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## Detection of Delamination in Composites Using Embedded Electrical Grid and Thermovision

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The proposed approach assumes that the structure is equipped with a specially designed electrical circuit of a 3D grid layout, composed of high resistivity elements and embedded in the structure. The special layout of the electrical circuit activated by small currents provides a scattered source of thermal field in the laminate. It is assumed that mechanical properties of the circuit elements exhibit failure which is coincident with the commencement of delamination and its subsequent propagation. These breaks in the electrical network cause changes in the thermal field which will be observed by a long-wave thermovision camera (the temperature range will span a few Celsius degrees above the environment temperature).

A numerical model of layered composite structure with delamination will be presented. The description will be focused on numerical simulations leading to the proper design of the embedded electrical circuit. Experimental verification will be demonstrated for a simple specimen under impact loading.

**Ключевые слова:**

### Содержание.

Detection of Delamination in Composites Using Embedded Electrical Grid and Thermovision