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Title: IMM-based Trajectory Tracking in Networked Munition System

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关键词: 网络化弹药; 目标跟踪; 交互式多模型目标滤波算法

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摘要: 网络化弹药系统是一种基于先进的无线传感器网络技术与现代智能弹药概念提出的一种弹药系统。为了实现网络化弹药系统中目标跟踪的任务,文中研究了将交互式多模型(interacting multiple model, IMM)滤波算法应用于网络化弹药系统实现对目标的轨迹跟踪,分别建立匀速拐弯运动以及匀速运动模型,目标在不同时刻遵循不同运动模型,利用IMM算法对探测到的目标进行跟踪建模,通过仿真分析,IMM算法跟踪效果良好,精度远高于最小二乘法。

Abstract: Networked munitions are a system including advanced wireless sensor network technology and modern intelligent ammunition technology. In order to realize target tracking in the networked munitions system, the research on application of the interactive multiple model filtering in network ammunition system for target trajectory tracking of target motion was carried out. Uniform turning motion and uniform motion model of target were established, target followed different motion model at different time, the IMM algorithm was used for tracking and modeling the detected target. According to the simulation analysis, IMM tracking effect is better than that of least square method.

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