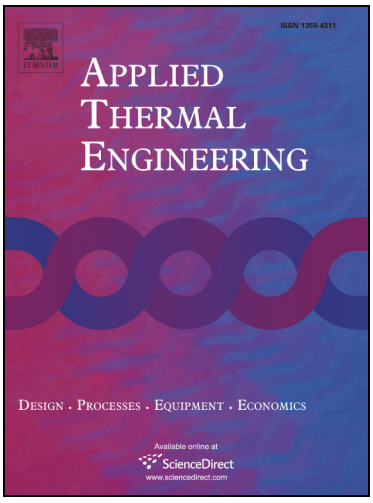

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Water cooling based strategy for lithium ion battery pack dynamic cycling for thermal management system

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Abstract

To investigate the thermal performance of water cooling based battery thermal management system in lithium ion batteries dynamic cycling, the experimental and numerical studies are carried out in this work. In numerical simulation, an electrochemical-thermal model is adopted to predict the thermal behavior and validates with experimental measurement. For both experimental and simulated results, the voltage, current, and the temperature distribution in the single battery and battery pack are exhibited. In addition, the active water cooling system is the better method to improve the battery pack thermal performance at low cycling rate. Moreover, dealing with the situation of using battery pack in wide range at different rate, a compound system need to be design in the real battery pack system.

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