Inaugural Event for “Excellent“ Energy Research

Official Opening of the CELEST Research Platform and POLiS Battery Cluster of Excellence

Launch of the Center for Electrochemical Energy Storage Ulm & Karlsruhe (CELEST), one of the biggest German research and development platforms in the area of electrochemical energy storage. Together with guests from politics, research, and industry, KIT, Ulm University, and the Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) celebrated the opening of the joint research platform and its first outstanding success: approval of the Cluster of Excellence on Post Lithium Storage (POLiS) within the Excellence Strategy launched by the federal and state governments.

Germany's largest electrochemical energy research platform was officially launched today, Tuesday, March 26: At the Center for Electrochemical Energy Storage Ulm & Karlsruhe (CELEST), researchers from various disciplines are developing high-performance and environmentally friendly energy storage systems – which are urgently needed for a successful energy revolution and climate-friendly electric mobility. The platform was co-founded by the Karlsruhe Institute of Technology (KIT), Ulm University, and the Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW). State Secretary of the Federal Ministry of Education and Research (BMBF), Christian Luft, and Ministerial Director of the Ministry of Science, Research and the Arts Baden-Württemberg, Ulrich Steinbach, attended the inauguration ceremony at the Helmholtz Institute Ulm to honor the platform's first outstanding success: In the highly competitive Excellence Strategy of the federal and state governments the partners acquired Germany's only Cluster of Excellence in battery research. The multi-location Cluster of Excellence Post Lithium Storage (POLiS) receives funding of about 50 million euros for the next seven years.

State Secretary Christian Luft gave a welcoming speech at the opening ceremony where he emphasized the great importance of battery research in tackling current social challenges: 'Efficient energy storage systems are the key to securing future energy supply and mobility. In order to achieve this, we need new and cost-effective battery concepts that store more electricity, charge quickly, and are safe. I

KIT Energy Center: Having future in mind

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am delighted that CELEST and the Cluster of Excellence POLiS are contributing to this important task and the BMBF's umbrella concept of a "Battery Research Factory" with their foundational work.'

Ministerial Director Ulrich Steinbach of the Ministry of Science, Research and the Arts Baden-Württemberg added: 'The state government of Baden-Württemberg recognized the strategic importance of battery technologies early on and supported them accordingly. The acquisition of the POLiS cluster, the activities in the FET Flagship Battery 2030+, and many other university projects in Baden-Württemberg demonstrate our strength in battery research. We have reserved further funding for this research field in the state budget. In this way, we will bring excellent research and industrial application even closer together.'

The inauguration ceremony for CELEST and POLiS was held at the Helmholtz Institute in Ulm (HIU): The HIU's inception in 2011 marked the beginning of the successful battery research collaboration between KIT, Ulm University, and ZSW. The CELEST research platform pools the competencies of 29 institutes and 45 working groups, embracing the entire chain from basic research to practical development and battery production. The platform's research foci 'lithium-ion technology,' 'energy storage beyond lithium,' and 'alternative technologies for electrochemical energy storage' cover all research topics relevant to electrochemical energy storage. Alongside with industrial collaborations and technology transfer, CELEST aims to promote young scientists and thus also offers a graduate school.

The founding partners KIT, Ulm University, and ZSW have traditionally been strong in battery research. The official launch of the CELEST research platform and the POLiS Cluster of Excellence is the next big step on the path to novel energy storage systems. 'The launch of CELEST marks a milestone in energy research and paves the way for the Battery 2030+European research initiative, where we strive to play a leading and internationally visible role in developing the technology for next-generation batteries together with research institutions from all over Europe. Energy research is a key focus at KIT. We are excited to combine our strengths and competencies with those of our partners in the best possible way with this new platform and our joint Cluster of Excellence,' said Professor Holger Hanselka, President of the Karlsruhe Institute of Technology.

His counterpart Professor Michael Weber, President of Ulm University, also views the new platform as an excellent addition to the research environment of the Science City Ulm: 'Basic electrochemical

research has been a tradition at Ulm University since the 1980s. Today, the University, the Helmholtz Institute Ulm, and the ZSW cover the entire development chain of battery research in the Science City Ulm. These activities lead to the CELEST research platform, which was co-founded with the KIT and realized the outstanding achievement of acquiring the Cluster of Excellence,' said Professor Weber. Within the POLiS Cluster of Excellence scientists in Ulm and Karlsruhe are conducting research into novel, powerful, and sustainable battery technologies. Unlike many batteries that power laptops, smartphones or electric cars today, these future energy storage devices are designed to work without the use of the finite elements lithium and cobalt.

