

Stability of Two Superposed Viscoelastic (Walters B') Fluid-Particle Mixtures in Porous Medium

Pardeep Kumar

Department of Mathematics, Himachal Pradesh University, Summer-Hill, Shimla-171005, India

Reprint requests to Dr. P. Kumar

Z. Naturforsch. **54a**, 343–347 (1998); received December 27, 1998

The stability of the plane interface separating two viscoelastic (Walters B') superposed fluids in porous medium in the presence of suspended particles is considered. For the case of two uniform Walters B' fluids separated by a horizontal boundary, the system is found to be stable or unstable under certain conditions for the stable configuration. However, the system is found to be unstable for the unstable configuration. The case of an exponentially varying density is also considered. For the stable stratification, the system is found to be stable or unstable under certain conditions, whereas the system is found to be unstable for the unstable stratification. The behaviour of growth rates with respect to suspended particle, number density, and medium permeability is examined analytically.