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## 简化UKF在SINS摇摆基座上的初始对准(PDF)

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Title: The Application of Simplified UKF to Initial Alignment of SINS on Swaying Base

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关键词: [捷联惯导系统](#); [大方位失准角](#); [初始对准](#); [RBAUKF](#)

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摘要: 大方位失准角情况下,捷联惯导系统(SINS)误差方程是非线性的,传统的扩展卡尔曼滤波(EKF)会产生线性化误差,影响初始对准精度。为了减少滤波计算量,将一种简化的UKF(RBAUKF)方法应用于SINS初始对准,采用较少的采样点数目和简化的滤波更新算法,避免了对非线性方程的线性化。仿真结果表明,RBAUKF与EKF相比,可在较短时间内完成初始对准,具有更高的精度。

Abstract: The error equation of strapdown inertial navigation system (SINS) is nonlinear under large heading misalignment. The linearizing error was introduced by traditional EKF which reduces alignment accuracy. Rao-Blackwellised adaptive unscented Kalman filter (RBAUKF) was applied to SINS initial alignment to avoid linearization of nonlinear equation and using less sample points and simplified filtering update algorithms, the calculating burden was reduced. The simulation result shows, compared with EKF, RBAUKF can complete the initial alignment with less time and higher accuracy.

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