



GRAPHMATECH

Enabling the Green Transition With
Graphene Technology

Dr. Mamoun Taher
CEO, Founder
Uppsala, Sweden



Investors

ABB

almi invest

WV

molindo
ENERGY

eit
InnoEnergy



Uppsala Uni.

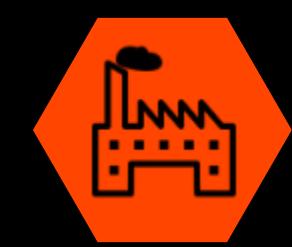
Ångströmlaboratoriet



Clean Room
2 PhDs
MSc students



Research laboratory



Production facility



Corporate office

Pioneering Team of 19



Dr Mamoun Taher, Founder & CEO, CTO

PhD in Chemical Engineering

Passion for growth and leadership



Stefan Hvalgren, Sales Director

10+ years of introducing new technology to the global markets

Passion for standardization and industrialization



Jane Carlgren, Finance

25 years of experience in finance

Passion for growth



Dr. Marie Vennström, R&D Manager

PhD in Materials Science

Passion for innovations



Experienced Board of Directors



Tech Dr h.c. Jane Walerud, Chair

Serial deep tech entrepreneur

One of Sweden's top business angels since 2002

First investor in Klarna (Unicorn, >50 BUSD)



Dr Kurt Kaltenegger

VP ABB Technology Ventures

25+ years in technology management



MSc Peter Gossas

Former president Sandvik Materials Technology

45+ years of international business leadership



MSc Pasi Kangas

VP Technology Sandvik Additive Manufacturing

25+ years in materials technology



Morgan Sadarangani

CEO Molindo Energy Founder

20+ years in industrial and finance

Höganäs 

Klarna.

SANDVIK

ABB

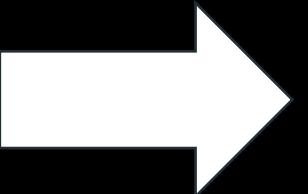
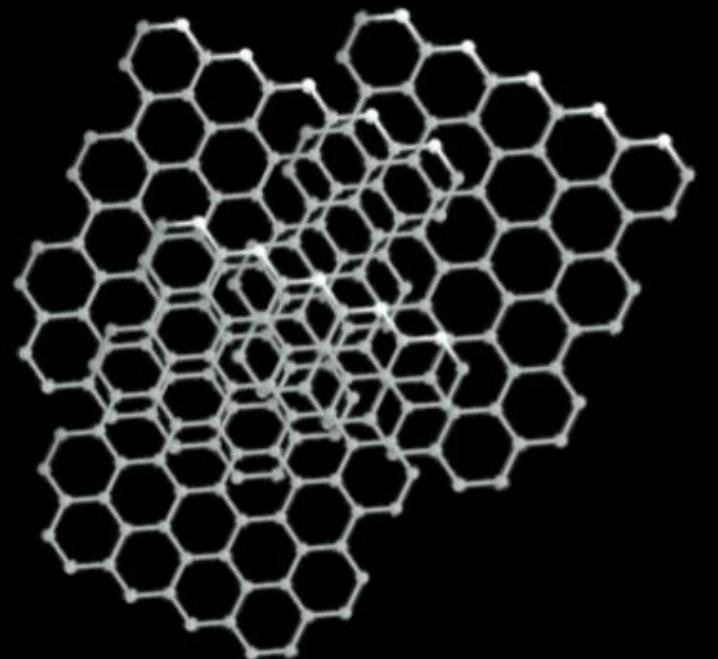

ERICSSON


molindo
ENERGY



- Carbon
 - Stronger than steel
 - More conductive than copper
 - Lighter than cotton
- 
- A large red 'X' mark is drawn across the list of properties.

