

SIGNE NEWSLETTER

SIGNEHORIZON.EU



SIGNE project kick-off took place in Limerick (Ireland) on October 13 and 14

About the *SIGNE* Project

SIGNE is an €8 million Horizon Europe funded project led by Prof Kevin M Ryan with collaborators Dr Hugh Geaney and Dr Tadhg Kennedy at the University of Limerick with 16 partners in total. The partners include 7 research performing organisations (UL, KIT, ZSW, DLR, CID, FSU-Jena, U Roma) and 10 industry partners (Ferrari, TES-AMM, CRF-Stellantis, SVOLT, Analog Devices, TMEC, TMEC PL, Sidrabe, Delfort and Solvionic) across 8 countries in Europe, Ireland, Germany, Spain, France, Italy, Austria, Poland, Ukraine and Latvia.



Composite **S**ilicon Nanowire on **G**raphite Anodes with **Ni**-Rich Cathodes and Safe **E**ther based Electrolytes for High-Capacity Li-ion Batteries

**Publications by
SIGNE Partners in
2022/23**

[FSU Jena 1](#)

[FSU Jena 2](#)

[KIT](#)



Our Partners



Objectives

The objectives of SiGNE are to deliver an advanced lithium-ion battery (LIB) for Electric Vehicles that will deliver higher energy (50% increase in both specific and volumetric) and power density (300% increase) in an equivalent pack size than that achievable using commercial cell chemistries. This will be achieved by materials developments at component level of the battery of anode, cathode, separator and electrolyte that are optimised for rapid transition to prototype development and manufacturing with minimal environmental footprint. The advances obtainable with this technology will translate to a 50% range enhancement for EVs with a similar pack size. In real terms, this would push the maximum range from 540 kms (higher end of what is currently available) to 810 Kms which is a similar range to an internal combustion engine with a full tank. The technology will be cost competitive and allow for fast charging and extremely long and stable cycle life that will facilitate significant second use of the batteries beyond the lifetime of the car.

Lead Coordinator of the SiGNE Project

Professor Kevin M. Ryan (UL)



Professor Kevin M. Ryan holds a Personal Chair in Chemical Nanotechnology at the Department of Chemical Sciences in the School of Natural Sciences at the University of Limerick, is the Director of the Bernal Research Institute and holds a SFI IVP and IRC Laureate awards.

He has published over 147 academic papers with a h-index of 51 (Google Scholar) and holds several patents with research interests in semiconductor nanocrystals and nanowires for applications in electronic devices and batteries.



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