



Project outcomes

# Next generation battery pack for the automotive industry

19 March 2025

Online & Centro Ricerche Fiat (CRF)  
offices in Orbassano, Piemonte

[https://cutt.ly/MARBEL\\_FinalEvent](https://cutt.ly/MARBEL_FinalEvent)





Project outcomes

## **Next generation battery pack for the automotive industry**

19 March 2025

This event aims to show the experiences, knowledge and results derived from the European MARBEL project, aimed at manufacturing and assembling novel modular and reusable Electric Vehicle battery for environment-friendly and lightweight mobility.

Attendees will delve into the details of manufacturing advanced EV battery solutions, from a methodology to incorporate eco-design principles in battery design to the battery management system and innovations behind. Moreover, innovative testing procedures and battery packs' performance evaluation for a battery reuse in second life applications will be presented.

During the event attendees will have the possibility to gain firsthand insights with one of MARBEL's battery packs and modules.

### **Target audience:**

- OEMs, Tier 1 and 2 suppliers
- Engineering service providers
- Producers of (power) electronics
- Students and researchers interested in electromobility
- Members of other European projects



# AGENDA

8.30 - 9.00 CET

**Registration for onsite attendees**

9.00 - 10.00 CET

**OPENING PLENARY:****Welcome, keynote and MARBEL overview**

9.00 - 10.00 CET

**Welcome and introduction to the conference**

9.25 - 9.50 CET

**Keynote speaker**

9.10 - 9.25 CET

**MARBEL results overview****Eduard Piqueras**

MARBEL Coordinator

Eurecat

9.50 - 10.00

**Questions & Answers**

9.00 - 10.00 CET

**SESSION 1****Circular and lightweight design  
in high performance battery packs**Host:  
**Christian Hanneman**  
Senior Researcher  
Fraunhofer IWU

10.00 - 10.15 CET

**Modular and easy to disassembly battery pack  
design to be scaled for different  
vehicle segments****Toni Lara**Researcher at the Product Innovation  
& Multiphysics Simulation Unit  
Eurecat

10.45 - 11.00 CET

**Welding of extruded aluminium:  
Challenges and some mitigating measures****Magnus Carl Fredrik Eriksson PhD**Senior Business Developer, dept. Materials  
and Nanotechnology  
SINTEF

10.15 - 10.30 CET

**Ecodesign principles and LCA results****Violeta Vargas**Advanced Researcher at the Waste  
Energy and Environmental Unit  
Eurecat

11.00 - 11.15 CET

**Weldless Busbars for cell-to-cell connection****Antonio Confalonieri**Chief Engineer, Co-Design & Innovation  
Agrati

10.30 - 10.45 CET

**Al alloy for high performance profiles  
with recycled material****Sylvia Cruz**Researcher at the Metallic and Ceramic Materials Unit  
Eurecat

11.15 - 11.25 CET

**Q&A and discussion**

11.25 - 11.45 CET

**COFFEE BREAK**



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Hybrid (online & in Turin)  
Centro Ricerche FIAT S.C.p.A.

English Event 

11.45 - 13.00h CET

## SESSION 2:

### MARBEL's battery pack high-performance systems

11.45 - 12.00 CET

#### Improved cooling system design and control system

**Sándor Eichinger**

Technical Lead, Battery Simulation  
AVL Deutschland GmbH

12.00 - 12.15 CET

#### Switchable high-voltage (800V) automotive Junction Box

**Alberto Gómez**

e-Mobility Advanced Engineering Master  
FICOSA AUTOMOTIVE S.L.U.

