Interaction of the acoustic signal with motionless discretely layered medium containing a layer of bubbly liquid

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Abstract

© 2017, Pleiades Publishing, Ltd.The dynamics of the pulse perturbation of the low-amplitude pressure in the motionless discretely layered medium containing a layer of liquid with polydisperse gas bubbles has been studied theoretically. Theoretical method basics of the calculation of the acoustic signal distortion during the diagnostics of multilayer samples containing a layer of bubbly liquid are presented. It is shown that specific dispersion and dissipative properties of the layer of bubbly liquid can affect considerably the dynamics of the acoustic signal in the multilayer medium as a function of the main frequency of the signal. The theoretical models of the dynamics of multiphase media can be verified using this method. It was established that it is possible to use this theory for the calculation of the acoustic signal distortion at its interaction with multilayer objects containing the layer of bubbly liquid.

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