

## **HIGH SPEED NON CONTACT IMAGING OF STRESS IN MATERIALS**

### **APPLICATION ON BLADE VIBRATION ANALYSIS**

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#### **Abstract**

Performances of infrared focal plane array detectors drastically improved in the last decade using advanced detector materials like HgCdTe and InSb. These new technologies provide to the Thermo Elastic Stress Analysis large advance in stress analysis especially in term of understanding and measurement during very fast events.

Thermo-elasticimetry is the unique technique of measurement which measures directly the mechanical energy by temperature measurement. Using infrared cameras it gives a non contact, full field stress measurement on the surface of materials.

This article deals with the measurement of fast transient phenomena, in particular on slam door (2s), Hopkinson tube (100  $\mu$ s) and vibration analysis of jet engine blades (10-20KHz).

