

## **Propagation of p- and T-waves in solid-liquid of thermoelastic media subjected to initial stress and magnetic field in the context of CT-theory**

### **ABSTRACT**

The effect of magnetic field and initial stress on plane wave propagation is discussed. We have investigated the problem of reflection and refraction of the thermoelastic wave at a magnetized solid-liquid interface in presence of initial stress. In the context of the CT-theory (Classical dynamical theory) of thermoelasticity, the problem has been solved. The boundary conditions at the interface for (i) displacement continuity, (ii) vanishing the tangential displacement, (iii) continuity of normal force per unit initial area, (iv) tangential force per unit initial area must vanish, and (v) continuity of temperature are applied. The amplitude ratios for the incident p- and T-waves have been obtained. The reflection and transmitted coefficients for the incident waves are computed numerically, considering the initial stress and magnetic field effect and presented graphically. Comparisons are made with the results in the absence and presence of initial stress and magnetic field. The results indicate that the effect of initial stress and magnetic field on wave propagation are very pronounced.

**Keyword:** Initial stress; CT theory; Magnetized; Reflection; Refraction; Thermoelasticity