Autoregressive algorithms and spatially random flash excitation for 2D non destructive evaluation with infrared cameras

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Abstract

Thermal Non Destructive Evaluation methods to detect cracks perpendicular to the plane of a plate needs to implement in-plane thermal gradients. Instead of a flying spot, a spatially random flash excitation on the front face of a thin plate is here proposed. It allows a very simple and quick experiment. Some processing methods are discussed in a longer text in QIRT journal. Only a biased but simple estimation method based on the application of Laplace operator is here presented. The main advantage is to allow the simultaneous process of a huge amount of data, sensitive all over the plate to the thermal conductivity mapping.

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