**Solid-state NMR spectroscopy and its application for cathode materials of Li-ion battery**

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The solid-state NMR spectroscopy is a powerful tool to understand the local structure of electrodes for lithium ion battery (LIB), but not well known technique in the field of developing new electrodes due to difficulties of experimental setup and spectral interpretation. Herein, the background of solid-state NMR for observation of quadrupole nuclei will be discussed and its applications for various cathode materials of LIB explained. Also, the substitution effect of anion on phosphate site in olivine material prepared by solid state reaction without additional carbon sources will be dealt with the characterization.