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SHM of Wind Turbine Blades using Piezoelectric Active-Sensors

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This paper presents a variety of structural health monitoring (SHM) techniques, based on the use of piezoelectric active-sensors, used to determine the structural integrity of wind turbine blades. Specifically, Lamb wave propagations, frequency response functions, and time series based methods are utilized to estimate the condition of wind turbine blades. For experiments, a 1m section of a 9m CX100 blade is used. Overall, these three methods yielded a sufficient damage detection capability to warrant further investigation into field deployment. A full-scale fatigue test of a CX-100 wind turbine blade is also conducted. This paper summarizes considerations needed to design such SHM systems, experimental procedures and results, and practical implementation issues that can be used as guidelines for future investigations.

Ключевые слова:

Содержание.

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