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A. Ebrahimkhanlou, S. Salamone

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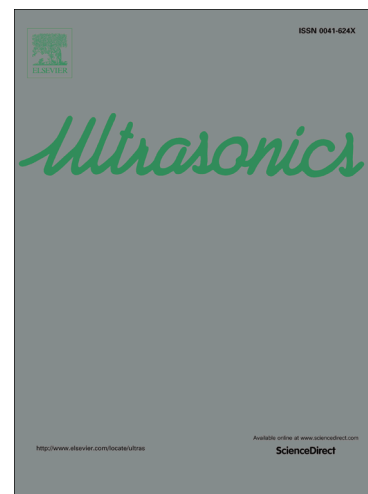
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# Acoustic emission source localization in thin metallic plates: a single-sensor approach based on multimodal edge reflections

A Ebrahimkhanlou<sup>a</sup>, and S Salamone<sup>a\*</sup>

<sup>a</sup> Smart Structures Research Laboratory (SSRL), Department of Civil Architectural and Environmental Engineering, University of Texas at Austin, 10100 Burnet Rd, Bldg. 177, Austin, TX 78758

\* corresponding author.

Email addresses: salamone@utexas.edu (S. Salamone) arvinebr@utexas.edu (A. Ebrahimkhanlou)

## Abstract

This paper presents a new acoustic emission (AE) source localization for isotropic plates with reflecting boundaries. This approach that has no blind spot leverages multimodal edge reflections to identify AE sources with only a single sensor. The implementation of the proposed approach involves three main steps. First, the continuous wavelet transform (CWT) and the dispersion curves of the fundamental Lamb wave modes are utilized to estimate the distance between an AE source and a sensor. This step uses a modal acoustic emission approach. Then, an analytical model is proposed that uses the estimated distances to predict the edge reflected waves. Finally, the correlation between the experimental and the simulated waveforms is used to estimate the location of AE sources. Hsu-Nielson

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