

Ph.D. defense

Institut de Chimie Séparative de Marcoule / CEA Marcoule
(UMR 5257, CEA, CNRS, Université Montpellier, ENSCM)

MARINE COGNET

will present her Ph.D. dissertation

Hybrid materials for energy storage and recycling of Li-ion batteries

The defense will take place on **Monday, September 9th, 2019 at 2.00 pm**
in the ICSM Auditorium

Energy storage is one of the biggest challenges for next decades and a key player for the energy transition. The management of renewable energy production requires more efficient and easily recyclable electrochemical energy storage devices for the eco-responsible development of those technologies.

During this PhD thesis, MOFs were used as electrode material but also as a tool for recycling of Li-ion batteries. Three different MOFs, based on phosphonate, sulfonate or carboxylate ligands, have been developed with different transition metals (Fe, Ni, Mn and Co). Promising electrochemical properties have been observed and post-cycling analysis allowed enlightening the advantages of MOFs as electrode materials. Finally, a recycling method have been developed by the selective precipitation of metals as MOFs in real Li-ion battery waste solutions. The formation of high valuable materials could be one way to close the life circle of batteries economically.

Keywords: Li-ion Battery, Metal Organic Framework, Recycling.

