# 中国有色金属学报

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## 🍾 论文摘要

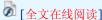
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#### ZHONGGUO YOUSEJINSHUXUEBAO XUEBAO

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### 流函数法在铸轧变形理论分析中的应用

孙斌煜 张 洪 孙航临

(太原重型机械学院机械系, 太原 030024

太原矿山机器厂, 太原 030009)

根据流体力学中的Navi er-Stokes方程, 利用流函数法, 对铸轧变形区的流变特性进行了理论分析。 铸轧板的宽长比较大, 简化为平面问题, 由此建立的二阶偏微分方程组, 直接求解仍较困难; 引入流函数, 设定并建立铸轧区的速度场, 使其满足不可压缩条件 这样求解偏微分方程组成为可能, 并由此可为求出板带铸轧变形区的单位压力分布解析式创造条件。

关键字: 流函数 板带铸轧 变形区

### THEORETICAL ANALYSIS OF FLOW FUNCTION

METHOD IN CASTING ROLLING DEFORMATION

Sun Binyu, Zhang Hong and Sun Hanglin\*

(Department of Mechanics,

Taiyuan Heavy Machinery Institute, Taiyuan 030024, P. R. China

\*Taiyuan Mining Machinery Plant, Taiyuan 030009, P. R. China)

**Abstract:** According to the Navier-Stakes equation in fluid mechanics, the rheological properties of casting-rolling deformation area with flow function method was analyzed. The researching problem was simplified into a 2D one, because the width of casting-rolling sheet was much greater than height. It was found that direct solution for the established twodimensional partial differential equation is difficult, however if flow function is led in and velocity field of casting-rolling area is established, which satisfies not only the condition of no-compression but also velocity boundary, then it is possible to find out the solution of partial differential equation and the analytic solution of average unit compression stress distribution for casting-rolling deformed area.

Key words: flow function strip casting-rolling mill deformation area

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地 址:湖南省长沙市岳麓山中南大学内 邮编: 410083

电话: 0731-88876765, 88877197, 88830410 传真: 0731-88877197

电子邮箱: f-ysxb@mail.csu.edu.cn