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OPINCHARGE

Newsletter #6 – OPINCHARGE Final Edition: *Reinventing the Way We Invent Batteries*

Dear reader,

After 36 months of collaboration, research and innovation, the OPINCHARGE project is approaching its official conclusion.

Over the past three years, the OPINCHARGE consortium brought together experts in chemistry, physics, artificial intelligence, modelling and advanced battery analytics with one shared mission: reinventing the way we invent batteries.

Throughout the project, OPINCHARGE explored the complex interfaces inside lithium-ion batteries using cutting-edge operando and multiscale techniques. The project combined advanced characterisation methods, isotope-labelled studies, AI-supported workflows and computational modelling to better understand battery degradation, transport processes and interfacial reactions.

The knowledge generated within OPINCHARGE contributes to the development of safer, smarter and more sustainable energy storage technologies for Europe and beyond.

Thank you for following the OPINCHARGE journey

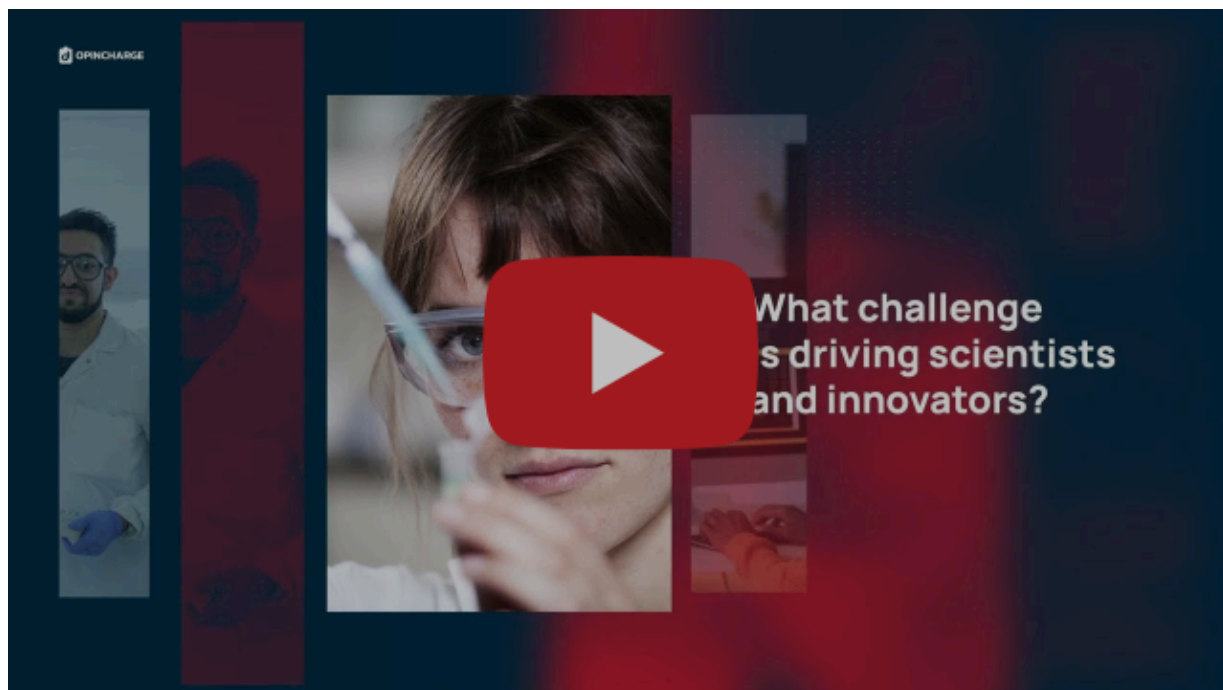
The OPINCHARGE consortium would like to sincerely thank all researchers, partners, collaborators, stakeholders and followers who supported the project over the past three years.

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impact generated by OPINCHARGE will continue beyond the project duration.

🔋 Reinventing the way we invent batteries.

The OPINCHARGE Team.

[Watch the Video](#)

OPINCHARGE in Numbers

- ⚡ 36 months of collaboration
 - ⚡ 10 consortium partners from 7 European countries
 - ⚡ 12 scientific publications
 - ⚡ Collaboration with **Battery2030+**
 - ⚡ Cooperation with 16 sister projects
 - ⚡ 5 international webinars organised together with **OPERA** and **ULTRABAT**
 - ⚡ Numerous conference participations, workshops and other activities across Europe
-

highlights

The OPINCHARGE consortium advanced the understanding of battery interfaces through complementary experimental and modelling approaches.

