

LI-ION BATTERIES MATERIALS: THE POWER OF POWDER DIFFRACTION

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Summary:

For improving lithium ion batteries, finding new electrode materials, determining their structure and being able to follow their structural evolution on charge and discharge is essential and powder diffraction is a method of choice. In this talk, I will present the strategy we use at the lab “Chimie du Solide et Energie” at Collège de France (Paris) to get useful information from diffraction experiments on battery materials, and how important a rigorous analysis of these data is for a reliable characterization. The talk will be illustrated by examples based on neutron and X-ray powder diffraction both in the field of electrode materials and ionic conductors, the developments of the latter being an important step towards the development of safe all-solid-state batteries.