BASQUEVOLT
tech by CIC energiGUNE

2023

KOREA EUREKA Day

Meet with **SPAIN**

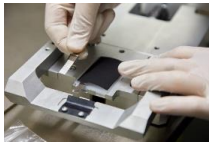
Francisco CARRANZA
CEO, BASQUEVOLT

GOBIERNO DE ESPAÑA · MINISTERIO DE CIENCIA E INNOVACIÓN · CDTI INNOVACIÓN

Ministry of Trade, Industry and Energy · Eureka TURKIYE · beyond leading technology KIAT Korea Institute for Advancement of Technology · Keit Korea Evaluation Institute of Industrial Technology · KETEP Korea Institute of Energy Technology Evaluation and Planning

European Leader in Solid State Battery

Our mission: Democratizing the electrification of the society



WHAT ARE WE DOING?
Developing the best battery materials and cell designs to make possible the mass deployment of electrification

- **30% lower cost per kWh**
- **50% higher energy density**
- **30% reduction in CAPEX**
- **40% lower CO_2 footprint**
- **Better safety**

One of the most advanced research teams in the industry

Proven capability to change the battery industry

Professor Michel Armand is one of the most world-renowned experts in electrochemistry …

…. father of many advances that led to modern lithium-ion batteries

1970s Armand **proposed the concept of material intercalation cathodes and anodes**

Early 80s Armand **demonstrated the SSB with polymer electrolytes and Li metal anode**

1991 Armand's group reported a new salt: **LiTFSI**, now used as **liquid electrolyte in Li-ion**

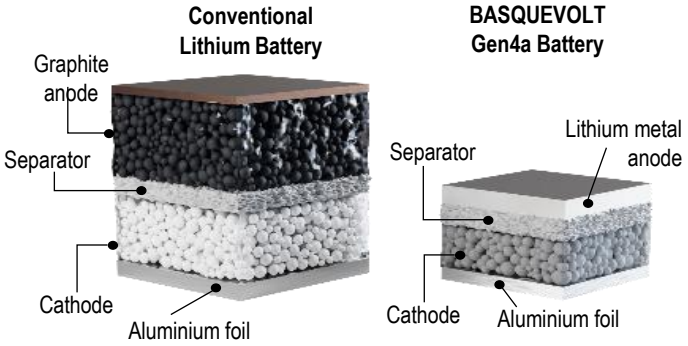
1997 The solution to use LFP as cathode material was found by Armand's group. **LFP cathodes largely used in mobility and stationary storage applications**

Battery cells prototype line

Surface Analysis

Battery solid-state material lab

COST COMPETITIVENESS is our top priority



BV Gen4a (NMC9.5.5)

- **1,000 Wh/l** (vs li-ion 700 Wh/l)
- **450 Wh/kg** (vs li-ion 280 Wh/kg)
- No thermal propagation
- **30% cost advantage**

Breakthrough technology

- **Electrolyte and cell design** as competitive advantage
- **Polymer electrolyte** developed and produced by BQV
- **Lithium metal anode + NMC 9.5.5 cathode**
- Cathode agnostic **integration (LFP/ NMC)**

While many competitors in North America and Asia are developping solid state solutions, the scale-up remains a critical challenge.

- Cell production equipment adapted to Li metal anodes
- Cost competitive mass production of polymer electrolyte components
- Sourcing of critical components like Li metal anode and solid state compatible NMC active material

A Spanish / Korean cooperation could significantly speed up the market launch of cost competitive solid state batteries.

- Development of cost competitive manufacturing processes/ equipment adapted to polymer electrolytes and Li metal anodes
- Development of solid state optimized cathode active materials
- Development of cost competitive manufacturing for Li metal anodes (including anode less solutions)

Meet with SPAIN

2023 KOREA EUREKA Day

BASQUEVOLT
tech by CIC energiGUNE

Thank you!

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA E INNOVACIÓN
CDTI INNOVACIÓN

Ministry of Trade, Industry and Energy
Eureka TÜRKİYE
beyond leading technology KIAT Korea Institute for Advancement of Technology
Keit Korea Evaluation Institute of Industrial Technology
KETEP Korea Institute of Energy Technology Evaluation and Planning