TOKYO J. MATH.
VOL. 9, NO. 1, 1986

On the Mixed Problem for Wave Equation in a Domain with a Corner

Masaru TANIGUCHI

(Communicated by K. Kojima)

Introduction

The purpose of this paper is to generalize the results in [5] and to obtain the complete results.

We consider mixed problems

$$
\text{(I)}\quad \begin{cases} L_1[u]=\dfrac{\partial^2 u}{\partial t^2}-\dfrac{\partial^2 u}{\partial x^2}-\dfrac{\partial^2 u}{\partial y^2}+du=f(t, x, y) \\ u(0, x, y)=u_0(x, y)\ , \qquad u_t(0, x, y)=u_1(x, y) \\ B_1[u]|_{x=0}=\left(\dfrac{\partial u}{\partial x}+b\dfrac{\partial u}{\partial y}-c\dfrac{\partial u}{\partial t}+\alpha u\right)\Big|_{x=0}=g_1(t, y) \\ B_2[u]|_{y=0}=\left(\dfrac{\partial u}{\partial y}+\dfrac{1}{b}\dfrac{\partial u}{\partial x}-\dfrac{c}{b}\dfrac{\partial u}{\partial t}+\dfrac{\alpha}{b}u\right)\Big|_{y=0}=g_2(t, x) \\ (t, x, y)\in(\boldsymbol{R}^1_+)^3 \end{cases}
$$

$$
\text{(II)}\quad \begin{cases} L_1[u]=f(t, x, y) \\ u(0, x, y)=u_0(x, y)\ , \qquad u_t(0, x, y)=u_1(x, y) \\ B_3[u]|_{x=0}=\left(\dfrac{\partial u}{\partial x}+\alpha u\right)\Big|_{x=0}=g_1(t, y) \\ B_4[u]|_{y=0}=\left(\dfrac{\partial u}{\partial y}+\beta u\right)\Big|_{y=0}=g_2(t, x) \\ (t, x, y)\in(\boldsymbol{R}^1_+)^3 \end{cases}
$$

and

$$
\text{(III)}\quad \begin{cases} L_2[u]=\dfrac{\partial^2 u}{\partial t^2}-\dfrac{\partial^2 u}{\partial x^2}-\dfrac{\partial^2 u}{\partial y^2}-\dfrac{\partial^2 u}{\partial z^2}+du=f(t, x, y, z) \\ u(0, x, y, z)=u_0(x, y, z)\ , \qquad u_t(0, x, y, z)=u_1(x, y, z) \\ B_5[u]|_{x=0}=\left(\dfrac{\partial u}{\partial x}+\alpha u\right)\Big|_{x=0}=g_1(t, y, z) \end{cases}
$$

Received September 7, 1984