

工程与应用

## 交通强度优先的交叉口模糊控制研究

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**摘要** 为了降低交叉口车辆延误, 提高通行能力, 研究了一个四相位交叉口交通信号的模糊控制方法。用交通强度刻画各相位交通流通行需求的紧急程度, 根据各相位的交通强度由模糊推理得到当前相位的绿灯延长时间, 并选取后续绿灯相位。以交叉口车辆平均延误作为交叉口信号控制的性能评价指标, 在相同交通条件下对几种控制方式进行了仿真试验。结果表明, 该文的控制方法相对于感应控制方法和直接采用车辆排队长度作为输入的模糊控制方法, 更能有效减小交叉口的车辆平均延误。

**关键词** [交通信号](#) [交通强度](#) [模糊控制](#) [平均延误](#)

**分类号** [TP391](#) [TP273](#)

## Study of fuzzy control for intersections with traffic intensity being priority

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### Abstract

In order to decrease the vehicle delay and increase the traffic capacity in intersections, a fuzzy control method for the traffic signal of four-phased intersections is put forward. Traffic intensity is applied to describing the urgency of traffic flow to go through each phase. Extension of the current green phase and the followed green phase are decided through fuzzy inference according to traffic intensity in each phase. Simulation is carried out in order to validate the performance of this traffic method with the average delay of vehicles in the intersection being the performance index. The result indicates that this method is more effective in decreasing the average delay in contrast to traffic-actuated control and fuzzy control that only takes into account the number of vehicles between two detectors.

**Key words** [traffic signals](#) [traffic intensity](#) [fuzzy control](#) [average delay](#)

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