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ABOUT THE QUINTIC DUFFING OSCILLATOR

BY

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Abstract. The paper aims to present the possibility of estimating the stability of the forcing quintic Duffing oscillator. Consider that the forced harmonic regime is perturbed such that the output oscillation is a superposition of two harmonic oscillations of the same frequency, but of much different amplitudes. Accepting some simplifying conditions, using a graphical representation based on the obtained analytical equations one can yield some considerations about the stability of the oscillator. The results obtained by numerical simulation are presented.

Keywords: Duffing equation, harmonic regime, perturbation, harmonic linearization.