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A shear surface wave at the interface of an elastic body and a micropolar liquid. (English. Russian original) [Zbl 0953.74038](#)
J. Appl. Math. Mech. 63, No. 2, 277-281 (1999); translation from *Prikl. Mat. Mekh.* 63, No. 2, 289-294 (1999).

The equations from the work of *A. C. Eringen* [*J. Math. Mech.* 15, 909-923 (1966; [Zbl 0145.21302](#))] are used to describe the wave process in viscous micropolar incompressible liquid contacting with an elastic body. The authors study the propagation of surface shear waves in the body, and determine the phase velocity and damping coefficient. The damping coefficient is shown to decrease when the boundary viscosity increases.

Reviewer: *V. P. Phil'chakova (Kyiv)*

MSC:

- [74J15](#) Surface waves in solid mechanics
- [74F10](#) Fluid-solid interactions (including aero- and hydro-elasticity, porosity, etc.)
- [74A05](#) Kinematics of deformation

Keywords:

Eringen equations; viscous micropolar incompressible liquid; surface shear waves; phase velocity; damping coefficient

References:

- [1] Plesskii, V. P.; Ten, Yu.A.: Shear surface acoustic waves at the interface of an elastic body and a viscous liquid (gas). *Pis'ma v zhTF* 10, No. 5, 296-300 (1984)
- [2] Plesskii, V. P.; Ten, Yu.A.: The influence of the viscous load of the surface of an acoustic conductor on the propagation of shear surface waves. *Akust. zh.* 32, No. 2, 206-211 (1986)
- [3] Biryukov, S. V.; Gulyayev, Yu.V.; Krylov, V. V.; Plesskii, V. P.: Surface acoustic waves in inhomogeneous media. (1991)
- [4] Landau, L. D.; Lifshits, Ye.M.: Theoretical physics. Vol. 7. The theory of elasticity. 7 (1965)
- [5] Petrosyan, L. G.: Some problems in the mechanics of a fluid with an asymmetric stress tensor. (1984)
- [6] Nguyen, Van D'yep; Listov, A. T.: A non-isothermal model of asymmetric fluids. *Izv. akad. Nauk SSSR. Mzhg* 5, 132-136 (1967)
- [7] Eringen, A. C.: Theory of micropolar fluids. *J. math. Mech.* 16, No. 1, 1-16 (1966) · [Zbl 0145.21302](#)

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