

Heterodyne techniques for the measurement of high frequency (up to 10 kHz) periodic thermal excitation with InfraRed camera

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Abstract

The aim of this work is to present a new experimental device for the measurement of high frequency periodic thermal signals. The main idea is to adapt classical heterodyne methods used in visible to IR domain. With this procedure it becomes possible to measure the thermal response at frequency closed to 10 kHz with the whole size of the camera sensor and an acquisition frequency of 25 Hz. Then it is possible to study heat transfer in high thermal conductive materials like metallic plate. This technique, associated with microscope lens, allows to study thermal heterogeneity of such materials at micro-scale.

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