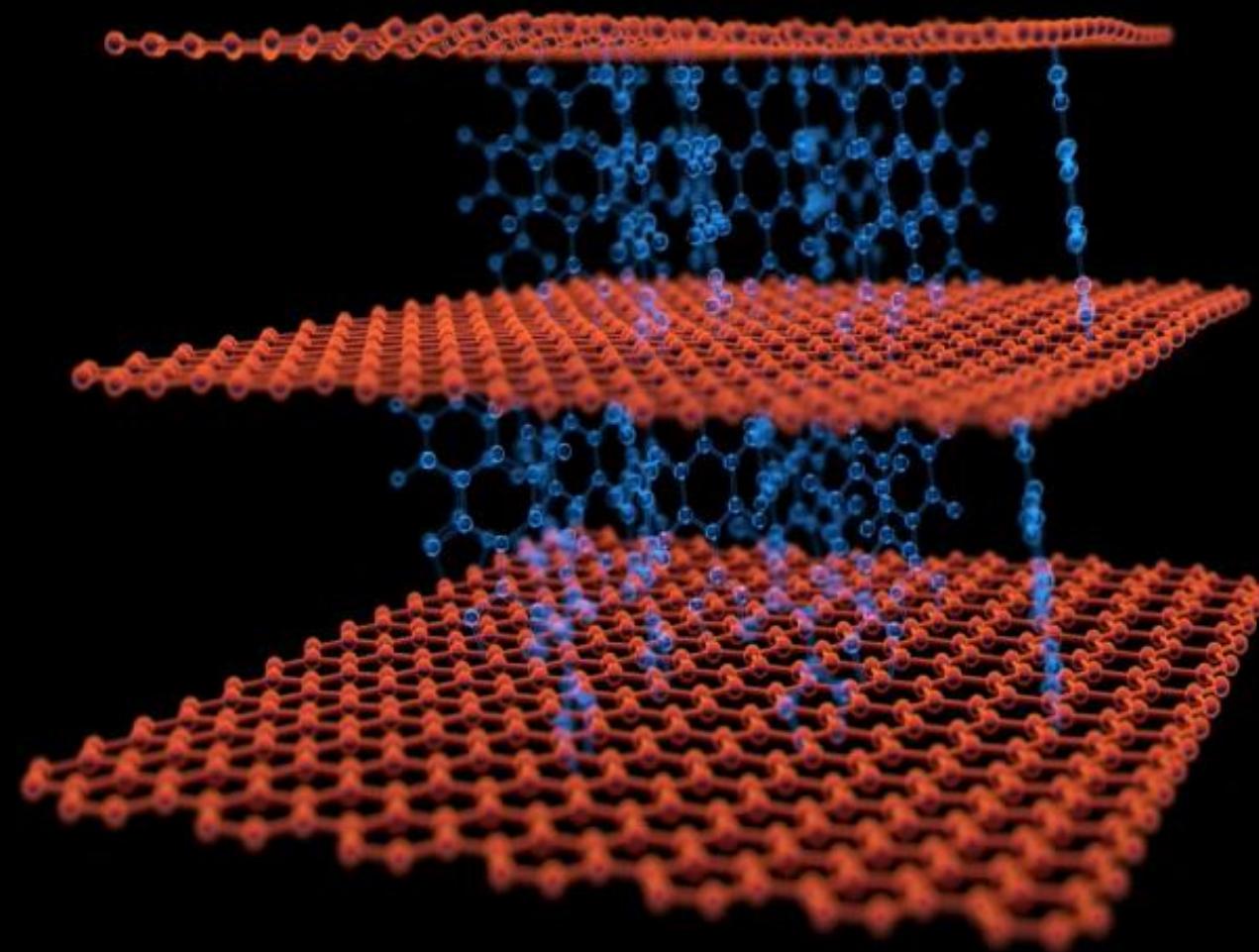
Graphene



Graphite

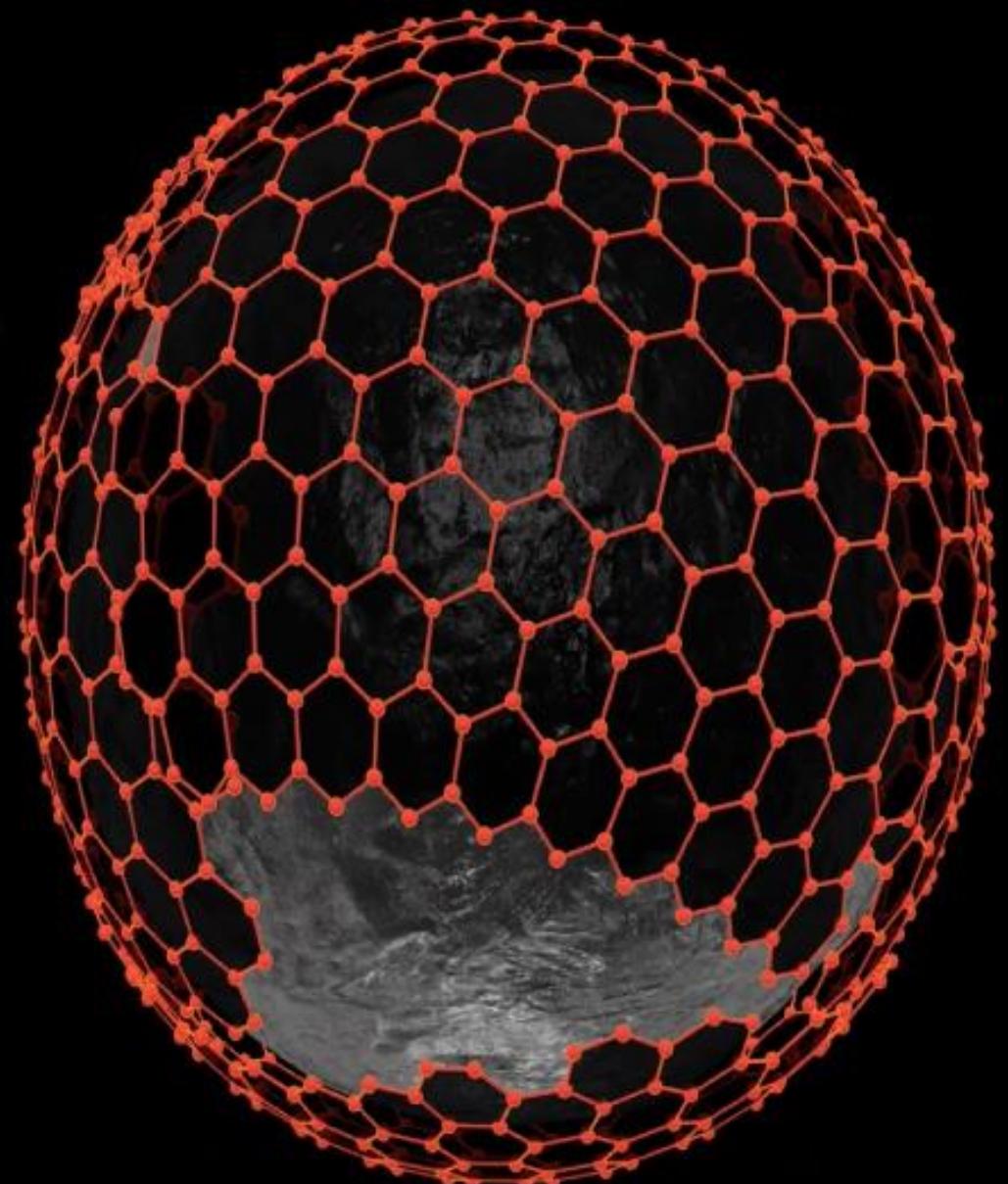
Loses properties
due to stacking

Graphmatech's Technology Platform: Aros Graphene®



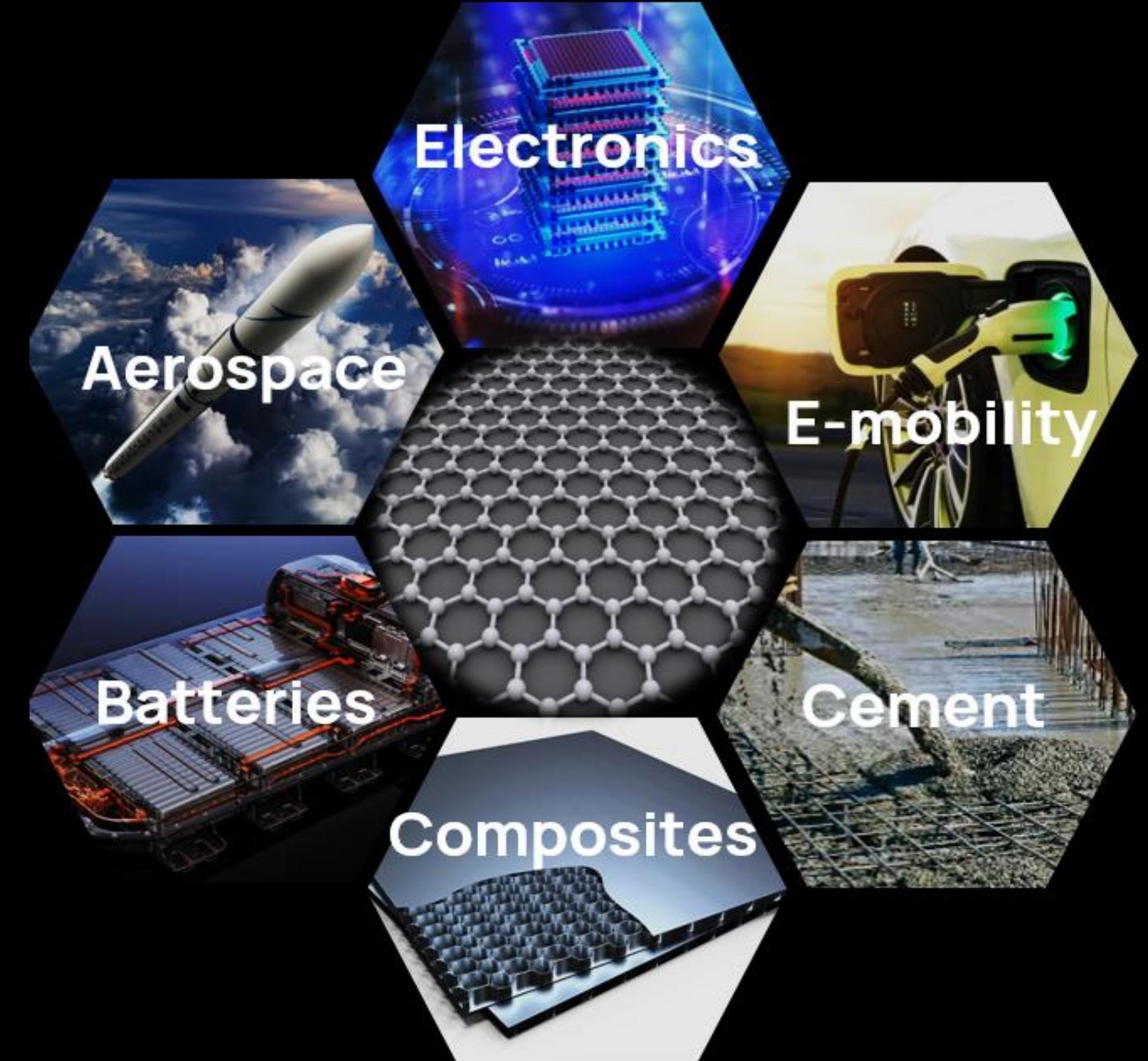
- Minimize the agglomeration
- Task-specific functionalization

Graphmatech's Technology Platform: Aros Coat®



- Coating particles with graphene
- Developed for different materials (metals, polymers, ceramics, battery particles)
