Automatic charging of lithium battery pack

What is optimal charging strategy design for lithium-ion batteries?
Optimal charging strategy design for lithium-ion batteries considering minimization of temperature rise and energy lossA framework for charging strategy optimization using a physics-based battery model Real-time optimal lithium-ion battery charging based on explicit model predictive control
How to reduce the charging loss of lithium-ion batteries?
In, a charging strategy is proposed to reduce the charging loss of lithium-ion batteries. The proposed charging strategy utilizes adaptive current distribution based on the internal resistance of the battery changing with the charging state and rate. In, a constant temperature and constant-voltage charging technology was proposed.
What is a control-oriented lithium-ion battery pack model?
A control-oriented lithium-ion battery pack model for plug-in hybrid electric vehicle cycle-life studies and system design with consideration of health management On-line equalization for lithium-ion battery packs based on charging cell voltages: Part 1.
Should lithium-ion batteries be fast charged?
Fast charging of lithium-ion batteries has become a topic of great interest in recent years, as it can significantly reduce the charging time of electric vehicles and portable electronic devices, . However, achieving fast charging rates poses several challenges, such as thermal management, capacity fade, and safety concerns .

This study focuses on a charging strategy for battery packs, as battery pack charge control is crucial for battery management system. First, a single-...

Introduces the model-based battery charging technologies from the basic theory to advanced applications Includes economic cost optimization of battery charging Offers in-depth ...

This ensures the better performance of the proposed cell balancing as compared to other (Voltage/SoC-based) balancing in maximizing the battery pack capacity and minimizing balancing ...

This paper shows the potential of artificial intelligence (AI) in Li-ion battery charging methods by introducing a new charging algorithm based on artificial neural networks (ANNs). The proposed ...

Abstract This paper presents an innovative strategy that utilizes reinforcement learning to enhance the fast balance charging of lithium-ion battery packs. We develop an interactive framework ...

This study introduces a balancing control strategy that employs an Artificial Neural Network (ANN) to ensure State of Charge (SOC) balance across lithium-ion (Li-ion) battery packs, ...

Minimizing charging time without damaging the batteries is significantly crucial for the large-scale penetration of electric vehicles. However, charging inconsistency caused by inevitable ...

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In this article, a real-time novel adaptive deep neural network (A-DNN) charging scheme is proposed which increases the life of the batteries by controlling the heating impact inside the ...

The active cell balancing of the designed battery pack is achieved using switched supercapacitors in parallel with the designed battery pack through a simple and efficient on-off ...

This paper shows the potential of artificial intelligence (AI) in Li-ion battery charging methods by introducing a new charging algorithm based on ...

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