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# STEFAN PROBLEMS WITH THE UNILATERAL BOUNDARY CONDITION ON THE FIXED BOUNDARY I

SHOJI YOTSUTANI

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Contents



## 0. Introduction

This paper is concerned with the following one dimensional one phase Stefan problems with the unilateral boundary condition on the fixed boundary: Given the data, $\phi$ and $l$, find two functions $s=s(t)$ and $u=u(x, t)$ such that the pair $(s,u)$ satisfies

$$\text{(S)}\quad \begin{cases} \text{(0.1)} & Lu \equiv u_{xx}-u_t = 0\,, & 0<x<s(t)\,, & 0<t\leqq T\,, \\ \text{(0.2)} & u_x(0, t)\in\gamma(u(0, t))\,, & & 0<t\leqq T\,, \\ \text{(0.3)} & u(s(t), t) = 0\,, & & 0<t\leqq T\,, \end{cases}$$