Battery pack and structure of new energy vehicles

What is a power battery pack design scheme?
Through weight reduction and structural optimization, an innovative power battery pack design scheme is proposed, aiming to achieve a more efficient and lighter electric vehicle power system.

What are the components of an electric vehicle power pack?
The main components of an electric vehicle power pack referenced in this paper include the battery cell, battery module, battery management system (BMS), cooling equipment, electrical system, and various structural components: the upper cover, lower box, bracket, etc. [10, 11, 12].

What is a battery pack box structure?
The power battery is the only source of power for battery electric vehicles, and the safety of the battery pack box structure provides an important guarantee for the safe driving of battery electric vehicles. The battery pack box structure shall be of good shock resistance, impact resistance, and durability.

What is a power battery pack?
The power battery pack provides energy for the whole vehicle,and the battery module is protected by the outer casing. The battery pack is generally fixed at the bottom of the car,below the passenger compartment,by means of bolt connections. The safety of the power battery pack is one of the important indicators to measure the safety of BEVs.

How does a battery pack work?
The power battery pack of the target vehicle is connected with the structural bolts of the vehicle chassis through the lifting lugs welded on the lower box of the battery pack. The battery pack box of the target vehicle is arranged under the chassis, below the floor of the passenger compartment, disassembled from the electric vehicle.

How many units are there in a battery pack model?
Through the finite element analysis software ANSYS Workbench on the electric vehicle battery pack model of Q235 steel material given a mesh cell division,finally,a model grid was constructed containing 275953 unitsand 546089 nodes.

The power battery package"s design objective is to satisfy the functional and performance standards established by the vehicle development. The four primary components of the battery package"s ...

This study takes a new energy vehicle as the research object, establishing a three-dimensional model of the battery box based on CATIA software, importing it into ANSYS finite element software ...

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The Research Direction of Power Battery Pack: Based on giving priority to the selection of appropriate high-energy ratio monomer cells, it is also an urgent need to study and optimize from the perspective of battery pack structure design to develop power battery packs with higher range, higher safety, and wider environmental temperature application range.

For the safety design of electric vehicle, the battery pack comprising batteries and battery management system must be protected from any external impact. For the ...

The box structure of the power battery pack is an important issue to ensure the safe driving of new energy vehicles, which required relatively better vibration resistance, shock resistance, and durability. ... In this work, the structure of the new energy vehicle is optimized by a finite element model, and the side crashworthiness applied to ...

battery pack for new energy vehicles should be paid more attention to. needs further research. This ... In the structure of new energy vehicles, in order to meet the actual demand, hundreds or even thousands of 18650 single cells are needed to be connected in serial, parallel, or mixed with parallel and serial sequence, so as to realize high ...

The research on power battery cooling technology of new energy vehicles is conducive to promoting the development of new energy vehicle industry. Discover the world"s research 25+ million members

Through weight reduction and structural optimization, an innovative power battery pack design scheme is proposed, aiming to achieve a more efficient and lighter electric ...

Through the modeling and simulating of the battery pack of an electric car, the deformation and acceleration after loading are evaluated, which provides a reference for the optimal design of the battery pack structure. This paper has established a numerical simulation model to study and optimize the structure of a new energy vehicle power ...

As the market demand for battery pack energy density multiplies progressively, particularly in the context of new energy pure electric vehicles, where a 10% diminution in vehicle overall mass ...

With the rapid growth in new energy vehicle industry, more and more new energy vehicle battery packs catch fire or even explode due to the internal short circuit. Comparing with traditional vehicles, the new energy vehicles industry should pay more attention to safety of power battery pack structures.

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