A THREE DIMENSIONAL THERMOELASTIC HALF SPACE WITH THREE PHASE LAGS USING MEMORY DEPENDENT DERIVATIVE

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Abstract - The mathematical model for a three dimensional anisotropic half-space has been formulated to inspect lagging behaviours due to the presence of phase lag vectors in context of memory dependent derivative, as an extension of several existing thermoelastic models like- Green-Naghdi-III, Lord Shulman, and Fourier's Law etc. The analytical and procedural work has been done in integral transform domain preceded by Eigen value approach to find the solution from the governing equations. Numerical computations and graphical representation of distribution of non-dimensional stress components, temperature with the effect of three phase lag, kernel function and time-delay has been performed with the help of the efficient mathematical software.

Keyword - Half Space, Three Phase Lag, Memory Dependent Derivative, Generalized Thermo Elasticity, Vector-Matrix Differential Equation, Integral Transform.