

Three-dimensional microstructure measurements of Li-ion battery cathodes by X-ray micro CT and FIB-SEM

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In this work, we report a comparison of two methods of measurements in 3D-reconstruction of porous structures for Li-ion battery cathodes. X-ray micro-CT with 700nm resolution and FIB-SEM with 150nm resolution tomography was carried out to capture the porous microstructure of Li-ion battery cathodes. Two different cathodes that consist of active material, conductive agent and pore were produced in different manufacturing processes. The reconstructed structures through different methods were characterized by calculating pore structural properties. Also, electrolyte impregnation properties affecting performance of Li-ion battery were computed and compared for two structures. As a result, according to two measurement methods, the difference of microstructural property was observed, but the tendency of mass transport property was similar.