge Hub.

Read more

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