



Thermal NDT of Space Shuttle Materials at NASA

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ABSTRACT

Since the Space Shuttle *Columbia* accident, NASA has focused on improving advanced NDE techniques for the Reinforced Carbon-Carbon (RCC) panels that comprise the orbiter's wing leading edge and nose cap. Various nondestructive inspection techniques have been used in the examination of the RCC, but thermography has emerged as an effective inspection alternative to more traditional methods. Thermography is a non-contact inspection method as compared to ultrasonic techniques which typically require the use of a coupling medium between the transducer and material. Like radiographic techniques, thermography can inspect large areas, but has the advantage of minimal safety concerns and the ability for single-sided measurements.

Details of the analysis technique that has been developed to allow *insitu* inspection of a majority of shuttle RCC components is discussed. Additionally, validation testing, performed to quantify the performance of the system, will be discussed.

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