The project explored:

- Operando Raman spectroscopy
- X-ray scattering and spectro-electrochemical techniques
- Neutron imaging and isotope-labelled studies
- FIB-SIMS and advanced electron microscopy
- NMR and OEMS characterisation methods
- AI-supported data acquisition and adaptive sampling
- Deep-learning workflows for battery analytics
- Interface modelling and SEI growth simulations

These approaches enabled researchers to observe and analyse battery behaviour across multiple time and length scales, helping bridge nanoscale phenomena with macroscopic battery performance.



Open Science Drives Innovation

Thank you for joining our growing community of researchers, industry professionals, and battery enthusiasts.

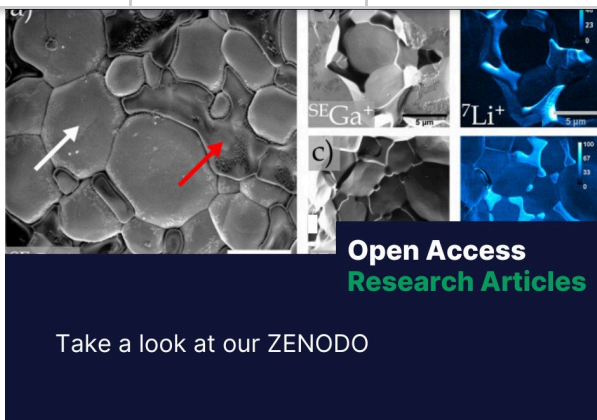
Open Science and FAIR Data Principles

Open Science remained one of the core pillars of OPINCHARGE throughout the entire project duration.

The consortium ensured full and immediate **Open Access** to scientific publications while systematically applying **FAIR Data Principles** to make research outputs findable, accessible, interoperable and re-usable.

Scientific publications, project materials and dissemination resources were continuously shared with the wider research community through the OPINCHARGE website, scientific journals, conferences and the project **ZENODO** community.

This approach strengthened collaboration, accelerated knowledge exchange and contributed to a more transparent and impactful research ecosystem.

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All project publications are openly available via our ZENODO community.

Discover the latest research and access full articles in one place.

[ZENODO](#)

Battery2030+ Webinar Series

One of the major dissemination achievements of the final project phase was the launch of the **Battery2030+ webinar series**: “*Time and Length-Scale Operando Bridging Techniques to Study Battery Interfaces*”.

The series was jointly organised by OPINCHARGE together with sister projects **OPERA** and **ULTRABAT**.

The webinars brought together researchers, industry professionals and battery enthusiasts from across Europe and explored:

- SAXS/WAXS operando techniques
- Surface-sensitive and coherent X-ray methods
- Nanoscale confinement at battery interfaces
- Non-linear spectroscopy for next-generation batteries
- Computational modelling and transport simulations

The webinar series helped connect scientific communities working on complementary operando methods and supported wider visibility of advanced battery interface research.

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Seeing Inside Batteries

A look back at the webinar series “Time and Length-Scale Operando Bridging Techniques to Study Battery Interfaces”

Synchrotron v. HPC

They all look the same?



Synchrotrons



High Performance computing (HPC)





[Read More About the Sessions on Our Website](#)

Collaboration, Workshops and Scientific Exchange

Throughout the project, OPINCHARGE actively participated in scientific conferences, workshops and clustering activities.

Key highlights included:

- Participation in the [Battery 2030+ Annual Conferences](#)
- [European Workshop on Battery Interfaces: High-Resolution Techniques and Multiscale Modelling](#) held in Córdoba, Spain, coorganised by OPINCHARGE and **OPERA** project within the **Battery2030+** framework.
- General meetings hosted across Europe
- Collaboration with [sister projects](#) and research initiatives

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The project also promoted multidisciplinary collaboration across chemistry, materials science, AI, electrochemistry and advanced instrumentation.



Battery 2030+ 4th Annual Conference

OPINCHARGE Showcases Battery Interface Innovation at Battery 2030+ Annual Conference in Munster, Germany

[Read More on Our Website](#)

Final Consortium Meeting in Ulm

On **18–19 May 2026**, the OPINCHARGE consortium gathered for the final project meeting in Ulm, Germany, hosted at the **Helmholtz Institute Ulm**.

