

**ABSTRACT**

The paper demonstrates the application of vibrotermography and 3-D Laser vibrometry for impact damage detection in a composite plate. Images revealing delamination are compared with classical ultrasonic C-scans and X-ray photographs. The results show that recently developed techniques not only offer simple data interpretation without baseline measurements but also produce similar damage detection results.

**INTRODUCTION**

It is well known that composite materials are susceptible to damage following an impact. Therefore, many methods have been developed to detect damage in composites. A variety of different methods have been developed for damage detection in composite structures. For the most part, these methods can be divided into three main categories. First, damage often depends on three major factors. Thirdly, interpretation of complex damage detection results is often difficult and time consuming. Secondly, damage detection procedures are often undertaken by modestly qualified technicians. Secondly, baseline measurements, i.e. measurements taken before damage occurs, are often required. Damage detection based on baseline data needs extensive databases and often requires measurements which are not possible in practice. Thirdly, logistics and practicality often make it difficult to implement these methods in industrial applications. It appears that X-ray radiography and ultrasonic testing are the most widely used Non-Destructive Testing (NDT) methods for damage detection in composite and other engineering materials. Both methods produce accurate results that are relatively easy to interpret.

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## **Comparative Study of Image-Based Impact Damage Detection in Composite Materials**

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**Ключевые слова:**

**Содержание.**

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