Flexible Li ion Batteries via Nanocrystal-Nanocarbon Scaffolded Structures

Fact Sheet

Project Information

FlexBatteries

Grant agreement ID: 704659

DOI
10.3030/704659

Project closed

EC signature date
1 March 2016

Start date
1 August 2016

End date
7 August 2019

Funded under
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost
€ 165 598,80

EU contribution
€ 165 598,80

Coordinated by
TECHNISCHE UNIVERSITEIT DELFT
Netherlands

Objective

The aim of this proposal is to develop next generation flexible high-energy density Li ion batteries. This project seeks to advance this field by developing generalized methodologies to effectively interface flexible nano carbon scaffolds with inorganic nanocrystals, and to obtain tailor made hierarchical assemblies as building blocks. Fabrication of these hierarchical materials whose chemical and mechanical properties can be optimized at the nano, micro and millimeter scale are key to ensure both high energy and power density, and structurally flexible components. Our strategy will significantly increase the loading of electro-active particles (nanocrystals) and maximize their contact/exposure to electrolytes in optimized

conditions, which will improve the electrochemical properties of nanostructures. Parallel, by applying in situ electrochemical-Li-NMR-Neutron depth profile and XRD, the proposed multi-scale approach will deepen the understanding of fundamental issues such as Li+ diffusion path ways in nanocrystal-carbon scaffolded structures (Li ion kinetics), volume expansion of nanocrystals (stress/strain issues), thermal management (heat dissipation), gas evolution (via electrolyte decomposition) and various modes of particle degradation during battery charge/discharge cycling.

Fields of science (EuroSciVoc)

natural sciences > chemical sciences > electrochemistry > **electric batteries**

engineering and technology > nanotechnology > nano-materials > **nanocrystals**

Programme(s)

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions MAIN PROGRAMME

H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

Topic(s)

MSCA-IF-2015-EF - Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Call for proposal

H2020-MSCA-IF-2015

See other projects for this call

Funding Scheme

MSCA-IF-EF-ST - Standard EF

Coordinator

TECHNISCHE UNIVERSITEIT DELFT

Net EU contribution

€ 165 598,80

Total cost

€ 165 598,80

Address

STEVINWEG 1
2628 CN Delft
Netherlands

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 15 August 2022

Permalink: https://cordis.europa.eu/project/id/704659