On the extensional and flexural of generalized thermoelastic waves in an anisotropic plates,

The propagation of extensional and flexural motions of generalized thermoelastic waves in a homogeneous, transversely isotropic plate of finite width is considered. The frequency equations for the plates in closed form and suitable mathematical conditions for symmetric and antisymmetric wave modes propagation are derived. Numerical calculations for three various theories of generalized thermoelasticity is carried out. In each case the real and imaginary parts of the frequency equation as a function of phase velocity for different values of thermal relaxation times are illustrated graphically. It is found that, the frequency equations of the extensional and flexural motions can be oscillate with respect to the medial of the plate. Moreover, it gets modified due to the thermal relaxation times and anisotropic effects. Finally, the results for the coupled thermoelasticity can be obtained as particular cases of the results by setting thermal relaxation times equal to zero.