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Sensor Network for Non Destructive Control of Aeronautics Structures: Piezo or Accelerometer Diagnosis?

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Could composite or/and metallic mechanical parts of an airplane be re-used (or recycled) after the plane end of life? The answer is one of the challenges of DIAGNOSTAT EADS/AIRBUS project where we have developed a sensor network.

The purpose of our research is to build up a non destructive control method based on a comparison between new and old aircraft elementary mechanical structures. The diagnosis based on a mixed piezo actuator / sensor design, including embedded signal processing methodology, is presented and compared with accelerometer solutions. We both devised piezo sensor node, and optimized node design using analytical system modelling through lamp wave propagation analytical simulation. Advantages and disadvantages of these two MEMS technologies are discussed through examples where measurements reproducibility is analyzed.

Ключевые слова:

Содержание.

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