

Use of Guided Waves for Inspection of Composite Skin-Honeycomb Core

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Abstract: Sandwich plates, made of two aluminum layers and a metal honey comb core are used in the aircraft industry. The purpose of this study is to show the ultrasonic guided waves sensibility to discover delamination in skin-honeycomb sandwich structures used in aeronautics. Separation between the skin and the core can appear during the manufacture or after use. In this work, Lamb's waves are used to control this kind of plane structure. Indeed, these waves have the advantage to put in vibration the totality of the plate that we want to control and they propagate on long distances without too much attenuation. The revealing, by the guided waves, of the unsticking which can meet on such sandwiches, between the plate and the honeycomb core is studied and commented.

Keywords : Lamb waves, Sandwich structure, Dispersion curves, Displacements.