- High-quality dispersion (nano/micro scale)

— Graphene has a wide range of applications



Graphmatech is focused on enabling the green transition with graphene technology



Polymer-graphene

- Hydrogen storage
- Replace Carbon Black
- Additive Manufacturing



Metal-graphene

- Electrification
- Additive Manufacturing



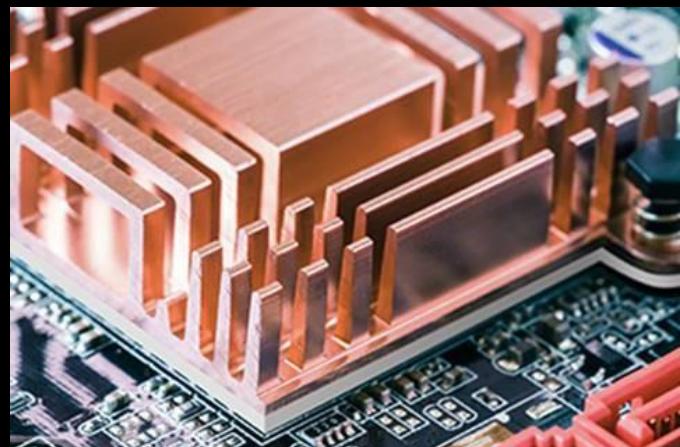
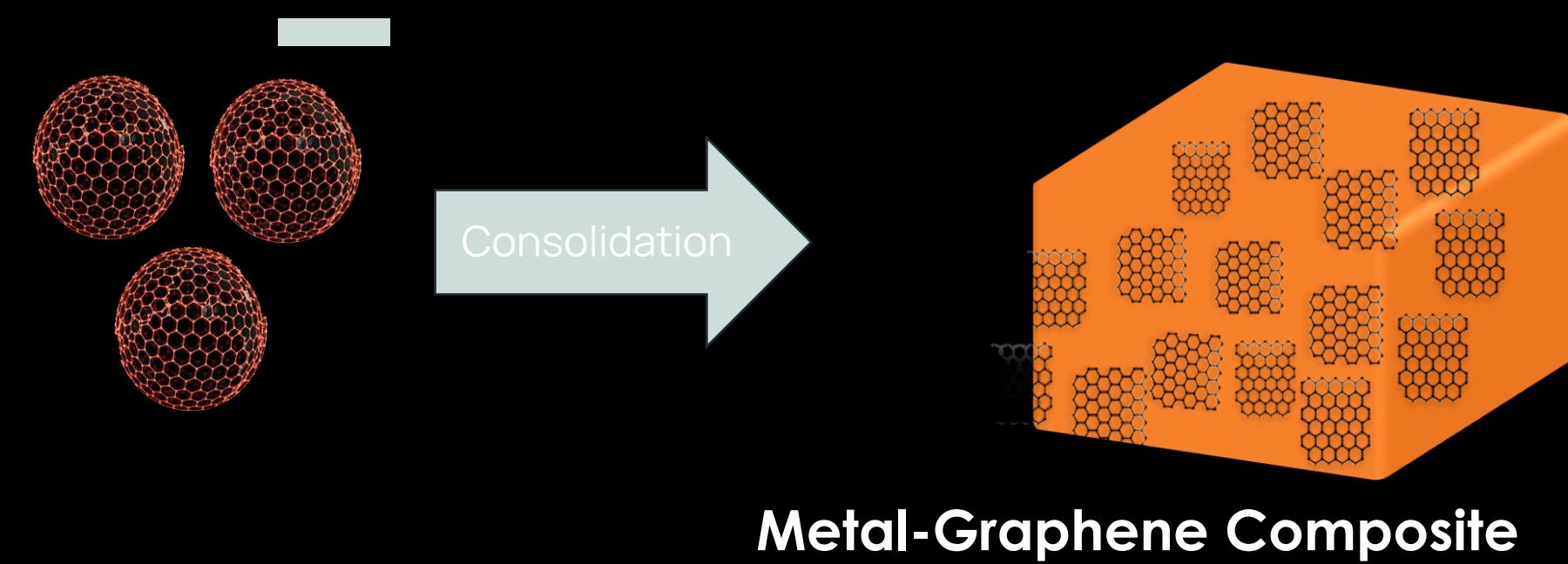
Battery materials

