9th European Conference on NDT (ECNDT)

2006

Ultrasonic Signal Processing in the Detection of Defect in Composite

Redouane DRAI, Abdessalem BENAMMAR

Abstract : Because of their good mechanical strength and light weight, fibre reinforced composites are increasingly used in industrial fields. However, during the fabrication of polymer materials, various flaws may occur which have negative impact on polymer composite quality. Usually in this type of materials, the received signals consist of components and additive structural noise. This noise often masks the signal of the defect and creates an embarrassment in its detection. Also, in thin samples the reflected signals are overlapping thus making detection of defects in the sample and accurate measurements impossible. It is thus necessary to enhance the visibility and resolution of the defect echo by signal processing techniques. In this context, we develop signal processing tools based on Split Spectrum Processing (SSP) with Q constant method allowing to detect and locate the imperfections present in these materials. This work answers to the selected ultrasonics NDT problems of composite like sensitivity and resolution of defects detection.

Keywords : Ultrasonic NDE, SSP, Detection of Defect, Composite material