12.15 - 12.30 CET

#### Flexible and modular BMS

**Lluís Trilla**

Researcher at Power Systems Group  
IREC

12.30 - 12.45 CET

#### Li-Ion battery digital twin and machine learning-based prognostics

**Alexandros Bousdekis**

Senior Research Scientist at the Information Management  
Unit  
ICCS

12.45 - 13.00 CET

#### Smart cell manager and secure wireless communication system

**David Gutierrez**

Project Manager  
OTC Engineering

13.00 - 13.10 CET

#### Q&A and discussion

13.10 - 14.00 CET

## NETWORKING LUNCH

14.00 - 15.10 CET

## SESSION 3:

### (dis)Assembly and testing MARBEL's battery pack performance and end-of-life

14.00 - 14.15 CET

#### Assembly and Disassembly MARBEL's battery pack

**Antonio Decano**

Senior Production Engineer  
AVL-IT

14.15 - 14.30 CET

#### eVIL (electric-vehicle-in-the-loop) platform

**TBC**

IDIADA

14.45 - 15.00 CET

#### Non-invasive electrical control and safe efficient opening pack methods

**Farouk Tedjar**

Group Chief Scientific Officer  
SK-TES

15.00 - 15.10 CET

#### Q&A and discussion

14.30 - 14.45 CET

#### MARBEL - Testing procedures and results

**Daniel Koch**

Research Associate at research group "Safe Electromobility",  
CARISMA Institute of Electric, Connected and Secure  
Mobility (C-ECOS)  
Technische Hochschule Ingolstadt



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English Event 

15.10 - 15.30 CET

### COFFEE BREAK

15.30 - 17.00 CET

### SESSION 4:

### COLLABAT: advancing sustainable mobility solutions

15.30 - 15.45 CET

#### LIBERTY:

#### main developments and achievements

**Maider Usabiaga-Carrera**

Researcher at the Energy Storage and Energy Management  
group  
Ikerlan Technology Centre

15.45 - 16.00 CET

#### H2020 Helios project - hybrid modular EV battery pack solution

**Tomas Jezdinsky**

Market Resarcher as In-house Consultant  
ICA-Europe (International Copper Association)

16.00 - 16.15 CET

#### ALBATROSS results

**Aysel Pilav**

R&D Expert  
Yeşilova

16.15 - 16.25 CET

#### Presentation of new cluster members: iBATTMAN and innoBMS

**Corneliu Barbu**

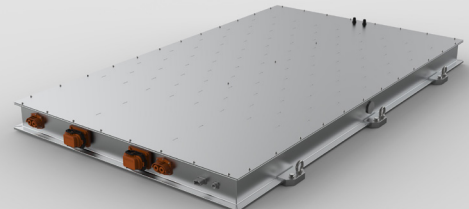
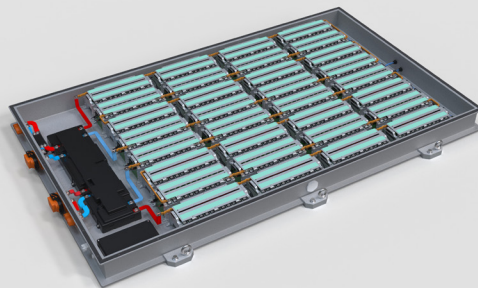
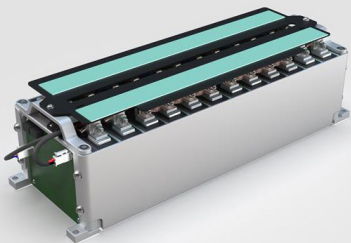
Professor  
Aarhus University

16.30 CET

#### Panel Discussion

17.00 - 17.15 CET

### CONFERENCE CLOSING





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**Eduard Piqueras**

MARBEL project coordinator  
Eurecat

Eduard's background is in Industrial Engineering (M.Sc.) by Polytechnic University of Catalonia and R&I project coordination. He is a seasoned project leader, with over a decade of experience successfully delivering cutting edge technology projects in the areas of circular industries and energy transition. He has been involved in the coordination and management of European Research projects from Eurecat Technology Centre. Prior to Eurecat, he has been working in the automotive industry and in the R&D financial consulting. Eduard is coordinator of MARBEL project and representative of Eurecat in Hydrogen Europea Research and Processes4Planet research association A.SPIRE.



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**Toni Lara**

Researcher at the Product Innovation & Multiphysics Simulation Unit  
Eurecat

Bachelor's degree in mechanics engineering and master's degree in materials science and product design. He is Researcher at the Fundació EURECAT since 2005. More than 20 years of experience in materials technology, manufacturing and transformation methodologies; mechanical properties (formability, wear, impact and fatigue behaviour of metals); techniques for the analysis and characterization of materials; welding and joining, as well as design of experiments, stamping dies and test tools. He has participated in several R&D funded projects. He is the author or co-author of various scientific papers published in peer reviews journals and technical contributions to international conferences. He holds 2 patents.



