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H∞次优滤波在速度姿态匹配传递对准中的应用

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摘　要：

针对速度＋姿态匹配传递对准中量测中的不确定性干扰，采用H∞滤波方法进行速度＋姿态匹配传递对准。并与卡尔曼滤波进行了比较，仿真结果表明，当系统噪声和量测噪声为白噪声时，卡尔曼滤波器和H∞滤波器均有效，而且卡尔曼滤波器优于H∞滤波器。但是，当系统噪声与量测噪声为有色噪声并且存在建模误差时，卡尔曼滤波收敛速度明显低于H∞滤波的收敛速度。H∞滤波更符合工程应用的实际情况，因而H∞滤波是一种非常有效的估计方法。

关键词：传递对准;速度＋姿态匹配; H∞ 滤波; 卡尔曼滤波器

Velocity and Attitude Matching of Transfer Alignment by Using H∞ Filter

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Abstract:

The H∞ filter is adopted in designing the transfer alignment (TA) scheme realized by Velocity and Attitude Matching, where the disturbances in measurements are complete unknown. The TA performance of H∞ filter is compared with that of Kalman filter. The simulation results show both that H∞ filter and Kalman filter all are effective and Kalman filter is more accurate than H∞ filter when system noise and measurement noise are white noise. Where as H∞ filter is more accurate than Kalman filter when system noise and measurement noise are not white noise but color noise. H∞ filter is an effective estimation method because H∞ filter is more suitable to engineering practice than Kalman filter.

Keywords: Velocity and Attitude Matching; Transfer Alignment; H∞ Filter; Kalman Filter

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