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Press and Public Relations
Annika Bingmann
Head of Office

Helmholtzstrasse 16
89081 Ulm, Germany

Phone: +49 731 50-22121
Fax: +49 731 50-12-22020
pressestelle@uni-ulm.de
http://www.uni-ulm.de/en/

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Festive launch of 'excellent' energy research
Research platform CELEST and Cluster of Excellence POLiS inaugurated

Germany's largest electrochemical energy research platform was officially launched today, Tuesday, 26 March: 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 Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW). State Secretary of the Federal Ministry of Education and Research (BMBF), Christian Luft and head of the Ministry of Science, Research and the Arts Baden-Württemberg, Ulrich Steinbach, attended the inauguration ceremony at the Helmholtz Institute Ulm to honour 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 emphasised 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 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, head of the Ministry of Science, Research and the Arts Baden-Württemberg, added: 'The state government of Baden-Württemberg recognised 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. 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 research platform CELEST 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 relevant research topics with regards to electrochemical energy storage. Alongside 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 research platform CELEST and the Cluster of Excellence POLiS 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 European research initiative Battery 2030+, 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 area 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,' says 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 feed into the CELEST research platform, which was co-founded with the KIT and realised the outstanding achievement of acquiring the Cluster of Excellence,' says Professor Weber. In the Cluster of Excellence POLiS 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 Centre 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 battery research at the ZSW and the POLiS research unit.

At the launch festivities, 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

multi-scale modelling of relevant processes and the development of new storage materials and laboratory cells. CELEST bundles this expertise that goes all the way to the near-series production of large battery cells at the ZSW', explained Professor Maximilian Fichtner, director of the new platform and spokesman of the Cluster of Excellence POLiS. '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 festivities, 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.

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

Further information

Helmholtz Institute Ulm (HIU):
Daniel Messling
phone: +49 731 50 34013
daniel.messling@kit.edu

Karlsruhe Institute of Technology (KIT):
Dr. Martin Heidelberger
phone: +49 721 60821169
email: martin.heidelberger@kit.edu

Ulm University:
Annika Bingmann
phone: +49 731 50 22121
annika.bingmann@uni-ulm.de

Centre for Solar Energy and Hydrogen Research Baden-Württemberg:
Tiziana Bosa
phone: +49 731 9530 601
tiziana.bosa@zsw-bw.de

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 Centre (DLR) and the Centre 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 KIT
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 programmes. 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.

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 Centre 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