

## ACOUSTICS2008/1662 3D Gabor analysis of transient space-time waves

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Laser generation/detection methods allow the investigation of ultrasonic transient phenomena in both space and time dimensions. Used for the experimental investigation of surface wave propagation along a two dimensional medium, laser ultrasonics leads to three dimensional (3D) space-time signal collections. In order to extract the wave propagation information, the classical high resolution signal processing methods or 3D Fourier Transforms are not suitable to identify the transient and local aspect of wave propagation and mode conversion. In order to quantify these transient aspects in the Space-Time-Wave number-frequency domains, the 3D Gabor transform and some other suitable methods are presented. Their potential for the identification of the local and transient complex wave numbers is illustrated with the propagation of Lamb waves on a plane limited plate. The experimental results are in good agreement with the numerical simulations.