Acoustical crack detection: Wigner-Ville distribution vs. short time Fourier transform

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The innovative acoustical forced oscillation method with nonstationary excitation for fatigue crack diagnostics of the structure is considered. Because of the nonstationarity of the acoustical structure response, the modern time-frequency technique is used for diagnostics. The numerical simulation is carried out to investigate the diagnostic capabilities of the time-frequency signal processing technique based on the Wigner-Ville distribution. Results from the Wigner-Ville procedure are compared to the results from the short time Fourier transform.

The financial support of the US National Research Council Twinning Program with Ukraine (Senior Program Officer Kelly Robbins) is thankfully acknowledged.

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