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# 小型察打无人机投弹非稳态干扰下六自由度仿真(PDF

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Title: Six-DOF Simulation of Light-duty Reconnaissance and Precise Attack UAV under Unstable State Interference of Missile Separation

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关键词: 非稳态干扰; 六自由度; 察打无人机; 机弹分离; 建模; 仿真

Keywords: unstable state interference; six-DOF; reconnaissance and precise attack UAV; missile separation; modeling; simulation

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摘要: 小型察打无人机投弹前后无人机状态发生突变,且存在机弹干扰,需要分析机弹分离对载机的安全性影响。文中采用基于动网格的非定常流场求解技术耦合外挂武器六自由度运动方程,给出察打无人机实时非稳态干扰气动力。将干扰气动力作用于无人机六自由度模型,建立了包含控制系统的察打无人机投弹六自由度非线性仿真系统。针对某察打无人机,就不同挂弹方案对无人机平台飞行状态的扰动进行了仿真分析。

Abstract: When missile is separated from light-duty reconnaissance and precise attack UAV, the state of the UAV acutely changes. The CFD was used to solve the flow field of missile separation; real-time unstable interference aerodynamics of the UAV can be computed. The interference aerodynamics was applied to UAV's six-DOF model, the flight control system was simulated and the UAV's dynamic response was given. Using the simulation system, a UAV's missile separation was investigated and analyzed. The simulation results indicate that the simulation system can give UAV's dynamic response, security of UAV's fixed and ejected missiles was analyzed.

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