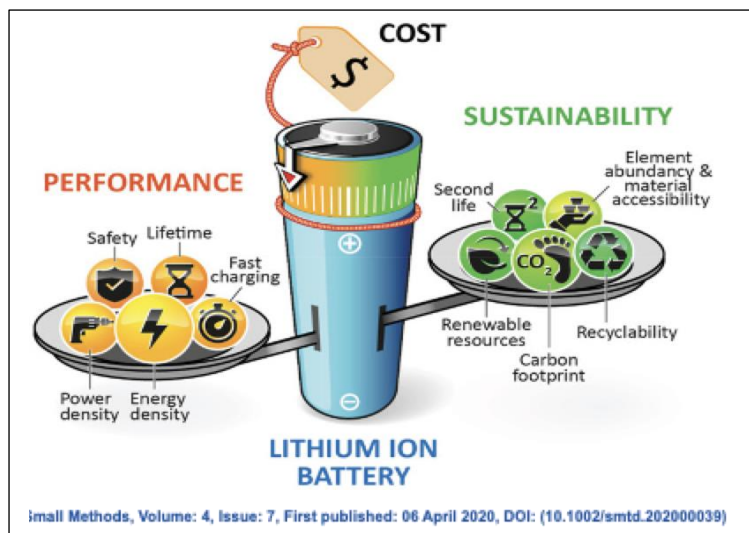


Advanced materials for European Li-ion batteries: from raw materials to manufacturing and recycling

Silvia Bodoardo

Electrochemistry Group@polito – Dep. Applied Science and Technology – Politecnico di Torino – c.so Duca degli Abruzzi 24 – 10129 Torino – Italy – silvia.bodoardo@polito.it



The request of the European Commission to produce no CO₂ in 2050 is pushing the electrical transition. It is so clear the need of storage systems. Li-ion batteries are one of the main electrochemical storage systems actually used as they allow the highest level of energy density. Performances such as fast charge or temperature operating window (-50°C up to 125°C) can be fine-tuned by the large choice of cell design and chemistries.

These key performance indicators for electric mobility like

the energy and power density (plus 30 % to 50 %) and costs (minus 50 %) drastically improved compared to 2015 making battery electric vehicles viable alternatives already today. Still, for a wider public acceptance and broader field of applications, substantial improvements in the battery chemistry towards the 2030 targets are required.

Cost of batteries are mainly depending on materials but has to be evaluated not only taking into consideration their performance, but also their manufacturability carbon footprint, easy recyclability and abundance.

The talk will show which are the main advanced materials used in new Li-ion batteries, in order to increase the energy and power densities. In particular the use of non critical materials is strongly requested and the use of blended LFP/LMNO cathode materials, proposed in HYDRA¹ project, coupled with silicon anode can increase both the energy and the power density of the cells

This presentation will also report where the European research is moving for next future and which suggestions are arriving from the large research initiative Battery2030plus (battery2030.eu)

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