## 07WA077 Crack Size Identification andLocalization Using Ultrasonic Sensors with Stationary Wavelet Transform and Hilbert Transform

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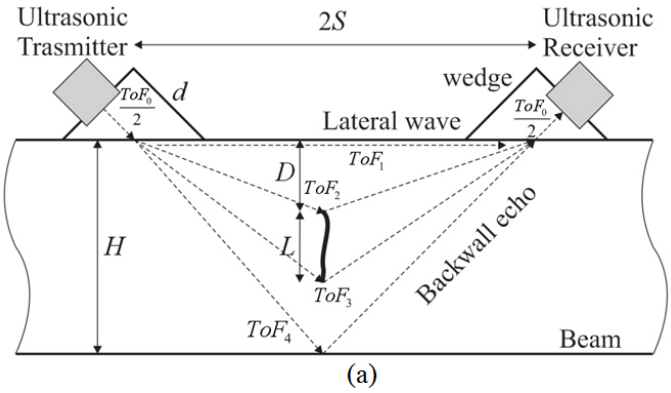
In this work, analyses of the Stationary Wavelet Transform SWT, the Hilbert Transform and the method to identify the best mother wavelet using Shannon Entropy were carried out in order to define a new procedure for locating and measuring the size of cracks in beams. From uncertainty propagation analysis, it was calculated that the flight-of-times ToFs do not follow a normal distribution so the technique type B with Fuzzy numbers was used in order to calculate their uncertainties associated.




***Basic principle of theToF method***

## 07WA086 Time Domain Processing of Pulsed Differential Eddy Currents Testing Signals

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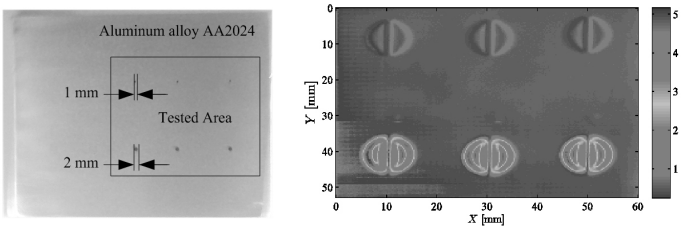
The use of pulsed excitations on Eddy Currents Testing is being applied on several applications from conductivity measurements to defects detection on metallic parts. The use of this technique allows collecting increased information on each measured point of the part. In this work, the processing of eddy currents testing signals on a differential probe is discussed. A time domain feature based on the probe response RMS value is extracted from the acquired signals and used as a metric. Two-dimensional scans were performed allowing the imaging of a metallic part section with defects highlighting the validity of the method.




***Standard top view (left) and testing results (right).***