

## Invisible disbond identification in industrial honeycomb panels

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Honeycomb panels are largely used in the aerospace and automotive world due to its lightweight and corrosion resistance. The panels are usually bonded with other materials (called facet) to improve its strength. But, sometimes the adhesive bonding may not be proper. In such cases, the strength of the multilayered structure gets reduced leading to structural damage. The research aims to locate such disbond that are located within the material and can't be seen with a visual inspection. The study is done using Guided waves (GW) with the help of a piezoelectric zirconate transducer (PZT) network. When GW reaches the disbond it gets reflected. The existence of such disbond causes changes to the amplitude of the waves. Based on the change in the time of arrival of the waves an SHM strategy is proposed to identify such invisible disbond. The identification of such a small disbond is done with a baseline free approach and later with the help of DI maps. Figure 1 (a) shows the panel facet with the PZT network and Figure 1(b) DI map analysed to locate the disbond.

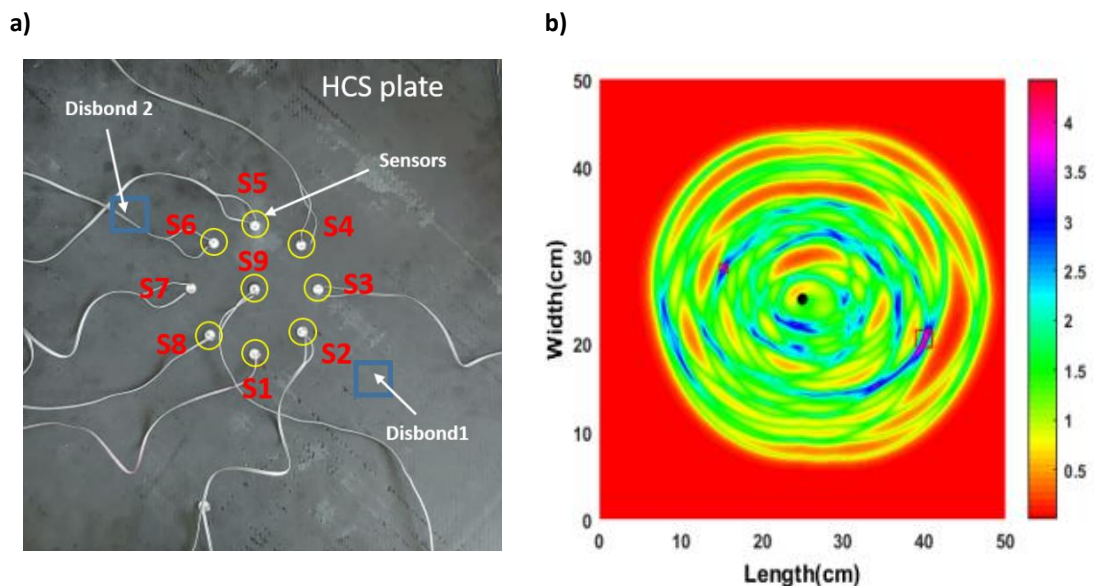


Figure.1 (a) Honeycomb panel facet with PZT network, (b) DI maps in disbond identification