OPINCHARGE

Innovation In Producing Safe And Long-lasting Batteries

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Welcome to OPINCHARGE

OPerando analyses and modelling of INterface dynamics and CHARGE transport in lithium-ion batteries, is an ambitious research initiative focusing on advancing lithium-ion batteries which are widely used in electric vehicles, portable electronics, and other applications.

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Background

Battery innovation has played a major role in the development of new energy production & transport technologies, becoming true enablers of a clean, affordable and secure energy economy.

However, innovation is currently being hindered by the lack of understanding of the processes happening at atomic levels in the batteries' interfaces and interphases.

Thus, the OPINCHARGE consortium aims to develop a set of effective operando nanoanalytical techniques and methodologies to understand the interfacial processes in batteries in unprecedented level of detail.

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Main Objective

Safe & Long-lasting Batteries

The improved understanding of batteries and their chemical reactions will allow manufacturers to produce safe and long-lasting batteries.

In such a way it will be possible to diminish their carbon footprint and contribute to a clean and sustainable industrial transition of the battery industry.

This will further add up towards achieving a climate-neutral energy sector.

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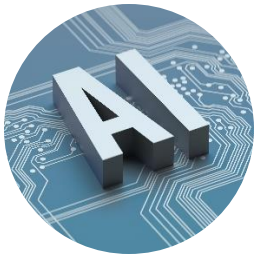
OPINCHARGE proposes effective operando nanoanalytical techniques and methodologies to understand the interfacial processes in batteries in unprecedented level of detail

Create tools and methods

Create advanced tools and methods for studying electrode/electrolyte reactions at a nanoscale by adapting previously limited techniques with innovative technologies and protocols.



Integrate AI/ML

Integrate Artificial Intelligence/Machine learning algorithms for low dose high-throughput data acquisition, and for data treatment.

Develop a platform

Develop a multi-technique integrating platform to explore battery reactions in real-world conditions.

Increase the lifetime and safety of batteries

Increase the lifetime and safety of batteries, by linking the new understanding of battery interfaces developed through this project to the degradation models of batteries during and after their usage.

Maximize outreach

Maximize outreach and exploitation of the tools and data generated through OPINCHARGE: to deepen the knowledge of the big understanding within the research and industrial communities.

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The project brings together a consortium of leading research institutions and experts in battery technology.

The Consortium

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY
LIST

PEDAL CONSULTING

CIC energiGUNE
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

cidetec
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

cnrs

DLR

PAUL SCHERRER INSTITUT
PSI

PADERBORN UNIVERSITY

DFKI

ThermoFisher SCIENTIFIC

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OPINCHARGE Collaboration

Battery2030+

The OPINCHARGE project aligns closely with the Battery 2030+ initiative, sharing a common vision that encompasses goals for a climate-neutral society and a shared aspiration to pioneer the development of sustainable batteries for the future.

BIG-MAP

BIG-MAP is a cutting-edge project within the BATTERY 2030+ initiative. Our goal is to revolutionize battery innovation by speeding up the discovery of new materials and interfaces.

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Why OPINCHARGE is benefitial?

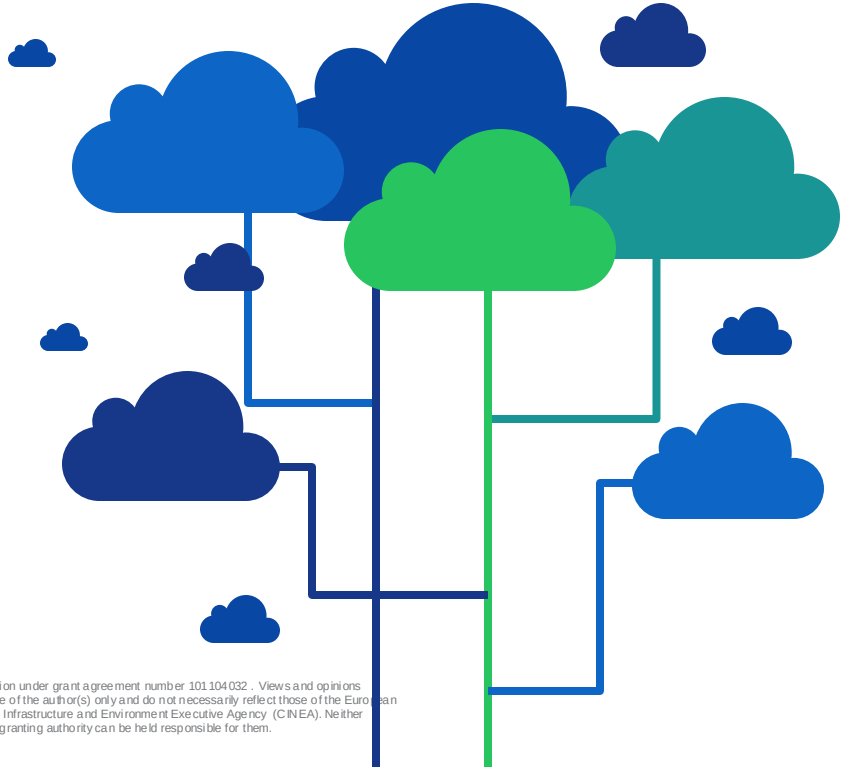
Main Benefits

Contribute to BATT4EU

Contribution to the groundwork towards BATT4EU priorities and other transversal priorities.

Improve Manufacturing

The improved understanding of batteries and their chemical reactions will allow manufacturers to produce safe and long-lasting batteries.



Upgrate in Design&Functionality

By gaining a deeper understanding of interfacial phenomena, we aim to improve LIB design and functionality.

Less Carbon& More Systainability

It will diminish carbon footprint and contribute to a clean and sustainable industrial transition of the battery industry.

Climate-neutral Energy

This will further add up towards achieving a climate-neutral energy sector.

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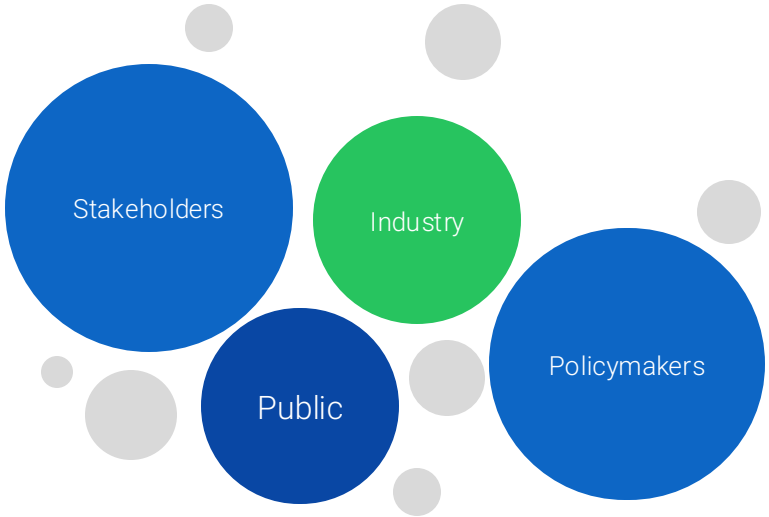
Let's charge forward to a brighter energy future!



"The OPINCHARGE Project embarks on a groundbreaking journey to revolutionize battery technology, harnessing the collective expertise of our consortium to pave the way for a sustainable and energy-efficient future!"

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Contacts

Thank you!

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