Program description

This is a LIBs cycle aging simulation program. which uses **version 5.6** COMSOL to establish the electrothermal coupling model of lithium-ion battery. We added side reactions such as lithium plating and SEI film growth to the model to simulate battery aging (Component2 / liion Battery / Porous Electrode / Porous Electrode Reaction).

In this calculation example, the ambient temperature is set to 10°C (Global Definitions / Parameters / T_envir). And the battery is charged at 3C and discharged at 1C for cyclic aging (Component2 / liion Battery / Charge-Discharge Cycling). In order to shorten the simulation time, we introduce aging factor (Component2 / Variables / t_factor). “t_factor=80” means that each cycle of the simulation is equal to 80 cycles of aging.

After computing, we can see the battery capacity loss in the results (Results / Capacity Loss (Cycle Numbers)). Among them, there are capacity loss caused by lithium plating and SEI growth, and the total loss.