BLINK SOLAR

Millimeter wave for lithium-ion batteries in solar container communication stations

Overview

Does SoC influence guided wave dispersion in lithium-ion battery?

The mechanical performance (modulus and density) of the electrode is dynamically changing during cycling, which will influence the dispersion characteristics of ultrasonic guided waves in lithium-ion battery. Based on this, the intrinsic connection between the SOC and the guided wave dispersion curve of lithium-ion battery is numerically analyzed.

Can ultrasonic guided waves be used to estimate lithium-ion batteries?

Additionally, Li et al. proposed a method that combines ultrasonic guided waves and machine learning models for estimating the state of lithium-ion batteries, enhancing the accuracy and robustness of state estimation via ultrasonic.

Can a large-format lithium-ion battery be characterized based on phased-array ultrasonic technology?

This paper presents a characterization method for large-format LIBs based on phased-array ultrasonic technology (PAUT). A finite element model of a large-format aluminum shell lithium-ion battery is developed on the basis of ultrasonic wave propagation in multilayer porous media.

What is the state of a lithium ion battery?

The state of lithium-ion batteries includes factors such as the state of health (SOH), state of charge (SOC), and state of safety (SOS). Typically, battery dynamic characteristic models are constructed on the basis of electrical, thermal, and mechanical properties.

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State estimation of a lithium-ion battery based on multi ...

In this paper, the state estimation of a lithium-ion battery based on multi-feature indicators of ultrasonic guided waves is studied. Piezoelectric ceramic ultrasonic probes with a ...

Modeling Acoustic Attenuation, Sound Velocity and Wave ...

This emphasizes the importance of selecting a suitable interrogation frequency for ultrasound investigations in lithium-ion batteries. The model accurately replicates the observed ...

Guided waves propagation in lithium-ion batteries

Ultrasonic guided wave detection technology can feasibly measure and monitor the state of charge. The experimental studies in a customized cell were also performed to acquire the ...

Integrated lithium niobate photonic millimetre-wave radar

Researchers demonstrate a compact photonic mmWave radar based on a 4-inch wafer-scale thin-film lithium niobate technology. Multi-target ranging with 1.50 cm resolution ...

Modeling Acoustic Attenuation, Sound ...

This emphasizes the importance of selecting a suitable interrogation frequency for ultrasound investigations in lithium-ion ...

Study on Guided Wave Propagation Characteristics in ...

Accurately assessing the state of lithium-ion batteries (LiBs) is critical for both economic and safety considerations. Traditional methods for evaluating battery state are often ...

Fast and Smart State Characterization of Large-Format Lithium-Ion

A finite element model of a large-format

aluminum shell lithium-ion battery is developed on the basis of ultrasonic wave propagation in multilayer porous media. Simulations ...

Guided wave dispersion characteristics of multi-layered porous lithium

Based on the combination of state matrix and Legendre series method with Biot's theory, a theoretical model for wave propagation in multi-layered porous lithium-ion batteries is ...

Waves for Lithium-Ion Battery Applications Advanced ...

Waves for Lithium-Ion Battery Applications Yingjin Luo,a Wentao Lei,a Pengfei Chen,b Tao Jiang,b Andeng Liu,a Meidan Ye,a Zijie Xu,b Zhong Lin Wang,*b and Wenxi Guo*a

A Miniature Millimeter-Wave Radar Based Contactless Lithium ...

This paper has proposed a contactless voltage classification method for Lithium-

ion batteries (LIBs). With a three-dimensional radio-frequency based sensor called Walabot, ...

Ultrasonic guided wave measurement and modeling analysis ...

The mechanical performance (modulus and density) of the electrode is dynamically changing during cycling, which will influence the dispersion characteristics of ...

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BLINK SOLAR

Phone: +48-22-555-9876

Email: info@blinkartdesign.pl

Website: https://www.blinkartdesign.pl

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