

عنوان مقاله:

Two-dimensional computational study of ultrasound propagation in a bone

محل انتشار:

کنفرانس بین المللی پژوهش در مهندسی، علوم و تکنولوژی (سال: 1394)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Amin Mirzakhani Nafchi - *Department of Mechanical Engineering, University of Payame Noor, Tehran, Iran*

Iman Pishkar - *Department of Mechanical Engineering, University of Payame Noor, Tehran, Iran*

Mojtaba Moradzadeh - *Department of Mechanical Engineering, University of Payame Noor, Tehran, Iran*

خلاصه مقاله:

Guided wave propagation has recently drawn significant interest in the ultrasonic characterization of bone. The authors present a two-dimensional computational study of ultrasound propagation in bone. In this article, the bone modelled as a linear elastic isotropic plate. Ultrasonic guided wave inspection and structural health monitoring is being considered today in such natural wave guide structures as plates. An increased understanding of the basic physics and wave mechanics associated with guided wave inspection has led to an increase in practical nondestructive evaluation and inspection problems. In the present study, the dispersion of guided modes which propagate in a free plate is described by the corresponding transcendental dispersion equation. This characteristic equation is obtained by solving the partial differential equations of motion and imposing the appropriate boundary conditions on the plate surfaces, then the numerical method was developed in order to plot the dispersion curves including of frequency spectrum (frequency depending on the wave number), phase velocity depending on frequency, group velocity depending on frequency for ultrasonic lamb wave, propagated in bone.

کلمات کلیدی:

ultrasonic wave, dispersion curve, bone, phase velocity, group velocity

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/398234>

