

论文

弹道测定中推广卡尔曼滤波的误差分析

贾沛璋

收稿日期 修回日期 网络版发布日期 接受日期

摘要 在弹道测定中,经常采用推广卡尔曼滤波方法进行实时跟踪.我们知道,当观测量的采样间隔较大、观测误差较大时,推广卡尔曼滤波将引进较大的离散化、线性化误差,从而影响滤波精度,对大气外弹道测定,正是这种情形.本文针对大气外弹道测定,具体分析非线性动态方程和非线性量测方程所产生的离散化、线性化误差的影响.由于对大气外弹道测定,如采用椭圆六个轨道根数作状态量,此...

关键词

分类号

THE ERROR ANALYSIS OF THE EXTENDED KALMAN FILTERING IN TRAJECTORY DETERMINATION

JIA PEIZHANG

Abstract For the exoatmospheric trajectory determination it is known that the measurement equations of the target are nonlinear if the elliptic orbit elements are taken as state variables, whereas the dynamic equations are nonlinear if the motion is described in the measurement coordinate system. This paper analyses the errors caused by discretization and linearization of the nonlinear part in the above two descriptions of the dynamic system when the extended Kalman filtering is used. The analysis shows that for the short time (e.g. some minutes) trajectory tracking influence of the linearization error for the measurement nonlinearity is much larger than that for the dynamic nonlinearity, but for the long time trajectory tracking, the inverse situation occurs. This is confirmed by the numerical simulation given in this paper.

Key words

DOI:

通讯作者

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(629KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 无 相关文章](#)
- ▶ [本文作者相关文章](#)
- [贾沛璋](#)