

[1]施国兴,杨树兴,苏中.地磁信息的旋转弹姿态算法研究[J].弹箭与制导学报,2011,5:33-35.

SHI Guoxing,YANG Shuxing,SU Zhong.The Study on Attitude Algorithm of Rolling Projectile Using Geomagnetic Information [J].,2011,5:33-35.

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## 地磁信息的旋转弹姿态算法研究(PDF)

《弹箭与制导学报》[ISSN:1673-9728/CN:61-1234/TJ] 期数: 2011年第5期 页码: 33-35 栏目: 出版日期: 2011-10-25

Title: The Study on Attitude Algorithm of Rolling Projectile Using Geomagnetic Information

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关键词: [地磁传感器](#); [姿态角](#); [旋转弹](#); [姿态算法](#)

Keywords: [geomagnetic sensor](#); [attitude angle](#); [roll projectile](#); [attitude algorithm](#)

分类号: TJ765

DOI: -

文献标识码: A

摘要: 针对小口径高转速旋转弹姿态测量问题, 提出了一种利用纯地磁组合信息获取旋转弹姿态的算法。通过参考坐标系的关系构建姿态变换矩阵, 建立姿态角的数学模型, 并设计相应的纯地磁姿态算法, 利用仿真软件得到三轴地磁信号来进行姿态解算。结果表明, 本姿态算法可以实时解算较高长时精度的姿态角, 可以为常规旋转弹药制导化提供姿态信息。

Abstract: In order to measure attitude angle for projectile with small caliber and high rotational speed, the attitude algorithm was presented based on pure geomagnetic information. Through building attitude transformation matrix with reference to the relation of coordinated system, the mathematic model of attitude angle was established, and corresponding pure attitude algorithm was designed. The magnetic field model was simulated for tri axial geomagnetic information, and was computed by this attitude algorithm in sequence. The result shows that this attitude algorithm has higher long term precision. It can be used for attitude control system in some type of rolling projectile.

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备注/Memo: 收稿日期: 2010-12-10 基金项目:国家自然科学基金(61031001);北京市学术创新人才基金(PHR201006115)资助 作者简介: 施国兴(1980-),男,浙江长兴人,博士研究生,研究方向:飞行器姿态测量、导航制导与控制。

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更新日期/Last Update: 2011-10-31