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Title: The Differential Game Guidance Law Design Based on Two sided Optimal Control

作者: [罗生^{1, 2}](#); [孙卫国²](#); [张萍²](#); [杨永胜¹](#)

1 上海交通大学航空航天学院, 上海200240; 2 中国空空导弹研究院, 河南洛阳471009

Author(s): [LUO Sheng^{1, 2}](#); [SUN Weiguo²](#); [ZHANG Ping²](#); [YANG Yongsheng¹](#)

1 School of Aeronautics and Astronautics, Shanghai Jiaotong University, Shanghai 200240,China; 2 China Airborne Missile Academy, Henan Luoyang 471009,China

关键词: [微分对策](#); [制导律](#); [最优控制](#); [脱靶量](#); [机动目标](#)

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摘要: 为了提高导弹攻击大机动目标的制导能力, 文中提出了双边最优的微分策略制导律。并针对数学上难于求解的两点边值问题, 创新性的采用了伴随方法进行求解。在导弹和目标均为一阶时间延迟下推导出微分对策制导的公式, 通过与扩展比例导引、单边最优制导的仿真比较, 考察脱靶量和控制能量两个指标, 得出微分策略制导在理论上的先进性。

Abstract: In order to improve missile guidance ability to attack targets with large maneuverability, a two sided optimal differential game guidance law was presented in this paper. A novel adjoint method was introduced to solve a two point boundary value problem which is difficult in mathematics. The formula of the differential game guidance law was deduced in the case of first order time lag of missiles and targets. Compared with the simulation of the ideal proportional navigation and the one sided optimal guidance law, the differential game guidance law is known to be an optimal solution, which minimizes the cost functional and miss distance.

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