- Graphene-based batteries (Na, LFP)
- Make graphene from recycled Li-ion batteries

Pioneering Metals

Graphene in metals:

Electrical conductivity
Thermal conductivity
Hardness
Mechanical Strength



Cooling

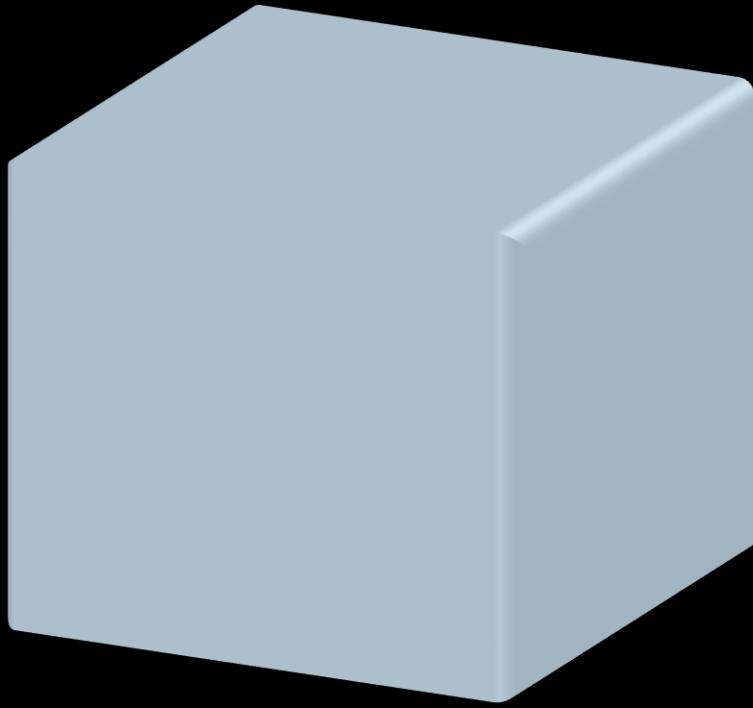


Conducting

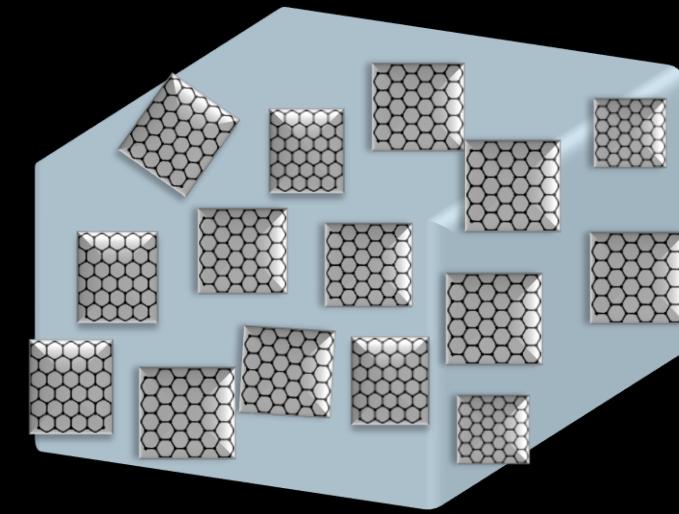


Charging

Pioneering Polymers



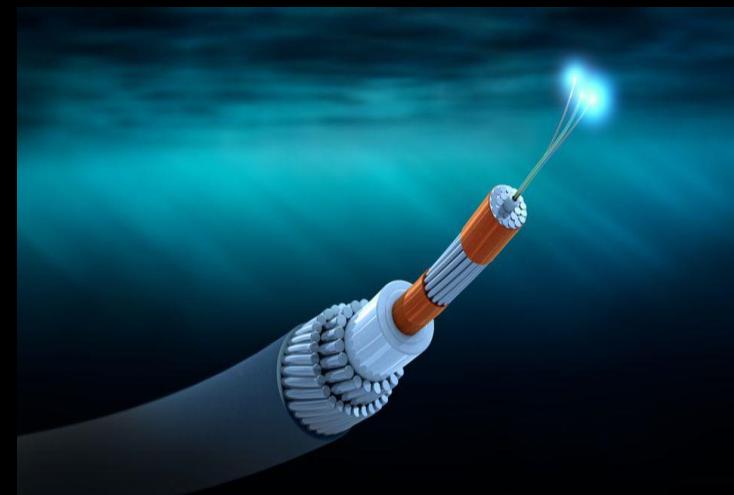
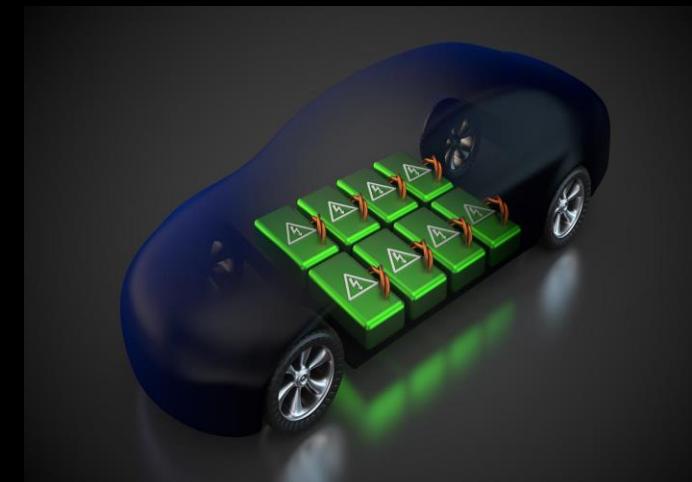
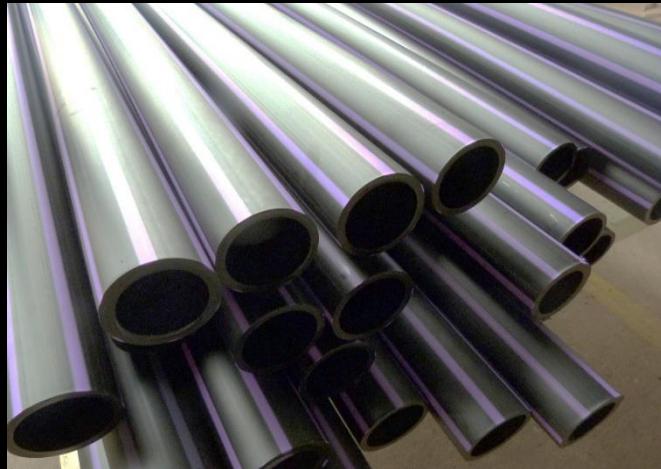
Polymer/Plastic



