

What can we really learn about battery materials from operando synchrotron techniques or others ?

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Li-ion batteries are today's system of choice for various applications, but their performances still need to be improved. Identifying new phases, understanding reaction mechanisms and developing new concepts via the help of the always evolving analytical techniques, have contributed to the success of the Li(Na) ion technology. This progression will be illustrated during this lecture through a few examples with a special focus on the key role that complementary *in situ* analytical techniques (XPS, HARDXPS, XAS, EPR, TEM...) had played in unravelling anionic redox activity as the source of the exacerbated capacity in Li-rich layered oxides $\text{Li}[\text{Li}_{0.2}\text{Ni}_x\text{Co}_y\text{Mn}_z]\text{O}_2$. Turning to the future, whatever the winning battery technology at long term, a certainty is that operando analytical techniques will become more important than it has ever been in the past to control interfaces and other dynamic processes...

Will pursuing the same way of battery monitoring be sufficient to meet tomorrow's highly evolving demands linked to automotive mobility and others? This is what the conclusions will address by entering into a personal prospective mode in which new trends, new ideas and new challenges for the years to come will be discussed.

Formalités d'entrée : accès libre dans l'amphi du pavillon d'Accueil.

Si la manifestation a lieu dans le Grand Amphi SOLEIL du Bâtiment Central merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès)

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