

Safe bidirectional pulse heating method for the lithium-ion battery pack on a high-power electric motorcycle. ... Thermocouple 2 is stuck on the surface of the cell to obtain the temperature of the shell. The battery cell is heated by 1C and 2C bidirectional pulse current with 2 Hz frequency, under the temperature of -20 °C and 0 °C with 30 ...

A physical model of the tube-shell battery pack and its computational meshes were created using commercial meshing software, GAMBIT. Since the model of battery pack was axial symmetry, the computational domain only covered half of the entire pack, as shown in Fig. 6. The total computational domain consists of cells, PCM wrapping cells, baffles ...

The stress, strain, and frequency of the battery pack shell under typical working conditions are used as boundary conditions. The response surface model is established ...

Xiong et al. conducted research on the selection of materials for battery-pack components based on response surface methodology and a multi-island genetic algorithm. The optimized battery-pack achieved improved crashworthiness and was 11.73% lighter than the original battery-pack [14].

The response surface method and NSGA-II were combined to optimize the temperature of the battery system under liquid-cooled conditions and the internal pressure of the liquid-cooled plate. ... Experiment and simulation ...

The current research on the safety of battery-pack systems focuses on the following three levels: The constitutive model of individual battery cells at the micro level [6], [7]; Single cell batteries at medium level [8]; Overall battery-pack at macro level [9], [10]. Xia et al. conducted an impact test on the entire battery-pack and determined the correlation between ...

The application provides a surface anti-corrosion treatment method for a lithium ion battery steel shell, which comprises the following steps of: s1, adding alkali, an oxidant and a...

Recycling method of a battery pack 10 including a battery pack consisting of a plurality of cells connected in series with each other according to the present invention, from the steam boiler 14 into the heat treatment container 12 for heating the battery pack 10. A heating step of heating the battery pack 10 by supplying the supplied steam to replace the space in the heat treatment ...

Fretting or fretting corrosion is defined as surface degradation at a metal to metal contact interface caused by oscillatory movements of the two surfaces with slip amplitudes of ... D. Lyons, E. Berdichevsky, S. Kohn, and

R. Teixeira, "Battery pack and method for protecting batteries," US Patent 7671,565, 2010. Google Scholar.
Sun and Guo ...

An effective and robust thermal management system can control the temperature of lithium batteries and maintain the long service life and high performance of the module.

Using multibody models, this research proposes a simplified method for soft-connected battery modules, which can be applied to the battery pack FEM model, accurately calculate the dynamic ...

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