

The HEALING BAT project receives funding to develop advanced sensing, monitoring and self-healing mechanisms to enable self-healing batteries

- The project, funded by the European Union with Grant Agreement nº 101104006, will receive a total of 5.7 M€ under the umbrella of the Horizon Europe Programme.
- The HEALING BAT project will research new battery concepts based on Li-S. Its scientific achievements will lead to next-generation battery technologies in the EU that are more sustainable and competitive.
- The project's consortium gathered on 1-2 June for the kick-off meeting, hosted by the coordinator TU Dortmund at its offices in Dortmund, Germany.

Barcelona, June the 16th, 2023. The Horizon Europe project **HEALING BAT** has kicked off on 1 June in Dortmund, Germany. To investigate **next-generation battery technologies**, it has been granted 5,791,347 € from the European Commission, and the respective UK and Swiss funding agencies. In particular, the project aims to develop a new class of self-healing batteries based on lithium-sulfur (Li-S), by embedding new sensor-actuator concepts to allow for implementing self-healing concepts and materials in key battery components.

The project consortium is formed by **10 partners** from **6 different European countries**, coordinated by the Professorship for Sensors at [TU Dortmund](#) (DE). The other partners are technology innovation catalyst, [CPI](#) (UK), [Coventry University](#) (UK), [Helmholtz-Zentrum Berlin](#) (DE), [TU Delft](#) (NL), [Paul Scherrer Institute](#) (CH), [IDNEO](#) (ES), [Fundació Institut de Recerca en Energia de Catalunya](#) (ES), [FI Group](#) (PT), [SupraPolix](#) (NL).

The project celebrated its **kick-off meeting** on 1 and 2 June, hosted by the coordinator in its offices at the Technical University of Dortmund in Germany. During the event, all partners met each other, shared their technical backgrounds and presented their expected contributions to the project. To promote team building and kick-start a creative, international collaboration, the coordinator organised a visit to Dortmund's abandoned Phoenix West steel mill, which represents the rise and fall of an entire industry. The meetings ended with a coordination session, followed by a planning of the upcoming activities and deliverables.

Stefan Palzer, project coordinator at TU Dortmund, commented: "Today, the former Phoenix West area is not only a monument of industrial history but has become a symbol for seeding innovative enterprises as a corner stone in managing structural change. In this spirit, HealingBat will play its part in transforming Europe's battery industry towards a more sustainable, more competitive future role."

Within HEALING BAT, IREC will focus on the development of self-healing sulfur-based cathode materials and the *in situ* monitoring of the batteries during charging and discharging cycles. Andreu Cabot is the main researcher from IREC within this project.

The EU, aspiring to lead the sustainable batteries industry

The European Union seeks to reemerge as a world leader in the field of batteries by speeding up the development of underlying critical technologies, enabling a European battery cell



manufacturing industry to make use of sustainable energy, as well as implementing circular economy principles.

Right now, lithium-ion (Li-ion) chemistries dominate the market for rechargeable batteries, but the current generation is nearing the end of its improvement limits. Li-ion battery performance and manufacturing are unlikely to keep up improvements at a rate that is sufficient to establish a climate-neutral society without substantial breakthroughs.

Consequently, the EU is supporting innovative ideas to allow for the development of future sustainable batteries, that will demand fewer resources and create the groundwork for EU competitiveness.

HEALING BAT, to develop a new class of self-healing batteries based on novel material systems

In this context, HEALING BAT aims at developing and implementing self-healing concepts and materials in key battery components, used in conventional lithium-sulfur (Li-S) batteries, and extrapolate the designs and concepts to develop a new class of self-healing structural batteries based on Li-S.

Furthermore, the project will create a toolbox consisting of self-healing materials, relevant sensors and bespoke battery management systems, with the aim of maximising the performance of the developed Li-S battery in terms of quality, reliability and lifetime, as well as avoiding or timely healing occurring damages. The ultimate purpose of this toolbox is to control the flow of energy to and from the battery system, monitor any errors and apply corrective actions when necessary.

About Horizon Europe

With a budget of €95.5 billion for the period 2021-2027, Horizon Europe is currently the main funding programme of the European Union for research and innovation projects.

While supporting R&D&I and strengthening the European Research Area, the programme also aims to prevent climate change, contribute to achieving the United Nations' Sustainable Development Goals (ODS) and boost Europe's competitiveness and growth.

About IREC

The Catalonia Institute for Energy Research (IREC) is a public research center ascribed to the Department of Climate Action, Food and Rural Agenda of the Generalitat de Catalunya, in which the Department of Research and Universities and the Catalan Energy Institute (ICAEN) also participate. IREC is a CERCA center and accredited as a TECNIO center. Created in 2008, it aims to contribute to the sustainable development of society and to increase the competitiveness of industry in the energy sector. The center develops research of excellence in the medium and long term, innovation and the development of new technological products and the dissemination of relevant knowledge by the public.

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