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**Violeta Vargas**

Advanced Researcher at the Waste,  
Energy and Environmental Unit  
Eurecat

Violeta Vargas holds a bachelor in Industrial Engineering from the University of Sonora (Mexico), a Master's in Natural Resource Engineering from UPC, and a PhD in Environmental Science and Technology from UAB. She has been involved in environmental impact-related topics for over 10 years, particularly in the application of Life Cycle Assessment (LCA) methodology. Currently, she works as an advanced researcher at Eurecat, in the WEEL unit (waste, energy, and environmental impact), developing projects related to LCA, Life Cycle Cost Analysis, Social Life Cycle Assessment, and Design for Circularity. Additionally, she is a professor at the University of Barcelona (UB) in the Master's program in Food Development and Innovation, where she teaches the subject of Food Eco-innovation, covering topics on LCA and eco-design.



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**Sylvia Cruz**

Researcher at the Metallic and Ceramic Materials Unit  
Eurecat.

PhD in materials science with more than 13 years of experience in the creation, leading and execution of national and European projects focused on the develop of Aluminium alloys. Focused on the design of new aluminium alloys more robust, with high content of scrap and low Critical Raw Materials, to extrusion and HPDC process, evaluating their microstructure and mechanical behavior.



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**Magnus Carl Fredrik Eriksson PhD**

Senior Business Developer, dept. Materials and Nanotechnology  
SINTEF

Magnus Eriksson, Senior Business developer at SINTEF, With 28 years experience in research of Metallic materials(Steel and aluminium), both for thermomechanical processing and demanding applications. He has a PhD in "Modelling of Forming and Quenching of Ultra High Strength Steel Components for Vehicle Structures", and has subsequently been working with steel and aluminium in various applications such as forming, welding and structural responses. He has been initiating and been responsible for more than 20 research projects from 2M€ to 20 M€. In addition he has more than 20 years of experience in research management, Both in industry as General manager for the Unit Process Development at steel producer SSAB, and thereafter as Head of department for Materials Integrity and Welding at SINTEF.



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**Antonio Confalonieri**

Chief Engineer, Co-Design & Innovation  
Agrati

Antonio Confalonieri. With more than 25 years of experience as designer on different fields of industrial applications, and after having held several technical positions such as, for example, EU Engineering Manager for the Group, he is now Chief Engineer within Agrati's Innovation Division and responsible for Co-Design activities on special projects developed with Customers. He is also part of Agrati Performance Business Unit. He holds 6 Patents.



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**Sándor Eichinger**

Technical Lead, Battery Simulation  
AVL Deutschland GmbH

Technical Lead in Battery Simulation team of AVL Germany. PhD in engineering science. He has been involved in various customer projects involving 3D-simulation of batteries focusing on cooling assesment, thermal and hazard behavoiur of battery systems, as well as R&D Projects.



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**Alberto Gómez**

e-Mobility Advanced Engineering Master  
FICOSA AUTOMOTIVE S.L.U.

Graduated in Physics from the University of Barcelona in 2012, with a Master's in Energy Engineering from the Polytechnic University of Catalonia in 2013, and a PhD in Nanoscience and Nanotechnology from the University of Barcelona in 2018. He has experience in the automotive industry, first as part of the R&D Department at Francisco Albero (FAE) until joining Eurecat in 2019, where he was in charge of the e-Mobility & Energy Storage (MobES) line, and later leading e-Mobility's Advanced Engineering department at FICOSA. Over the past decade, he has led and worked on R&D projects focused on future & sustainable mobility and energy storage (including H2020 MARBEL, for which he was the technical coordinator), in both European and South American regions, hydrogen vector, energy efficiency and optimization, printed electronics, chemical simulations in materials and gas sensors for the automotive industry, among others.



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**Lluís Trilla**

Researcher at Power Systems Group  
IREC

Dr. Eng. Lluís Trilla has experience on developing projects for the industry and has stablished collaborations with other research groups on energy related topics. In 2013 he obtained his PhD in IREC (Catalonia Institute for Energy Research) on the topic of advanced controllers applied to power converters for wind energy conversion systems. Currently he is a deputy head of the Power Systems group at IREC where he works on different fields such as grid integration of renewable power, grid codes analysis and battery management systems for new battery types and electric vehicles. As Senior Researcher is acting as coordinator of European funded projects as well as national funded projects in the field of novel batteries and associated controls for electro-mobility and stationary grid-connected applications.



