

Valence and Chemical Determination of Li-Battery Using EELS

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Electron Energy Loss Spectroscopy (EELS) is a powerful technique for studying Li-Ion battery materials as Li distribution in the electrode material can be mapped with nanometer scale resolution. In addition, charge transfer during lithiation and delithiation processes can be determined from the relative intensities of L3 and L2 lines of the transition metal (Fe, Mn, Ni..). In this talk, the basic EELS technique will be reviewed and recent results obtained on nanocomposite electrodes will be presented. In addition, the chemical state of Li in compounds such as LiF, Li₂CO₃ can be determined from the Li-K edge fine structure. Determination of Li compounds can be obtained by EELS from comparison with known standards.