

[1]刁兆师,单家元.制导侵彻炸弹末端弹道成形方案设计与应用[J].弹箭与制导学报,2012,6:112-116.

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制导侵彻炸弹末端弹道成形方案设计与应用

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Title: Design and Application of Terminal Trajectory Shaping Law for Penetrating Bombs

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关键词: [侵彻炸弹](#); [最优控制](#); [落角约束](#); [末端攻角收敛](#); [弹道成形](#)

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摘要: 针对制导侵彻炸弹落角约束增强毁伤效果的要求,提出了带落角、攻角约束的末端最优成型弹道方案。通过对飞行控制系统应用分析,设计了保证炸弹末端攻角收敛的攻角控制算法。利用数学仿真,研究了不同重力补偿程度对制导效果的影响;检验了在低空、高空投弹和不同期望落角条件下弹道成形方案的制导效果。仿真结果表明了当制导侵彻炸弹攻击静止目标时,采用常规重力补偿末端弹道成形方案具有较强的有效性和实用性。

Abstract: To meet the requirement of terminal impact angle constraint of penetrating bombs to enhance damage, the terminal optimal trajectory shaping law with terminal impact angle and terminal angle of attack constraints was proposed. By analysis of the flight-control system, the angle-of-attack control arithmetic was designed to assure the convergence of terminal angle of attack. Through mathematical simulations, the influence of the different gravity compensation degrees on guidance performance was discussed. The derived guidance law was tested under the release

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conditions of different expected impact angles at low and high altitude. The simulation results show that the trajectory shaping law with normal gravity compensation has some strong effectiveness and practicability to increase damage, when the penetrating bombs attack a fixed target.

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