Polymer-Graphene Composite

Graphene in Polymers:

- Make plastics electric conductors
- Make plastics useful for Hydrogen storage and transportation
- Makes plastics >350 % stronger
- Restore the performance of recycled plastics



Sustainability at Graphmatech

BRIGHT G-Program

Being part of the solution

Reducing the need for scarce metals by making metal better

Reducing the need for carbon black in the polymer and battery industries

Making graphene from upcycled graphite from Li-ion

Increasing the lifespan of other materials

Taking climate action

Reducing our scope 1 and 2 greenhouse gas emissions in line with the Paris agreement

Assessing our entire value chain to minimize harmful impact

All water in our production is recycled





Remove carbon black in the plastic and rubber industry

The problem

Carbon black is used everywhere in plastics and rubber.

17 million tons annually (73% for the tire industry)

Production of carbon black emitting **100 million tons of CO₂ emission annually.**

Graphmatech's solution

10 X less carbon black needed when graphene is used.

Impact

73% less CO₂ emissions

Saving **73 million ton** of CO₂ emission



GRAPHMATECH

Retrieving graphene from battery recycling

The problem

1.2 million tons of lithium-ion batteries to be recycled in Europe from 2030, of which **350 000 tons** of black mass end up at landfills as hazardous waste.

Graphmatech's solution

Graphmatech, together with Graphenea and Northvolt have succeeded in up-cycling end-of-life EV batteries into graphene oxide, using the material left after Northvolt has extracted valuable metals and minerals.

Potential impact

Graphmatech can upscale **> 50%** of the black mass retrieved from used batteries into graphene oxide, saving **>175 000 tons** that would be handled as landfill.





GRAPHMATECH

Circular business module

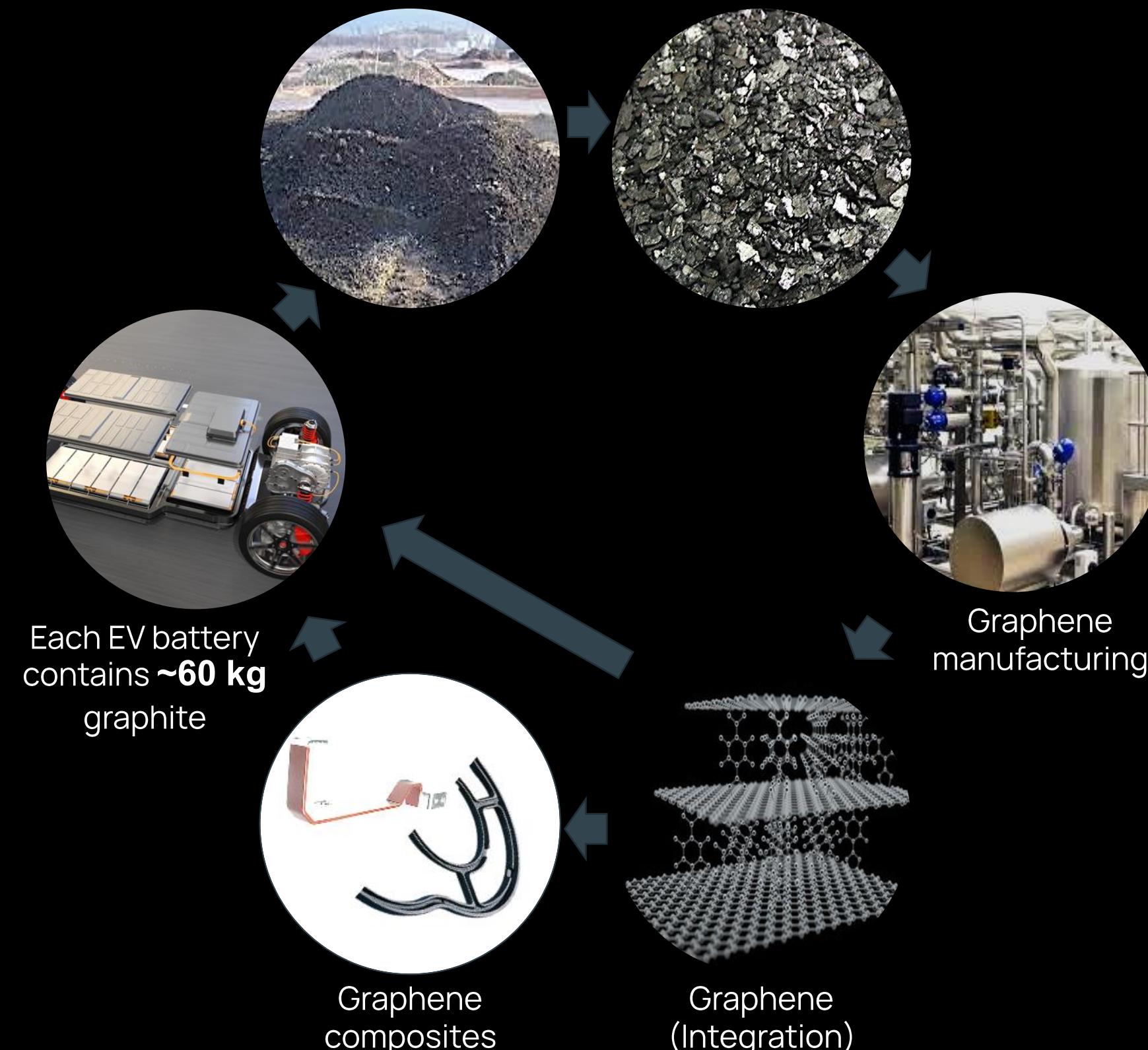


northvolt®



350 000 tons of black mass from used batteries end up at landfill each year (hazardous waste)

