

Non Destructive Testing for Evaluation of Defects and Interfaces in Metal Carbon Fiber Reinforced Polymer Hybrids

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Abstract : In this work, different non-destructive testing methods for the characterization of defects and interfaces are presented. It is shown that, by means of active thermography, defects in the interface and in the carbon fiber reinforced polymer (CFRP) itself can be detected and determined. The bonding of metal and thermoplastic can be characterized very well by ultrasonic testing with electromagnetic acoustic transducers (EMAT). Mechanical testing is combined with passive thermography to correlate mechanical values with the defect-size. There is also a comparison between active and passive thermography. Mechanical testing shows the influence of different defects. Furthermore, a correlation of defect-size and loading to rupture was performed.

Keywords : defect evaluation, EMAT, mechanical testing, thermography

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