

* introduce more rigorous guidelines for use of environmental funds;

* phase out environmental funds in the long run;

* earmarking funds for environmental protection may be a way to improve the quality and efficiency of the present system of financing.

HYPERBOLIC HEAT CONDUCTION IN THE LAYER WITH A TIME-DEPENDENT LASER HEAT SOURCE

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Numerous applications (surface annealing, welding, drilling of metals, sintering of ceramics) connect with intensive heat generation on the processing material. For the purpose of studying of heat transfer in such processes an increasing interest has arisen recently in the use of nonclassical heat conduction models applying in essentially transient effects.

Classical Fourier law is based on the hypothesis that heat flux is in direct proportion to the temperature gradient and assumes infinite speed of heat transport. On bases of extended irreversible thermodynamics more difficult law was derived

$$\bar{q} + \tau \frac{\partial \bar{q}}{\partial t} = -a \text{grad} T.$$

(1)

The constitution law of Cattaneo-Vernotte (1) assumes that the heat flux vector (the effect) and the temperature gradient (the cause) across a material volume occur at different instant of time and the time delay between the heat flux and the temperature gradient is the relaxation time τ . When (1) is combined with the energy equation, we obtain the hyperbolic equation

$$a\Delta T - c\rho \left(\frac{\partial T}{\partial t} + \tau \frac{\partial^2 T}{\partial t^2} \right) = - \left(f + \tau \frac{\partial f}{\partial t} \right).$$

(2)

Various solutions of the hyperbolic model for finite mediums under different initial and boundary conditions can be found in literature. Most solutions were attained for a pulse heat flux or a sudden temperature change.

Our interest is in focusing on the transient thermal propagation and temperature variation generated by pulsed laser in layer which given as $-\infty < x_1, x_2 < \infty, |x_3| \leq h$ in Cartesian coordinates. Both the hyperbolic and parabolic models are solved and compared. It has been pointed out that if characteristic propagation time is of the order of relaxation time, the temperature will behavior as pulsed thermal wave motion with a finite velocity. The thermal wave is attenuated rapidly with time and he intensity of thermal wave signal increases with the decrease of the rise time of laser pulse.

CAPITAL BUDGETING

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Capital budgeting is the allocation of funds for real investment. The decision to build or expand a factory is a typical capital budgeting problem. Investing in a given project depends on the value of the investment relative to the present value of the cash flows that will come from the project. This is how benefits are compared to costs. Consequently, the goal of capital budgeting is to select projects with cash flows that are worth more than their cost in present value terms and thus create value for the firm.

In capital budgeting analysis, some problems occur so frequently that they have names. This chapter considers five that the financial manager is likely to face. The first arises when two projects compete for the same resources or for some other reason both cannot be undertaken. They are called mutually exclusive projects. Second, sometimes managers are confronted with so many attractive projects that they do not have funds available to invest in all of them. The allocation of funds among a set of projects requiring more financing than is available is known as capital ra-