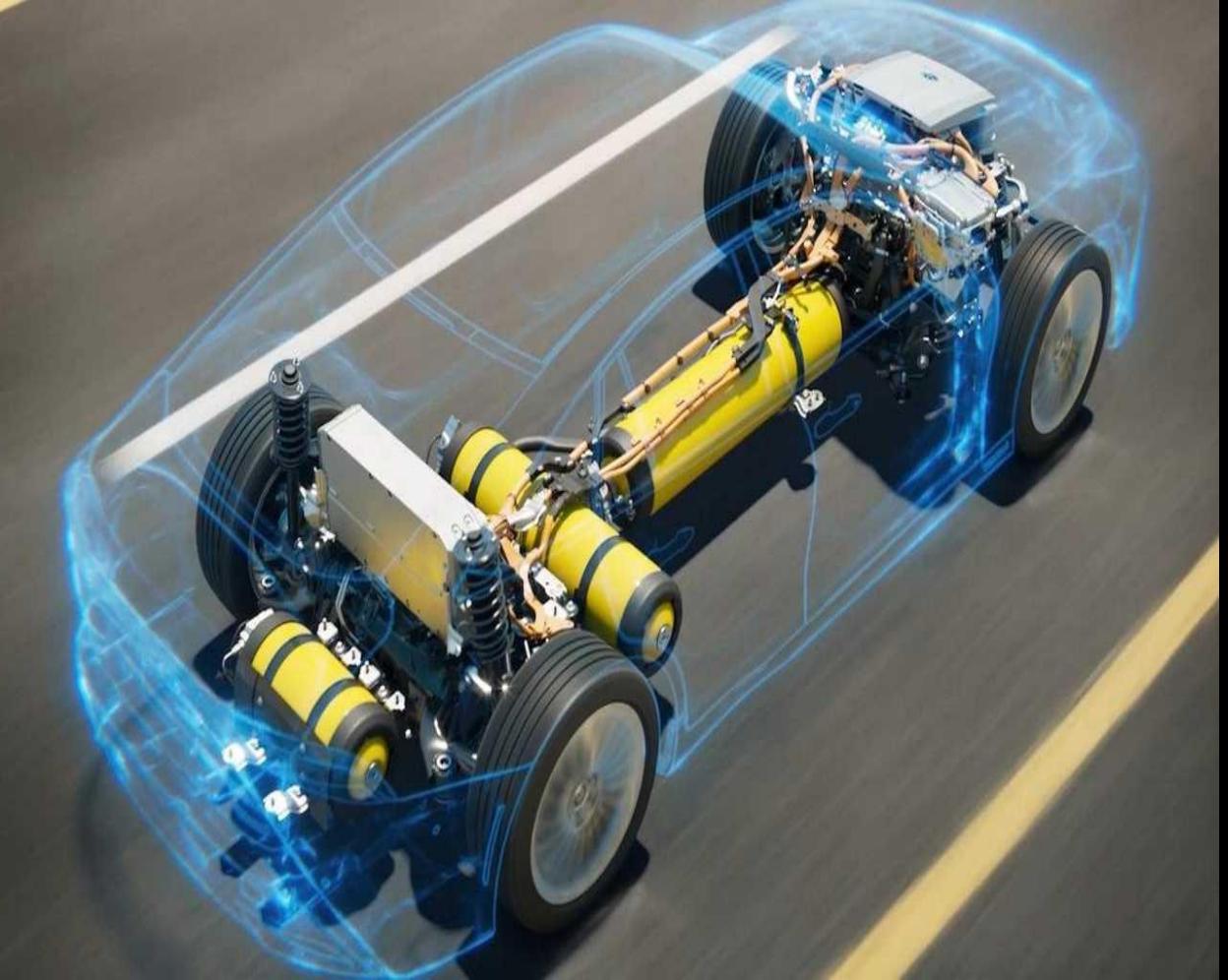
>175 000 tons of graphite can be retrieved per year (in the EU)



