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变结构自适应控制在BTT导弹中的应用

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THE APPLICATION OF VARIABLE STRUCTURE MODEL REFERENCE ADAPTIVE CONTROL FOR BANK-TO-TURN MISSILES

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摘要

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摘要 提出了BTT导弹自动驾驶仪的变结构自适应设计方法。该方法完全基于对象参数变化和随机扰动的上下界,无需对系统进行参数辨识和对随机扰动进行在线估计,增强了控制系统的适应性和鲁棒性。在考虑了各种非理想因素的情况下,得到了令人满意的仿真结果。

关键词: 变化-结构分析 模型参考自适应控制 转弯飞行 自动驾驶仪

Abstract: new variable structure model reference adaptive control method is proposed for bank-to-turn (BTT) missiles' roll channel autopilot designs. The method is completely based on the maximums and the minimums of plant's parameter variations and random disturbances, and avoids utilizing on-line parameter identification and on-line random disturbance estimation, which improves the adaptivity and robustness of control systems. With many non-ideal factors taken into account, satisfactory digital simulation results are presented.

Keywords: Key words automatic variations-structure analysis model reference adaptive control turning flight pilots

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