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Termografía Infrarroja : una técnica multifacética para la Evaluación No Destructiva (END)

Infrared thermography: a multifaceted technique for Non Destructive Evaluation (NDE)

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Abstract

This communication first recalls simple ideas and basic aspects of infrared thermography, a technique which is in reality more complex than it looks (an infrared camera does not directly measure temperature and in most cases the measurements converted into Celsius or Kelvin are not very precise). Hopefully, in Non Destructive Evaluation (NDE), it is not generally necessary to achieve absolute measurements.

The two possible approaches of thermography are examined : passive thermography and active (or stimulated) thermography, the latest being more commonly used in NDE. Active thermography comprises a wide variety of stimulations. This variety is linked to the temporal histories and/or the spatial distributions of the stimulations, but also to the nature itself of these stimulations. A special emphasis is given to the interest of using thermal models, which improve the quality of the diagnosis and allows them to be quantitative. The generalization of this approach in all domains of application led to the concept of Quantitative InfraRed Thermography (QIRT), which appeared in the nineties.

The communication leads to the conclusion that investing in thermography is not only buying hardware (camera and accessories) and dedicated software, but also acquiring an adequate training and a basic knowledge in heat transfer sciences.