

Mechanics of Saturated High Porosity / Soft Materials**Józef Kubik**, Mariusz Kaczmarek, Michał Pakuła*Bydgoszcz University, Bydgoszcz, Poland*

High porosity materials are considered. The studies are motivated by results for trabecular bones or soft materials such as foams, gels or structured liquids. The particular behaviour of such porous materials results from a specific distribution of loads, role of viscous dissipations in fluid phase due to its deformation, interactions between phases represented by couplings in stress tensors and drag or dynamic couplings. Experimental studies show significant dispersion of waves and attenuation of fast wave being higher than that for slow wave in some frequencies range. Moreover a maximum attenuation is observed for certain porosities. The effective medium approximations are applied in order to evaluate elasticity parameters and microscopic considerations along with averaging to assess interaction forces of the two-phase model. Results for wave propagation parameters as functions of porosity, frequency and parameters of structure of solid skeleton are analyzed and compared with available experimental data.

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