

Dear Reader

We are pleased to present you the latest SCCER Mobility news. This issue communicates major advancements and events of our research platform. Enjoy reading!

Dr. Gloria Romera, Co-Managing Director SCCER Mobility

Management Office News

CTI site visit 29 October

Last October, the CTI Evaluation Panel came to ETH Zurich for a second site visit evaluation of SCCER Mobility. The Panel's overall feedback was generally very positive with some recommendations for the second phase (2017-2020): contribution to federal energy strategy 2050, clearly focus on the expected impact of each research activity and strengthening of social-economic research capacities. Detailed definitive recommendations and requirements will be communicated next January after the SCCER Steering Committee meeting. The Management Office would like to thank all SCCER Mobility Research Groups for their contribution to this year's evaluation procedure.

SCCER Mobility 2017-2020 – proposal preparation gaining momentum

CTI will publish a formal call for application for phase II of the SCCER program (2017-2020) next February 1, 2016. The deadline for submission of the proposal is end of March, but we will need a first draft proposal in early February to be submitted to the SCCER Mobility Board for approval. The Management Office is looking forward to an efficient preparation of the research plans for the next phase. Contact your Capacity Area coordinator in case of doubts about the proposal preparation process.

MAS "Mobilität der Zukunft" approved by ETHZ Department MAVT!

We are very pleased to announce that the MAS Future Mobility (officially: *Mobilität der Zukunft*) has been approved by the Mechanical and Process Engineering department of the ETH Zurich. In January 2016, we are going to apply for the final approval from the ETH Executive Board. The interdisciplinary and modular-designed MAS consists of 3 smaller Certificates of Advanced Studies (CAS) with the focus areas System Aspects, Potentials of Technology and New Business Models. The target groups of the new MAS and CAS are professionals with MSc degree and a minimum of 2 years of professional experience in the field of mobility, transportation or related fields. The start is planned for February 2017 with application from summer 2016. *Stay tuned for further information on our [website](#) from spring 2016.*

Highlights

GAS ON started

A European consortium with 4 car manufacturers and 20 industrial and academic partners funded by EU H2020 has joined forces towards developing dedicated gas-only internal combustion engine processes. → [GasOn](#)

Swiss and European Solar Prizes for E-digger team

In addition to the Swiss Solar Prize 2015, the E-digger team has received the European Solar Prize 2015. Prof. Max Stöck of NTB, active in CA A1, has contributed together with students to the production of the battery systems. He comments: *"Only as a team could we be as successful."* → [e-digger](#)

GoEco! project – registration to participate at living lab open until 20 December 2015

For a few months the *GoEco!* smartphone application will track the movements of participants in the canton of Ticino and in the city of Zurich and use "gamification" elements to encourage them to make sustainable mobility choices. You can find all the details under www.goeco-project.ch. The full application form is available at the [Get involved section](#). Please share the *GoEco!* campaign with family and friends!

Please visit the SCCER Mobility web page for more [highlights](#) from our partners.

Upcoming Events

SCCER Summer School: "Energy Storage in Batteries: Materials, Systems, and Manufacturing"

From 11 to 15 July 2016, the first SCCER Summer School organized by [SCCER HaE](#) and [SCCER Mobility](#) will take place in [Möschberg](#) in the beautiful Emmental valley, Switzerland. With 14 academic and industrial speakers from Switzerland and Germany, the summer school shall provide a compact and interdisciplinary overview of major aspects of the lithium-ion battery research. The program is tailored for advanced students (Master, PhD) and trained professionals. For further information visit our Summer School [website](#). A formal call for application will be issued in February 2016. If you wish to stay informed, please enlist [here](#).

