[打印本页]　[关闭]

扩展功能

本文信息

▶ Supporting info
▶ PDF(711KB)
▶ [HTML全文]
▶ 参考文献[PDF]
▶ 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
▶ 引用本文
▶ Email Alert
▶ 文章反馈
▶ 浏览反馈信息

本文关键词相关文章

▶ 多机无源定位；位置误差；约束最小二乘；特征分解

本文作者相关文章

▶ 曲长文
▶ 王昌海
▶ 徐征

PubMed

▶ Article by Qu, C. W.
▶ Article by Wang, C. H.
▶ Article by Xu, Z.

算法研究

考虑载机位置误差的CLS多机无源定位算法

曲长文, 王昌海, 徐征

航空电子系统综合技术重点实验室，上海；海军航空工程学院电子信息工程系，山东

摘要：

多机无源定位中存在载机位置误差却不予考虑时必然会降低目标的定位跟踪精度。为了解决存在载机位置误差情况下的定位问题，提出了一种考虑载机位置误差的约束最小二乘（CLS）多机无源定位算法。该算法对伪线性观测方程中由于测量误差和载机位置误差而导致的增广系数矩阵的误差协方差阵进行约束，并对伪线性观测方程的误差进行约束最小二乘处理，最终转化为对一组矩阵束的广义特征分解问题。仿真结果表明，相对于最小二乘（LS）算法和扩展卡尔曼滤波（EKF）算法，该算法具有更快的收敛速度和较高的定位精度，并且受载机位置误差影响小，在观测噪声比较大时仍能保持良好的定位性能。

关键词： 多机无源定位；位置误差；约束最小二乘；特征分解

CLS Algorithm for Multi-plane Passive Location in the Presence of Observer Position Errors

QU Chang-Wen, WANG Chang-Hai, XU Zheng

Science and Technology on Avionics Integration Laboratory，Shanghai； Department of Electronic and Information Engineering, Naval Aeronautical and Astronautical University, Yantai

Abstract:

Source location accuracy would inevitably deteriorate in the presence of observer position errors without taking them into account in multi-plane passive location system. An algorithm for multi-plane passive location that takes the observer position errors into account is proposed in order to solve the location problem in the presence of observer position errors. The proposed algorithm introduces the error correlation matrix of the argumented coefficient matrix in the observation equations caused by the measurement errors and observer position errors into the constraint, and uses the constrained least squares minimization on the errors of pseudo linear observation equations, which turns out to be equal to the generalized eigen-decomposition to a pair of matrix pencil. Simulation result indicates that the proposed algorithm achieves higher speed of convergence and high location precision, weakly affected by the observer position errors, and keeps good performance even in the condition of large measurement errors when compared with LS algorithm and EKF algorithm.

Keywords: multi-plane passive location   position errors   constrained least-squares   eigen-decomposition

通讯作者：

作者简介：

作者Email: qcwwby@sohu.com

参考文献：

本刊中的类似文章

文章评论

反馈人		邮箱地址	
反馈标题		验证码	9493

Copyright by 信号处理