During two intensive days, project partners reviewed the final progress across all work packages, discussed exploitation opportunities and reflected on the long-term impact of the project.

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collaboration planning and a guided laboratory tour at the Helmholtz Institute Ulm.

The final meeting represented not only the conclusion of the project, but also the continuation of scientific cooperation and future innovation activities beyond the official project duration.

[Check out the article](#)

Discover OPINCHARGE Results Online

The OPINCHARGE website will remain an important hub for accessing project results, scientific publications, news, webinar materials and dissemination resources.

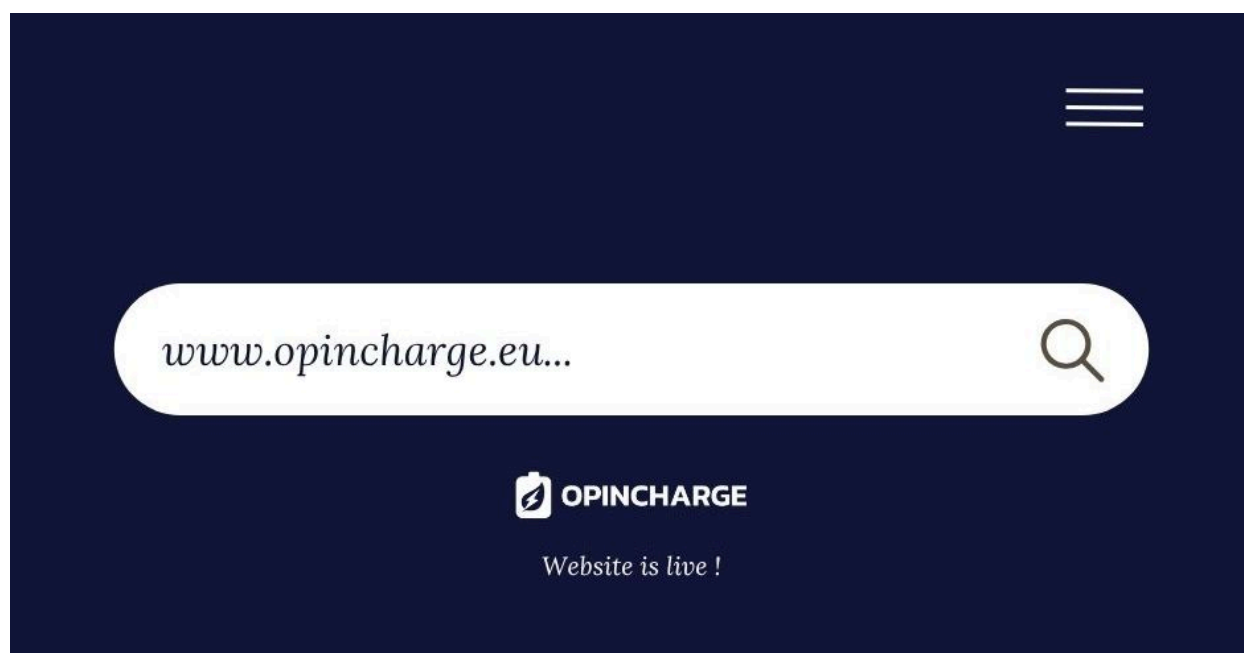
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The website includes:

- Scientific publications and Open Access articles
- [Project news](#) and past [newsletters](#)
- [Media Corner](#) **and dissemination materials**
- Project deliverables and communication resources
- Information about project partners and collaborations

The **[OPINCHARGE ZENODO](#)** community also continues to provide access to project publications and research outputs.

The OPINCHARGE [LinkedIn](#) and [X](#) profiles will continue connecting the community and sharing relevant battery research news and project outcomes.

[Website](#)[ZENODO](#)[LinkedIn](#)[X](#)

Our Network

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Battery 2030+

The ambition of the Battery 2030+ is to make Europe a world-leader in the development and production of the batteries of the future. These batteries need to store more energy, have a longer life, and be safer and more environmentally friendly than today's batteries in order to facilitate the transition to a more climate-neutral society. This initiative is led by Uppsala University, started on 1st of September 2020.

[Read more](#)

BEPA (Batteries European Partnership Association)

BEPA is the private side association of the Batteries European Partnership under Horizon Europe. They gather more than 140 stakeholders of the European battery community who strive towards a competitive European industrial battery value chain for stationary applications and e-mobility.

[Read more](#)

OPINCHARGE - Reinventing The Way We Invent Batteries!

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