Yotsutani, S.
Osaka J. Math.
20 (1983), 803–844

STEFAN PROBLEMS WITH THE UNILATERAL BOUNDARY CONDITION ON THE FIXED BOUNDARY II

SHOJI YOTSUTANI

(Received December 28, 1981)

Contents

0. Introduction

In this paper we consider the following one-dimensional two-phase Stefan problem with the unilateral boundary condition on the fixed boundary: Given the initial data, l and ϕ, find a critical time T^*, and the two functions $s=s(t)$ and $u=u(x, t)$ defined on $[0, T^*]$ such that

$$\begin{cases} (0.1) & s(0)=l, \quad 0<s(t)<1 \ (0\leqq t<T^*), \\ (0.2) & u_{xx}-c_0u_t=0 \quad (0<x<s(t),\ 0<t<T^*), \\ (0.3) & u_{xx}-c_1u_t=0 \quad (s(t)<x<1,\ 0<t<T^*), \end{cases}$$