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# Piezoelectric Wafer Active Sensors for Structural Health Monitoring-Recent Developments

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Piezoelectric wafer active sensors (PWAS) are inexpensive, non-intrusive unobtrusive devices that can be surface mounted on existing structures, or inserted in a new composite structure. The PWAS can be used in both active and passive modes. In active mode, the PWAS generate Lamb waves that can exist in either traveling waves or standing waves. As traveling waves, PWAS-generated Lamb waves can be used with the pitch-catch, pulse-echo, or phased-array methods that allow far-field and some medium-field damage detection. This paper presents new results obtained in the use of PWAS for the structural health monitoring. In particular, it deals with recent advancements obtained in two aspects: (a) modeling and analysis of power and energy flow from transmitter PWAS through the structure and back into the receiver PWAS; and (b) exact solution of the shear-lag transfer between PWAS and structure in the presence of several Lamb wave modes at high frequency-thickness values.

Ключевые слова:

## Содержание.

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