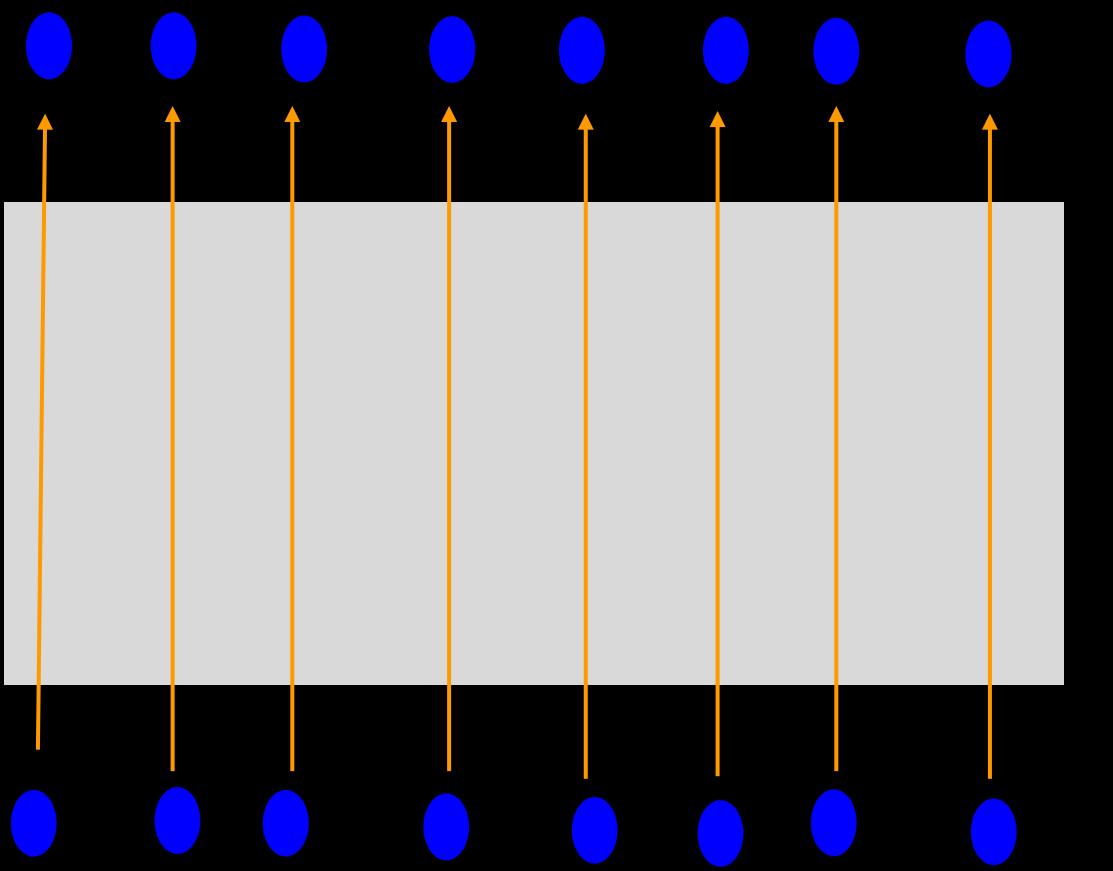
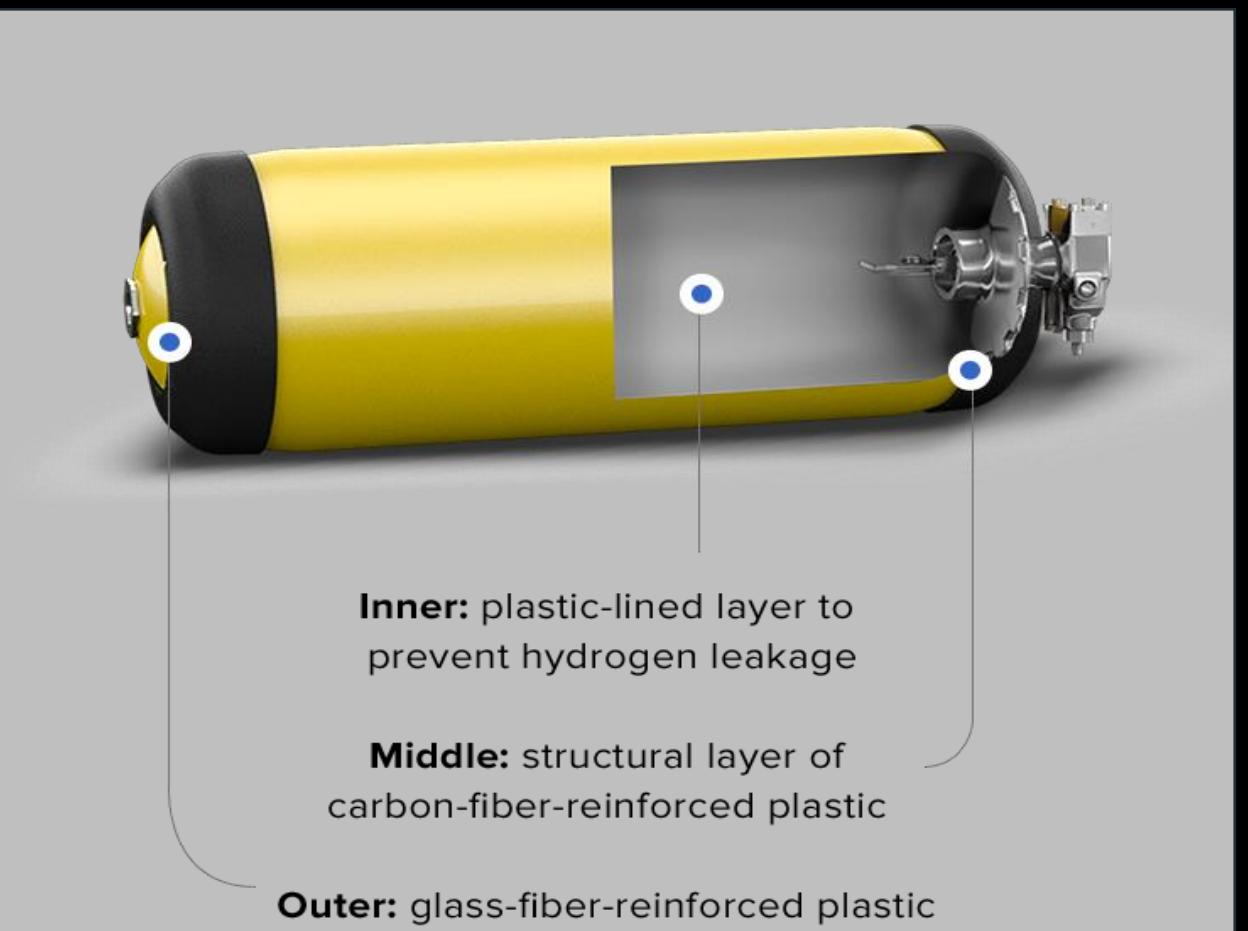
Lightweight composite for hydrogen storage



