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Elastic Waves in the Porous Materials, Sizing of the Inhomogenieties. HASSON M. TAVOSSI, Valdosta State University, Department of Physics, Astronomy and Geosciences — Theoretical models for porous materials include porosity as an input parameter and not the average pore size, among other factors. It has been shown that porous materials with the same porosity but different average pore sizes can have very different elastic wave properties. Experimental results show that average pore-size has a significant effect on both wave attenuation and pass-band frequencies of the porous materials having the same porosities. Most porous materials with open pores act as pass-band filters for the transmitted elastic waves. Experimental results are obtained for elastic wave frequency filtering and attenuation as a function of average pore size and frequency, for materials of the same porosity. Pass-band and attenuation is expressed as a function of the average pore size, when other material properties are kept constant. Inhomogenieties are introduced in the material as defect and their effects on transmitted wave dispersion, attenuation and pass band are analyzed. The goal of this research is to determine size and location of inhomogenieties or defects in the porous materials from the transmitted wave spectrum.

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