## Alexandros Bousdekis

Senior Research Scientist at the Information Management Unit  
ICCS

Alexandros Bousdekis is a Senior Research Scientist at the Information Management Unit of ICCS. He holds a PhD in proactive computing and event-driven decision making with a focus on Industry 4.0. He has been involved for more than 10 years in European research projects developing innovative solutions for predictive & prescriptive analytics, Artificial Intelligence, and Machine Learning in various application domains and industries. He has published more than 70 papers in international peer-reviewed journals and conferences.



## David Gutierrez

Project Manager  
OTC Engineering.

David Gutierrez, Industrial Engineer, project manager in OTC has been working in innovation and R&D projects for 20 years. Involved in different areas and sectors, that gives him a large experience in projects and researching. With a career strongly linked to connectivity and 4.0 solutions in his different jobs.



## Antonio Decano

Senior Production Engineer  
AVL Italy

Formerly, as a Senior Industrial Engineer, I honed my skills in product development for high-profile sports car clients and facilitated seamless communication among project stakeholders. My commitment to continuous improvement is evidenced through active supplier validation and contribution to Lean Manufacturing initiatives, ensuring operational excellence and strategic procurement partnerships.



## Daniel Koch

Research Associate at research group "Safe Electromobility"  
CARISSMA Institute of Electric, Connected and Secure Mobility (C-ECOS),  
Technische Hochschule Ingolstadt

Studied Electrical Engineering and Information Technology in a Bachelor's degree and Electrical Engineering for Mobile Systems in a Master's degree both at Technische Hochschule Ingolstadt (THI). Since the end of 2018, he has been working in the research group of Safe Electromobility at THI, where he's been working on publicly funded as well as industry funded projects. His main research interest is on modeling and simulation of battery systems.



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**Farouk Tedjar**

Group Chief Scientific Officer  
SK-TES

Founder of the first recycling startup in Europe in 1994 incubated near Polytechnic Institute of Grenoble(France). since up to 25 years operating in battery recycling confirmed by 4 patents. Technologies were disseminated in USA, UK, Spain, Poland and Singapore. former President of French Battery Recycling Association, Member of European Battery Recycling Association. Past Associated Professor at University Polytechnic of Grenoble (2007-2014) and Material Sciences of NTU Singapore as well as Principal Scientific at Energy Research Institute (2015-2022). Compapny now acquired by SK Group and acting as Group Chief Scientific Officer.



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**Maider Usabiaga-Carrera**

Researcher at the Energy Storage and Energy Management group  
Ikerlan Technology Centre.

Maider Usabiaga-Carrera. Researcher and project manager at Ikerlan. M.Sc. in Industrial Engineering, she has been involved for more than 20 years in researching and managing energy projects at Ikerlan Technology Centre. Focused now on energy storage systems and technologies, at the moment she also streamlines the Horizon Europe projects within her group and represents Ikerlan in BEPA.



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**Tomas Jezdinsky**

Market Resarcher as In-house Consultant  
ICA-Europe (International Copper Association)

Tomas Jezdinsky is a Market Research Expert working as freelance consultant for International Copper Association – Europe (ICA-Europe). He has more than 25 years of experience as technical market research professional, focusing various areas like energy generation & distribution, renewables, electrical machines and e-mobility. Recently, he has been involved in several Horizon2020 projects as in-house consultant for ECI in topics related to e-motors and battery for EV.



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**Aysel Pilav**

R&D project expert  
Yeşilova

Aysel Pilav has been working as an R&D Project Expert at Yeşilova Group, a leading manufacturer of industrial aluminium products primarily for the automotive sector in Bursa, Turkey, for over three years. With a background in industrial design, she is currently pursuing a master's degree focusing on the carbon footprint of aluminium. She is skilled in implementing new programs and managing both national and European-funded projects. Beyond her core responsibilities, she serves as the project coordinator for the ALBATROSS project.



About MARBEL

## Circular economy approach in Electric Vehicles' battery packs

The MARBEL project has developed an innovative and competitive lightweight battery with increased energy density and shorter recharging times with the objective to accelerate the mass market take-up of electric vehicles.

MARBEL focused on the need for fast charging and long-lasting batteries to boost end-user demands, while applying high modularity and easy assembly and developing novel testing methodologies.



**Start - end date**

1<sup>st</sup> January 2021 - 31<sup>st</sup> March 2025



**Duration**

51 months



**Funded under**

Horizon 2020 programme - H2020-EU.3.4



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Marbel Project

**Consortium:**



The project has received funding from the European Commission's Horizon 2020 programme. Grant N° 963540