[1]毕艳超,姚晓先,宋晓东,等.双通道控制旋转导弹的舵机控制研究[J].弹箭与制导学报,2014,2:25-28.

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双通道控制旋转导弹的舵机控制研究(PDF)

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Title: The Research on Actuator Control Used forDouble-channel Control of Rolling Missile

作者: 毕艳超[1]; 姚晓先[1]; 宋晓东[1]; 马武举[2]

1 北京理工大学宇航学院, 北京 100081;

2 中船重工第710研究所, 湖北宜昌 443003

Author(s): BI Yanchao[1]; YAO Xiaoxian[1]; SONG Xiaodong[1]; MA Wuju[2]

1 School of Aerospace Engineering,Beijing Institute of Technology,Beijing 100081,China;

2 CSIC-710,Hubei Yichang 443003,China

关键词: 旋转导弹; 舵机; 导弹控制; 制导炮弹

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摘要: 针对应用“十”字布局鸭舵的双通道控制旋转导弹,将舵机偏转角旋转变换到准弹体坐标系下,考虑准弹体坐标系下舵机的延迟特性,用滞后角表征此延迟特性,为在准弹体坐标系下进行弹体控制提供便利。通过实验获取滞后角和舵机本身的相角滞后,理论计算和分析实验数据得到,准弹体坐标系下舵机偏转角频率较低时,滞后角近似舵机在弹体旋转频率处的相角滞后; 舵机偏转角频率逐渐增加,舵机非线性严重,滞后角需实验测量。

Abstract: This paper is mainly about delay characteristics of actuator in quasi-body coordinate system of dual-channel control spinning missile with the canard deployment of “+”. The relationship between the delay characteristics of the actuator and the delay characteristics of the actuator in quasi-body coordinate system wais worked out in order to provide more convenience for the control of the missile in quasi-body coordinate system. Calculation and experiment show that at a constant rotation speed of the projectile, the time-delay of the actuator in quasi-body coordinate system is approximated to that at the spinning frequency of the projectile when the signal of the deflection angle of the actuator is constant or in low frequency, but when the signal becomes in high frequency, experiment is needed to measure the time-delay of the actuator for strong nonlinear of the actuator.

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作者简介:毕艳超(1984-),男,黑龙江庆安人,博士研究生,研究方向:低速滚转导弹制导与控制。

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