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Dissipation Features at Nonlinear Pulsations of Bubbles in Viscoelastic Fluids

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Nonlinear interaction of heat-conducting gas bubble with viscoelastic liquid in a sound field of small but final amplitude is described. The liquid phase is treated as non-Newtonian fluid following Oldroyd type rheological equation. Solution of the problem is received within the volume approach in quadratic approximation with respect to the incident wave amplitude. Resulting relation for the scattered wave intensity is studied numerically with the emphasis on the dissipation features. The study is motivated by the problem of acoustic control of microbubbles trapping in flows of smart fluids with memory.

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