

# SOUND WAVE PROPAGATION IN NONLINEAR MEDIA

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**Abstract:** *When a signal,  $x(t)$ , of a particular frequency is passed through a nonlinear system, the output of the system consists of not only the input frequency ( $f_1$ ), but also its harmonics. The number of harmonics, and their corresponding amplitudes that are generated, depends on the degree of nonlinearity of the system. The present work investigates the acoustic behavior of a ferromagnetic rod, during the first magnetization process, with the aim to connect the harmonic distortion spectrum with the nonlinearity of the first magnetostriction curve.*

**Keywords:** *nonlinear media, sound wave, magnetostriction.*

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