THE APPROXIMATE METHOD IN THE SOLUTION OF HEATCONDUCTION INVOLVING MELTING AND SOLIDIFICATION PROBLEMS

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ABSTRACT

Problems of heat conduction involving melting or solidification are complicated because the interface between the solid and liquid phases moves as the latent heat is absorbed or liberated at the interface. Such problems are nonlinear and the exact solutions are extremely difficult. Assuming the melting of semi-infinite solid with constant temperature at x=0, a thermal layer was define whose thickness $\delta(t)$ and beyond which the temperature gradient in the solid phase is zero and the approximation for the temperature profile in the liquid phase was maked by a second degree polynomial.

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