



## ULTRASONIC SIGNAL PROCESSING IN THE DETECTION OF CLOSER DEFECTS IN STEEL MATERIALS

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In ultrasonic non destructive evaluation, in order to successfully detect closer defects echoes, a robust and efficient method is required. Various techniques of signal processing were introduced. They are based on frequency analyses in order to increase the detection and to improve the localization of these defects. In this work, we develop some methods permitting the detection and the estimation of ultrasonic echoes superimposed in time. These methods based on signal processing techniques such as non linear filtering realised by Split Spectrum Processing (SSP) and estimation by EM algorithm. The simulation results are validated by experimental results obtained on steel materials with closer defects.

*Keywords:* Ultrasonic NDE; Ultrasonic signal processing; SSP; EM algorithm;