Ultrasonic flaw detection of large-scale wind turbine blades

The reliability of the wind turbine blade (WTB) evaluation using a new criterion is presented in the work. Variation of the ultrasonic guided waves (UGW) phase velocity is proposed to be used as a new ...

This work proposes the use of novelty detection methods combined with nondestructive ultrasound testing to identify structural problems in wind turbine blades. Ultrasound signals are ...

To automate UT in the wind turbine industry, an image detection model based on deep learning called UCD-YOLO (Ultrasonic C-scan image Detection You Only Look Once) is proposed to ...

In addition, increases in the total number of wind farms and emphasis on ever larger turbines has seen new faults arising. Damage detection techniques for wind turbine blades include approaches such as ...

This study adopts a wind turbine blade damage recognition method that combines deep learning, compressed sensing, and sparse representation to enhance the accuracy and real-time ...

Currently, commonly used detection methods for defects in wind turbine blades include ultrasonic testing, infrared thermography, and acoustic emission monitoring. Among these methods, ...

In this paper, we study the non-destructive testing of ultrasonic phased array technique in the application of wind turbine blade defect detection, and analysis all kinds of common defects of blade production ...

A portable cyber-physical phased-array ultrasonic system for in-situ wind-turbine blade inspection is presented. The prototype supports single scan acquisition and volumetric reconstructions via delay ...

The equipment can judge the internal structure and quality of blades by transmitting and receiving ultrasonic signals to blades and analyzing the ...

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