

Study of Bio-composite materials impact-induced damage by Vibro-Acoustic and Thermographic analyses

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Abstract.

Biocomposite materials are increasingly used in industrial transport structures (aeronautics, aerospace and automotive). They offer the ability to design parts of complex, lightweight shapes that respond to high mechanical performance. Flax fibers are the most widely used because of their availability and mechanical properties, competitive to glass fibers' properties. The detection of damage in these structures is essential to anticipate perilous consequences. Impacts induced damage are the most critical. The health control of a structure requires information about the severity and location of a damage through nondestructive methods. The aim of this study is to investigate vibro-acoustic and thermic radiation due to an impact on a biocomposite (flax/epoxy) structure to detect and evaluate the induced damage in non-contact method.