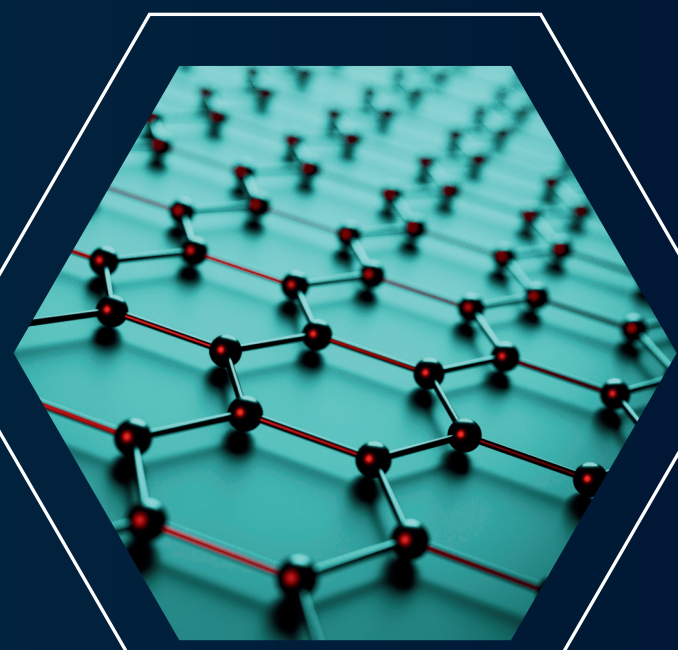
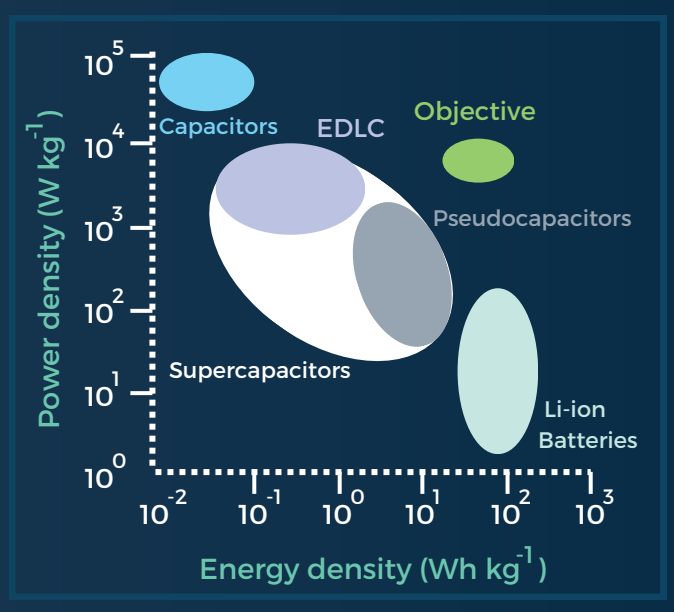
SUPERCAPACITORS: ENERGIZE YOUR WORLD



ARMS

ARMS - **A**TOMIC LAYER-COATED **GR**APHENE ELECTRODES FOR **M**ICRO-FLEXIBLE AND **S**TRUCTURAL SUPERCAPACITORS



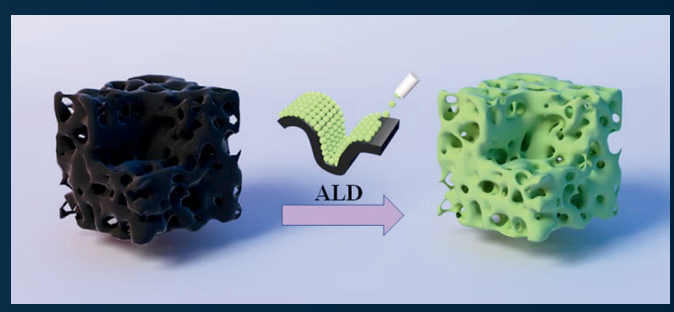
ARMS Project: eco-friendly supercapacitors for sustainable energy solutions

ABOUT THE PROJECT

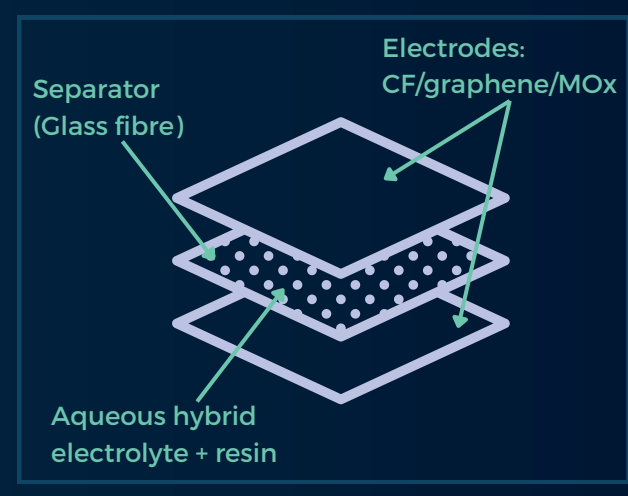
The ARMS project aims to create **eco-friendly supercapacitors with high energy density** (>50 Wh/kg) comparable to batteries. By integrating **graphene-rich carbon materials** and employing **atomic layer deposition (ALD)** manufacturing, we **maintain power density, cycle life, and eco-friendliness**. This effort establishes a new value chain for supercapacitor manufacturing, with European SMEs as key players. Our approach involves:

- process modification for high-graphene-content porous carbon,
- graphene coating on carbon fibers,
- ALD coating for electrode stability and increased voltage window
- Development of eco-friendly electrolytes.

This project aims to develop innovative management systems enabling the replacement of batteries with supercapacitors in two demo cases: 1) wireless sensors for environmental monitoring in logistic systems powered by a printed flexible supercapacitor, and 2) a drone with structural supercapacitors integrated into its design.



The core concept of ARMS



Scheme of ARMS structural supercapacitor

OBJECTIVES

1. Scaling up graphene-containing biobased carbon materials for electrodes
2. Fabricating graphene-enhanced electrodes for micro-flexible and structural supercapacitors
3. Developing scalable atomic layer coating to boost electrode performance
4. Formulating aqueous hybrid electrolytes for better prototype supercapacitors
5. Manufacturing high-energy-density flexible and structural supercapacitors
6. Providing sustainable design guidance and conducting life cycle assessments

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LEARN MORE ABOUT SUSTAINABLE ENERGY STORAGE:

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GRAPHENE FLAGSHIP

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