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## 巡飞弹燃油消耗质量的数学模型研究(PDF)

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Title: Research on Fuel Mass Consumption Model of Scout Missile

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关键词: 巡飞弹; 燃油消耗质量模型; 代理模型; 仿真

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摘要: 巡飞弹常采用微型涡喷发动机,需完成长时间的巡逻飞行任务,为实现典型航迹飞行,全弹质量变化率将不断变化,文中分别建立了两种典型航迹下巡飞弹燃油消耗质量的数学模型,其中构造了代理模型来计算气动参数和燃油耗油率(SFC)。经算例仿真计算,得到了典型航迹下巡飞弹质量消耗的变化规律,以及对应的推力控制律和需用攻角变化律,所建立的燃油质量消耗数学模型可用于巡飞弹总体设计之中。

Abstract: Scout missile used micro turbojet engine mostly , loitering on the search region for along time . Mass variation of scout missile varied to keep the representative trajectory . The paper established fuel mass consumption methods of scout missile in two representative trajectories , and constructing the surrogate model of aerodynamic coefficient and SFC . The rule of mass consumption , propulsion and attack angle was deduced by simulation in representative trajectory . Fuel mass consumption model established in the paper can be used in preliminary design of scout missile .

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