

The study of electrode property of lithium ion battery using COMSOL simulation

문기중, 강인석*

포항공과대학교

(iskang@postech.ac.kr*)

Recently almost all mobile device uses lithium ion battery. Because lithium ion battery has high energy density and it does not have the memory effect, which cause lower electrical capacity. From this reason, the demand for good, long-time battery is rapidly increased. And also much experimental work was done in the field of lithium ion battery. However, little attention is paid to the theoretical approach of modeling and simulation of lithium ion battery.

So, in this study, we focused on simulation part, especially how electrode properties affect lithium ion battery. Using COMSOL Multiphysics, we made simple 1D lithium ion battery model as a basic model. And by changing some parameters (electrode particle size, geometry, etc.), do the simulation, draw the charging/discharging curve and compare the result.