

Why is the storage battery a weak link of electric vehicles?

Due to road conditions, technology and other reasons, the storage battery, as a weak link of electric vehicles, is a frequent occurrence point of faults and the focus of fault diagnosis (Wang et al. 2017). The purpose of intelligent fault diagnosis of electric vehicles is to detect faults in the system based on actual detection data.

What are EV battery faults?

Connection faults, cooling system faults, controller area network bus faults, etc. belong to this group of faults. Due to the need for a high level of energy in EV applications, the battery system usually consists of many battery cells connected in a parallel-series configuration.

Why is fault diagnosis of high voltage system of new energy vehicles important?

With the development of new energy vehicles, the detection and fault diagnosis of high voltage system of new energy vehicles are becoming more and more important. The leakage of high-voltage system of new energy vehicles will lead to the failure of power on and normal operation of vehicles.

What are the problems and challenges of fault diagnosis on battery system?

Various issues and challenges of fault diagnosis on battery system are identified. Due to the limited capacity and voltage of single battery cell, the battery system for electric vehicles often consists of hundreds or thousands of single cells in series and parallel connection.

Does new energy vehicle fault diagnosis system have a good diagnosis effect?

Table 2 Statistical table of A phase current in normal state From the above analysis, it can be known that the new energy vehicle fault diagnosis system constructed in this paper has a good diagnosis effect, so it can be applied to subsequent practice.

How to detect faults in battery systems in electric vehicles?

This paper presents a novel fault diagnosis method for battery systems in electric vehicles based on big data statistical methods. According to machine learning algorithm and 3s multi-level screening strategy (3s-MSS), the abnormal changes of cell terminal voltages in a battery pack can be detected and calculated in the form of probability.

This paper presents a review on the recent research and technical progress of electric motor systems and electric powertrains for new energy vehicles. Through the analysis and comparison of direct current motor, ...

Take the draft of Development Plan for the New Energy Vehicle Industry (2021-2035) released in December 2019 as an example, it mentions the industry will breakthrough technologies in key components, build supply system for technologies in key components using power battery and management system, drive motor and power electronics, ...

A failure due to poor integration, component incompatibility, incorrect installation of elements of an energy storage system or due to inadequate commissioning procedures. o Operation A failure due to the charge, discharge, and rest behavior of the energy storage system exceeding the design tolerances of an element of an energy storage system

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In order to improve the fault diagnosis effect of new energy vehicles, this paper proposes a fault diagnosis system of new energy vehicle electric drive system based on ...

1. Introduction. With the increase in vehicle stock, energy saving and CO₂ emissions reduction are getting more and more attention [1]. New energy vehicles, especially pure electric vehicles, will contribute more significantly and account an important proportion of industrialization [2]. However, there are still some problems with usage requirements to ...

In particular, TIS development is interlinked with policies (Bergek et al., 2015; Van der Loos et al., 2021). As noted by Bergek et al. (2015), interactions between TIS and policies are at the heart of large-scale transformation processes, and therefore deserve greater attention the current paper, we address this topic by analysing the coevolution between policymaking ...

The battery management system architecture is a sophisticated electronic system designed to monitor, manage, and protect batteries. ... She has been involved in leading and monitoring comprehensive projects when worked ...

Fig 2 lists the top 10 battery system energy densities of each batch of BEVs in the "Catalog of New Energy Vehicle Models Exempt from Vehicle Purchase Tax" issued by the Ministry of Industry and Information ... and failure short-circuit faults [55, 56]. ... Overall architecture and key technologies of drive systems of new energy vehicles.

With the development of new energy vehicles and the increase in their ownership, the safety problems of new energy vehicles have become increasingly prominent, and incidents of spontaneous combustion and self-detonation are common, which seriously threaten people's lives and property safety. The probability analysis model of battery failure of a power battery unit is ...

The failure of one phase loses in the inverter or in the motor happens very seldom (Occurrence low), inverter system also can detect this failure (Detection high), but this failure can lead to motor drive system stop running, then the R will be very high (Risk high), some additional limp-home concepts should be designed to decrease the R to a acceptable value, ...

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