

纵向涡对近壁湍流结构的影响

王家禄, 张兆顺, 曾兴

中国石油勘探开发研究院, 100083

收稿日期 修回日期 网络版发布日期 接受日期

摘要 在封闭水槽中用氢气泡方法观察了纵向涡对近壁湍流结构的影响, 涡的下洗侧出现了展向距离较宽、流动较稳定的快斑区, 流向速度快; 涡的上洗侧出现了含有慢斑的区域, 流动结构复杂, 流向速度慢, 纵向涡使下洗侧速度较快的流体流向壁面, 使上洗侧速度较慢的流体远离壁面。

关键词 [纵向涡](#) [湍流结构](#) [流动显示](#)

分类号

EFFECT OF LONGITUDINAL VORTICES ON THE TURBULENT STRUCTURE IN NEAR-WALL REGION

”

中国石油勘探开发研究院, 100083

Abstract

The effect of longitudinal vortices on the turbulent structure of near-wall region was investigated with hydrogen bubble technique in a rectangular duct. A wider high-speed streak appears in the downwash region of vortex (where secondary flow is directed towards the wall), the flow is stable and the streamwise velocity is higher inside the streak. A region including low-speed streaks is shown in the upwash part of vortex (where the secondary flow is directed away from the wall), the flow structure is complicated and ...

Key words [longitudinal vortices](#) [turbulent structure](#) [flow visualization](#)

DOI:

通讯作者 wjl@petrochina.com.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(434KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中包含“纵向涡”的相关文章](#)
- ▶ [本文作者相关文章](#)

- [王家禄](#)
- [张兆顺](#)
- [曾兴](#)