



**SolarTech Power Solutions**

# **New cell lithium battery pack**



## Overview

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Can NMC cells be used as a battery pack?

Of course, the same structure could be applied to NMC cells, leading to an even smaller battery pack, or one could increase the number of cells in the same space to increase vehicle range. The cell-to-pack approach has made the LFP pack much more viable as an option in terms of fitting the necessary battery capacity in a vehicle.

How is a lithium-ion battery based on a physics-based cell design?

The cell design was first modeled using a physics-based cell model of a lithium-ion battery sub-module with both charge and discharge events and porous positive and negative electrodes. We assume that the copper foil is used as an anode and an aluminum foil is used as a cathode.

What is a Li-ion battery pack?

A Li-ion battery pack is a complex system with specific architecture, electrical schemes, controls, sensors, communication systems, and management systems. Current battery systems come with advanced characteristics and features; for example, novel systems can interact with the hosting application (EVs, drones, photovoltaic systems, grid, etc.).

What is the thermal management of Li-ion battery pack?

In the same period, Mahamud et al. studied the thermal management of the Li-ion battery pack using a CFD tool. They also introduced a lumped-capacitance thermal model to evaluate the heat generated by each battery cell. Using this approach, they could investigate cell spacing and coolant flow rate parameters.

Can a cell-to-pack battery increase energy density?

Options for pack improvement Regardless of the cell-to-pack approach, automakers have been reducing the amount of materials that are used around

the battery cells in a bid to increase pack energy density and reduce manufacturing costs.

### What is a hybrid-cell battery?

The "hybrid-cell" is just a marketing name, as there are no hybrid cells - the battery pack is a hybrid that consists of two different lithium-ion battery cell chemistries: NCM (nickel:cobalt:manganese) and LFP (lithium iron phosphate). The ratio of NCM/LFP was not disclosed (we guess that it might be simply 1:1 or 2:1).

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