



基于相似理论的消防炮射流轨迹模拟实验的设计

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Design of Simulation Experiment for Jet Track of Fire Monitor Based on Similarity Theory

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摘要 目前国内外关于消防炮射流轨迹的实验大多利用实物进行,其实验场地大,器材笨重复杂,设备运行和环境影响参数调整不易,实验成本较高.基于相似理论的思想,设计消防炮射流轨迹的模拟实验,并重点介绍模拟实验中相似关系比例的推导.该模拟实验具有以下特点:占用空间小,节约成本;采集数据方便,有较高的实用价值,可为消防炮的性能研究和工程设计提供实验数据,其分析计算模型能为消防炮参数数据库的建立提供一些理论支持.

关键词: [消防炮](#) [相似理论](#) [模拟实验](#)

Abstract: Currently, real fire monitors are used in almost all experiments for jet track of fire monitors. These experiments require large areas, bulky equipment, and complicated operations leading to high cost. We propose simulation experiments for the jet track, and derive the similar proportion based on the similarity theory. The method has the advantages of small space requirement, low cost, and data collection capability. The method has practical value as it can provide experimental data for studying properties of the fire engine and used for engineering design. Furthermore, the analysis model is a theoretical basis of the fire monitor database.

Keywords: [fire monitor](#), [similarity theory](#), [simulation experiment](#)

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