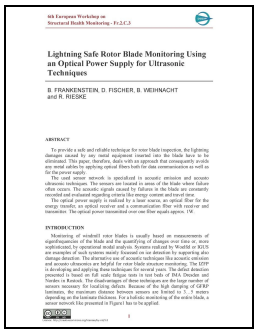

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Lightning Safe Rotor Blade Monitoring Using an Optical Power Supply for Ultrasonic Techniques

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To provide a safe and reliable technique for rotor blade inspection, the lightning damages caused by any metal equipment inserted into the blade have to be eliminated. This paper, therefore, deals with an approach that consequently avoids any metal cables by applying optical fibers both for data communication as well as for the power supply.

The used sensor network is specialized in acoustic emission and acousto ultrasonic techniques. The sensors are located in areas of the blade where failure often occurs. The acoustic signals caused by failures in the blade are constantly recorded and evaluated regarding criteria like energy content and travel time.

The optical power supply is realized by a laser source, an optical fiber for the energy transfer, an optical receiver and a communication fiber with receiver and transmitter. The optical power transmitted over one fiber equals approx. 1W.

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Ключевые слова:

Содержание.