

Limits of Phase Modulated Frequency Shifted Holographic Vibrometry at Low Amplitudes of Vibrations

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Abstract : This paper presents advanced time average digital holography by means of frequency shift and phase modulation. This technique can measure amplitudes of vibrations at ultimate dynamic range while the amplitude distribution evaluation is done independently in every pixel. The main focus of the paper is to gain insight into behavior of the method at low amplitudes of vibrations. In order to reach that, a set of experiments was performed. Results of the experiments together with novel noise suppression show the limit of the method to be below 0.1 nm.

Keywords : acusto-optical modulator, digital holography, low amplitudes, vibrometry

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