

Curves of thermodynamic states in some fluids with dispersion

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Abstrak

ABSTRAK

Variations in the thermodynamic state of a dispersive medium, caused by sound, are studied. A bubbly liquid and a Maxwell fluid are considered as examples. Curves in the plane of thermodynamic states are plotted. They are in fact pictorial images of linear relations of excess pressure and excess density in the acoustic wave which reflect irreversible attenuation of the sound energy. The curves account for the nonlinear generation of the entropy mode in the field of sound. In the case of Maxwell fluids, loops may form under some conditions. Curves and loops for some kinds of stationary waveforms and impulse sound are discussed and compared.