SCCER Mobility at novatlantis Bauforum

The SCCER Mobility members Stefanie Hellweg and Joachim Huber will present their work within the framework of SCCER Mobility at the novatlantis Bauforum event. → [Bauen und Mobilität](#)

Recent Events

SCCER Dialogue on energy storage on locomotives and the railway system

On 1 October, important representatives of the Swiss railway companies, related governmental institutions and researchers from SCCER Mobility met to exchange on research issues that are currently addressed, or need to be addressed in the future with regard to battery applications on the railway system. Several short input presentations provided an overview of the relevant points addressed at the different companies or academic institutions. A lively and open discussion followed the presentations. Read more about the event and the main lessons learned on our webpage. → [Dialogue](#)

SCCER Mobility Annual Conference 2015

On 26 and 27 August 2015, the 2nd SCCER Mobility Annual Conference took place at the ETH Zurich with more than 120 participants from academia and industry. The presentations, posters and some pictures of the event can be reviewed at our webpage. → [Annual Conference](#)

New website rubric: SCCER interviews

SCCER interviews is a series of interviews of SCCER's members aiming at increasing the visibility of the female scientist active within the energy field and encouraging young scientists to pursue an academic

carrier. It is a joint activity of all 8 SCCERs. Please check out our first interview of this series with **Prof. Bettina Furrer**, Professor for Sustainability and Technology at ZHAW and Deputy Head of SCCER CREST. → [Interview](#)

SCCERs

SCCER SoE: The SCCER SoE project “Ice volume of the glaciers in the Swiss Alps” is ready to start a systematic survey of the glaciers during the next three winter seasons, featuring a newly developed helicopter ice penetrating radar system. Check out the impressive [images](#). You can find further updates from the SoE colleagues at their current [newsletter issue](#).

SCCER FEEB&D: The holistic Urban Energy Simulation (HUES) platform has been successfully launched in June 2015. This platform represents a simulation environment for the study of urban multi-energy systems and consists of a growing array of modules and datasets that may be linked in different ways to address different problems in the domain of urban energy systems. All SCCERs are kindly invited to contribute to the HUES platform. Detailed information is available online at hues.empa.ch.

SCCER-FURIES: The SCCER-FURIES annual conference was held on 25 November 2015 in Lausanne with around 180 participants. Please check the SCCER-Furies [webpage](#) for detailed information about the program, the presentations and the winners of the Best Poster Award 2015. A compendium of the activities of this SCCER can be found [here](#).

SCCER-FURIES and SCCER Mobility management offices have sponsored the participation of 6 female scientists to the workshop on negotiation and leadership for women. This one-day workshop, which has been organized in collaboration with NCCERs and the equal opportunity office of EPFL, has helped attendees with negotiation and leadership challenges of their daily life.

SCCER Mobility Glossary

This section is intended to widen the common ground between all SCCER Mobility partners and to clarify the particularities of the SCCER program. We will try to feature particular terminology from the different disciplines within the program. Contributions from our members are welcome. To make suggestions for this section, please contact the Management Office.

A **lithium-ion battery** is a rechargeable battery in which lithium ions move from the negative electrode to the positive electrode during charge and back when discharging. Due to their relatively high energy density and high durability compared with other rechargeable battery technologies, lithium-ion batteries are commonly found in portable devices such as cell phones and laptops. In the last decades, lithium-ion batteries have been used as main power supply in hybrid and full electric vehicles. The demand in this sector appears to increase exponentially.

A **battery management system (BMS)** is an electronic device that manages and monitors rechargeable batteries such as lithium-ion batteries in hybrid and full electric vehicles and portable electronic devices (mobile phones, laptops, etc.). The main function of the BMS is to guarantee a reliable operation of the battery by preventing it from operating outside its safe operating area. This is done by constantly monitoring the following characteristic parameters: electric current, voltage and temperature on specific locations inside the battery system.

The most important functionalities of BMS are: **cell-balancing** (or guarantee of equal charge quantity among different cells), **state-of-charge** (SOC) estimation (how long can I still drive, should the battery be charged?) and **state-of-health** (SOH) estimation (how long will the battery last?)

The BMS may use in-built mathematical algorithms for accurate SOC and SOH estimation. Reporting of all of the above data is usually done using wireless or serial communication links to an external device (e.g. control panel in a vehicle).

Quiz

How many research groups are part of SCCER Mobility? The first person to send the correct answer to fiorella.meyer@sccer.ethz.ch will be the winner (e-mail subject: QUIZ).

The SCCER Mobility Management Office wishes you a joyous holiday season and a happy new year!



This information is provided by the Management Office of SCCER Mobility. Our newsletter is issued 2-3 times a year. If you have information you would like to share, please contact [Gloria Romera](#). You do not wish to receive our newsletter in the future? [Unsubscribe](#) here.

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