An Empirical Model of a Lithium-Ion Battery

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Abstract

The battery is the most common method of energy storage in all systems. Today, lithium-ion is the fastest growing and most promising battery chemistry as lithium is the lightest of all metals, has the greatest electrochemical potential and provides the largest energy density for weight. Several models were designed and implemented, over time, in order to simulate and predict a battery's behavior. In this paper five methods for modeling the batteries were presented, and one improved empirical model was implemented. The empirical model was built using Mathcad and was validated through the comparison of the experimental obtained characteristics with the ones given by the producer.