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基于先验信息的光纤惯组贮存期静态检测方法

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摘要:

针对贮存期光纤惯组性能检测问题, 提出基于先验信息的静态检测方法。该方案建立了光纤惯组检测用简化误差模型, 引入零速信息和方位瞄准信息进行基于卡尔曼滤波对准的光纤惯组静态性能检测, 并结合历史的检测信息进行比对。通过该方法可检测出3个轴向陀螺和加速度计的等效零位误差, 简化了惯组检测流程, 缩短了检测时间。理论分析和仿真结果验证了该方案的可行性和正确性。

关键词: 光纤捷联惯组 静态检测 贮存期 误差模型

Stationary detecting method of FOG SINS based on prior information during storage period

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Abstract:

Aiming at the performance detection of fiber-optic gyroscope strapdown inertial navigation (FOG SINS) in a storage period, the stationary detection method based on prior information is put forward. In this method, a simplified error model of FOG SINS is built, zero velocity and heading information are used to detect the FOG SINS bias error based on Kalman filter, and the detected result is compared with the historic detection information. The bias errors of both three axis gyros and accelerometers can be detected by this method, which can simplify the testing process and shorten the detection flow. Simulation results verify the feasibility and correctness of the proposed method.

Keywords: fiber-optic gyroscope strapdown inertial navigation (FOG SINS) stationary detection storage period error model

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