

## 有序波状扰动对壁湍流相干结构的作用

么胜洪, 舒玮

天津大学

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**摘要** 本文在湍流边界层外层引入了正弦波状扰动;实验结果表明扰动波波幅沿流向是衰减的,衰减率与 Landahl (1967)的线性理论结果定性一致。本文发现在扰动波沿流向的演化过程中,出现以扰动波频率为基频的高次谐波。外层单一频率的扰动会减小内层的猝发平均周期,影响内层的流动结构。

**关键词** [人工扰动](#) [湍流边界层](#) [相干结构](#)

分类号

## THE EFFECT OF ORGANIZED WAVE DISTURBANCES ON COHERENT STRUCTURE IN WALL TURBULENCE

天津大学

### Abstract

Organized wave disturbances were artificially introduced in log law region of turbulent boundary layers, and were found damping when propagated downstream, the damping ratios measured were qualitatively in good agreement with the results of Landahl (1967) [5]. As the disturbance wave evolved downstream, its harmonics appeared and the average bursting periods of inner layer decreased because of the outer region disturbances. Organized wave disturbances were artificially introduced in log law region of turbul...

**Key words** [artificial disturbance](#) [turbulent boundary layer](#) [coherent structure](#)

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