

Mathematical Modeling of a Lithium Ion Battery using COMSOL's Multiphysics Software

COMSOL's Multiphysics (MP) software is an excellent tool for developing mathematical models of a lithium ion battery. First, appropriate equations will be developed for a simple model to describe the charging and discharging a lithium ion battery at low rates. These equations will be solved using MP to predict the potential of the lithium ion battery as a function of time for charging and discharging. Next, equations for a more complete model, which are needed for higher rates of charging and discharging, will be presented and solved using MP.