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**ANALYTIC APPROXIMATION FOR ONE PHASE SPACE-TIME FRACTIONAL
MOVING BOUNDARY PROBLEM WITH TIME VARYING TEMPERATURE ON
SURFACE**

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ABSTRACT

A mathematical model of space and time fractional derivative for melting of solid fluid in a finite slab under time varying temperature on fixed boundary are presented. The approximate analytical solution of this problem is obtained by the Homotopy analysis method. The problem has been studied in detail by considering different order space and time fractional derivatives and different time varying temperature on fixed boundary. In this paper we discussed the melting process under different order fractional derivative with time varying temperature on surface. The nondimensional temperature and the moving interface for different order fractional derivative are shown graphically. The model and the solution are the generalization of the previous work.