力学学报 1990 22 (3): 276-284 ISSN: 0567-7718 CN: 11-2063/O3

大速差射流燃烧室中烟煤与贫煤燃烧的数值模拟

张健, 周力行

清华大学工程力学系，100084

收稿日期 修回日期 网络版发布日期 接受日期

摘要 本文基于颗粒相的轨道模型, 对大速差射流燃烧室中烟煤粉与贫煤粉的二维流动, 混合及燃烧进行了数值模拟, 模拟结果从两相耦合的角度, 阐明了煤粉颗粒在燃烧室中运动的规律, 煤粉与大速差射流诱导的中心气体逆流之间的混合及其对煤粉火焰稳定的影响, 指出此种燃烧室中煤粉火焰稳定的回流区燃烧机理, 气相流场及回流区的预报结果与实验符合良好。

关键词 煤粉燃烧 大速差射流燃烧室 数值模拟 两相流

分类号

MODELING OF BITUMINOUS COAL AND LEAN COAL COMBUSTION IN A COMBUSTOR OF CO-FLOWING JETS WITH LARGE VELOCITY DIFFERENCE

,

清华大学工程力学系，100084

Abstract

The two-dimensional turbulent re irculating two-phase flow, mixing ancl combustion in a combustor of coflowing jets with large velocity difference for two types of pulverized coal-bituminous coal and lean coal are predicted by the trajectory model of particle phase with some improvements in the solution technique. The prediction results show the particle motion pattern and the mixing of the particles with the reverse gas flow. The stabilization of pulverized coal fla.ne is realized mainly by volatile combus...

Key words pulverized-coal combustion combustor of co-flowing jets with large velocity difference numerical modeling two-phase flow

DOI:

通讯作者 jianzhang@mail.tsinghua.edu.cn