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Jun Wang* (junwang@asunet.alasu.edu), Department of Mathematics & Computer Science, Alabama State University, 915 S. Jackson Street, Montgomery, AL 36101. *Hyperbolic Waves in a Thermoelastic Half-space.*

The classical theory of thermoelasticity predicts an infinite speed for heat propagation, which is contrary to physical observations. To overcome this paradox, many authors have been devoted to the development of the generalized theory of thermoelasticity that predicts a finite speed for heat propagation. In 1982, G. Lebon developed a generalized theory of thermoelasticity on the basis of a nonclassical approach to thermodynamics, which includes the heat flux among the constitutive variables. The resulting governing system of equations is entirely hyperbolic and hence predicts finite speed for heat propagation. In this paper we study the thermoelastic interactions in an elastic half-space. We employ the thermoelastic equations developed by Lebon to solve these problems. After formulating the mathematical model, we first find the general solution for the stress and temperature fields in the Laplace domain. Then solutions to the problems of ramp-type increase in boundary temperature and in boundary stress are obtained for small values of time. Numerical values of stress and temperature are computed, analysed, and displayed graphically. (Received August 23, 2000)