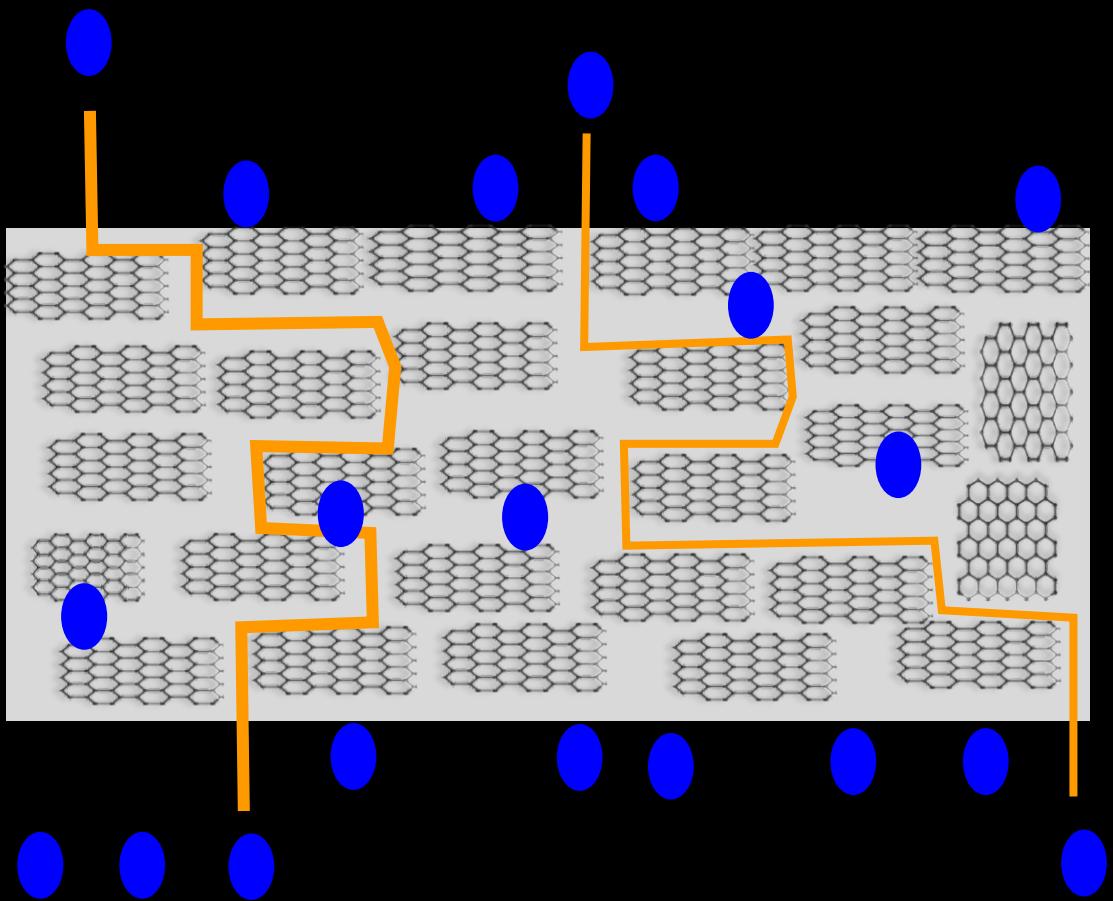
- **41 % less hydrogen leakage**
- **Multi-functional composites** (barrier, conductivity, mechanical strength)



Toyota Mirai

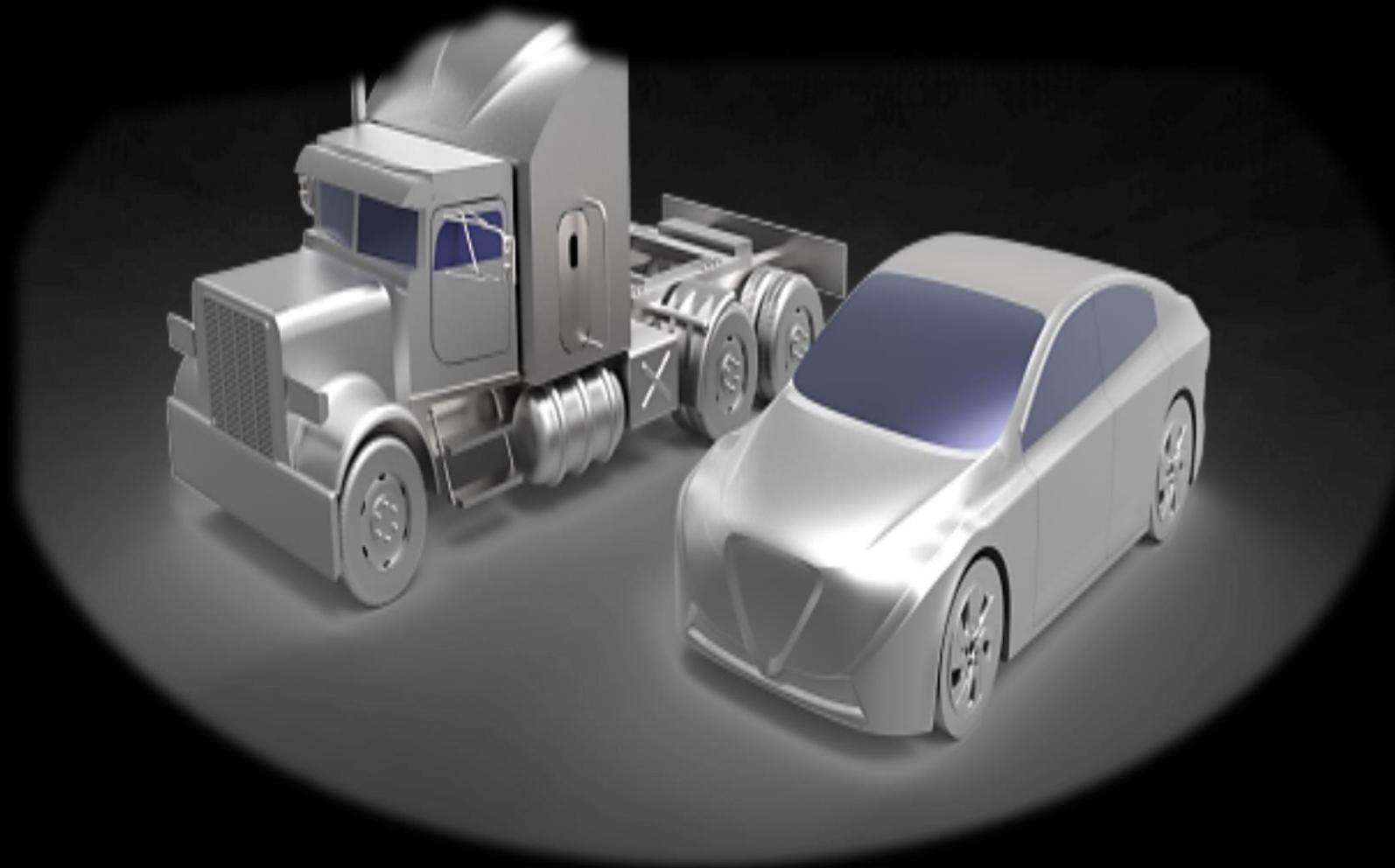


Polymer liner



Polymer-graphene liner

Graphmatech's Technology



- Batteries (high-performance cobalt-free, upcycling black mass, circularity)
- Composites for hydrogen storage tanks
- Composites for EMI Shielding
- Dramatic reduction of carbon footprint (e.g. remove carbon black)
- Materials for metals and polymers 3D printing (SLM, SLS, FDM, binder jetting)



Learn More from the links below

<https://www.youtube.com/watch?v=mLb-8NIG5Jg>

https://www.youtube.com/watch?v=ttsCs_8PELE

<https://graphmatech.com/news/>



GRAPHMATECH

Do you want to join us enabling the green transition at MEGA level, contact us!



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