

# Piezocomposite Transducer for Mode and Direction Selectivity of Lamb Waves (2010)



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## Abstract

Ultrasonic-based SHM (Structural Health Monitoring) applications commonly rely on the use of piezo-electric patches to emit and receive ultrasonic waves. The objective is to study the propagation of the waves through a structure to assess its structural integrity. Because of the elevated number of echoes and possible modes of propagation of the waves within the structure, those applications suffer from a burden of signal processing. This paper presents a composite piezo-electric patch that was designed and successfully tested for reducing the complexity of the SHM detection schemes by selecting the mode and direction of the Lamb waves received. The piezo-composite is composed of a row of eight independent ceramic pillars separated with polymer, so it is a 1-D matrix of independent piezo-patches. Used with adequate electronics and signal processing, it was shown that it allowed selecting the direction and the mode of the Lamb waves.

View the full paper here:

[Piezocomposite Transducer for Mode and Direction Selectivity of Lamb Waves](#)

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