

## 通过延迟阶跃函数求解重复性项目控制路线的方法研究

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# Method for Determining the Controlling Path in Repetitive Project by Delayed Step Function

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**摘要** 确定控制路线是重复性项目调度技术的基础,目前缺乏一种统一的确定控制路线的方法。本文研究在重复性项目中通过延迟阶跃函数确定控制路线的方法。首先通过延迟阶跃函数拟合重复性项目中的各种类型工序系,表示工序系的约束线,并计算各工序系的潜在控制点和开始、结束时间,在此基础上提出了完整的确定重复性项目控制路线的具体步骤。文章以一个高速公路建设项目为例与国际上已有的确定控制路线的方法进行了对比,结果表明,本文所提出的方法更契合工程的实际要求、适用性更强,且更便于计算机处理。

**关键词:** [控制路线](#) [延迟阶跃函数](#) [重复性项目调度](#) [控制工序](#)

**Abstract:** Determining the controlling path is of great importance to the repetitive projects scheduling. Although several methods for determining controlling path are proposed, none of them is commonly accepted. This paper presents a convenient and correct way to identify the controlling path by the delayed step function. Firstly, various types of activities and constraint lines in repetitive projects are expressed by the delayed step function. Then the controlling path is identified by a forward tracing and a backward tracing. Through the forward tracing, the potential controlling points are calculated and determined. Through the backward tracing the controlling path is determined. A highway project is presented to demonstrate its validity. Compared with the existing methods, the proposed method is more suitable for the engineering situations, and provides a mathematical foundation for the computer processing.

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