

[1]陈 铭,辛长范,文 云,等.基于地磁传感器和UKF的灵巧弹药滚转估计[J].弹箭与制导学报,2012,6:83-86.

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## 基于地磁传感器和UKF的灵巧弹药滚转估计

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Title: Roll Estimationfor Smart Munition Using Magnetic Sensor Based on Unscented Kalman Filter

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摘要: 为降低制导误差,文中提出了运用地磁传感器对灵巧弹药进行滚转估计的方法。定义了3个坐标系,通过弹体动力学特性和坐标变换得到了系统模型和测量模型。运用无迹卡尔曼滤波器(UKF)进行解算,避免了线性化误差的引入和PF的粒子点退化问题。仿真结果表明:该方法能很好的计算出弹体的滚转角姿态,误差在允许的范围,有较高的应用价值。

Abstract: In order to reduce guidance error, in this paper, the method of rolling estimation for smart munition by geomagnetic sensor was presented. Three coordinate systems were defined, the system model and measurement model were obtained through missile dynamics characteristics and coordinate transformation. The use of unscented Kalman filter(UKF)solver can avoid the introduction of linearization error and the problem of PF particle degeneration.The simulation results show that missile body's roll angle attitude can be well calculated and the error is in the allowable range, it has higher application value.

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[本期目录/Table of Contents](#)

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