

Extending the Life of Lithium Ion Battery for Vehicular Traction

Masaki MIKI Yoshiaki TAGUCHI

Recently research and development of railway vehicles equipped with onboard energy storage devices have been carried out widely. Lithium ion battery (LIB), which is a major candidate for onboard energy storage devices due to its high power and energy density, has a problem that degradation is accelerated under high temperature. We conducted cyclic charge/discharge experiments to show that by connecting Lithium ion capacitor (LIC) parallelly with LIB, the current of the LIB decreases, and the rise in temperature is reduced. We also showed that the rise in temperature of the LIB is proportional to the internal heating power without depending on the ambient temperature. Finally, we compared LIC and LIB from the viewpoint of the relationship between the LIB current and net weight or volume of the total energy storage modules.