The Center for Solar Energy and Hydrogen Research Baden-Württemberg builds the main bridge to practical application: 'Our contribution to the activities of CELEST and POLiS are 30 years of experience in applied battery research plus Europe's biggest research platform for the industrial production of large lithium-ion cells,' explained Dr. Margret Wohlfahrt-Mehrens, who heads the Electrochemical Energies Technologies Division of the ZSW and the POLiS research unit.

At the opening ceremony, researchers from Karlsruhe and Ulm provided insights into their scientific work and presented their new battery research platform and Cluster of Excellence: 'The sites in Ulm and Karlsruhe cover the entire spectrum of battery research – from experimental basic research of atomic-scale elementary processes to multiscale modeling of relevant processes and the development of new storage materials and laboratory cells. CELEST bundles this expertise that goes all the way to near-series production of large battery cells at the ZSW', explained Professor Maximilian Fichtner, director of the new platform and spokesman of the POLiS Cluster of Excellence. 'The CELEST initiative makes us one of the world's largest players in battery research. CELEST has already started to radiate its appeal – substantiated by its success in the Excellence Strategy as well as numerous industry requests for collaboration,' the deputy director of the HIU continued.

After the celebration, more than 100 guests had the opportunity to experience battery research first hand: The laboratories of the Helmholtz Institute Ulm and the ZSW Laboratory for Battery Technology (eLaB) opened their doors and offered guided tours.

Photos of the event are available after 3 p.m. at:
https://kurzlink.de/celest

About the Helmholtz Institute Ulm

The Helmholtz Institute Ulm (HIU) was founded in January 2011 by the Karlsruhe Institute of Technology (KIT) as a member of the Helmholtz Association in cooperation with Ulm University. With the German Aerospace Center (DLR) and the Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), two other distinguished institutions are involved in the HIU as associated partners. The HIU's team of over 120 scientists from around the world is laying the groundwork for sustainable stationary and mobile energy storage.

About Ulm University

Ulm University, the youngest university in Baden-Württemberg, was founded in 1967 as a higher education institution for medicine and natural sciences. The subject spectrum has been expanded considerably since then. The currently more than 10,000 students are spread across four Faculties ('Medicine', 'Natural Sciences', 'Mathematics and Economics', and 'Engineering, Computer Sciences and Psychology'). Ulm University is the centre of and driving force behind the Science City of Ulm, a dynamically growing research environment including hospitals, technology companies and other institutions. The University's research foci comprise life sciences and medicine, bio-, nano- and energy materials, financial services and their mathematical methods, as well as information, communication and quantum technologies.

About the ZSW

The Center for Solar Energy and Hydrogen Research (ZSW) is one of the leading institutes for applied research in the fields of photovoltaics, batteries, fuel cells, regenerative fuels and energy system analysis. The three ZSW sites in Stuttgart, Ulm, and Widderstall currently employ over 260 scientists, engineers, and technicians, as well as 90 research and student assistants. The ZSW is a member of the Innovation Alliance Baden-Württemberg (innBW), an association of 13 non-university, business-oriented research institutes. More information: www.zsw-bw.de

More about the KIT Energy Center: http://www.energy.kit.edu

Being „The Research University in the Helmholtz-Association“, KIT creates and imparts knowledge for the society and the environment. It is the objective to make significant contributions to the global challenges in the fields of energy, mobility and information. For this, about 9,300 employees cooperate in a broad range of disciplines in natural sciences, engineering sciences, economics, and the humanities and social sciences. KIT prepares its 25,100 students for responsible tasks in society, industry, and science by offering research-based study programs. Innovation efforts at KIT build a bridge between important scientific findings and their application for the benefit of society, economic prosperity, and the preservation of our natural basis of life.

This press release is available on the internet at www.kit.edu.

The photo in the best quality available to us may be downloaded under www.kit.edu or requested by mail to presse@kit.edu or phone +49 721 608-21105. The photo may be used in the context given above exclusively.

This **year's anniversary** logo recalls the milestones reached by KIT and its long tradition in research, teaching, and innovation. On October 1, 2009, KIT was established by the merger of its two predecessor institutions: the Polytechnic School and later University of Karlsruhe was founded in 1825, the Nuclear Reactor Construction and Operation Company and later Karlsruhe Research Center in 1956.