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# 基于ALE方法的预制破片战斗部数值研究(PDF)

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Title: Numerical Simulation of Prefabricated-fragment Warheads Exploding Based on ALE Method

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关键词: 预制破片; 战斗部; 数值模拟; ALE算法

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摘要: 为了研究杀伤破片场的分布规律,采用ALE方法对预制破片战斗部在空气中的爆炸效应进行了数值研究。建立单层离散破片的战斗部有限元模型,对压力场的分布规律、破片的飞散特性进行了数值计算,并根据模拟结果拟合了破片的分布密度函数。计算结果与实验结果一致性很好,表明:采用该方法模拟预制破片战斗部的破片飞散过程具合理性和有效性。

Abstract: In order to research the distributed rule of the fragment field, the numerical simulation of the prefabricated-fragment warheads exploding was realized by using the Arbitrary Lagrangian-Eulerian (ALE)algorithm in this paper. The finite-element model of disperse fragments for monolayer warhead was established. The diffuseness of fragments and the pressure distribution field were calculated, and the distributed function of the fragment density was deduced. The simulation result agreed comparatively with the results of experiment. It shows that the rationality and practicability of the simulation with the ALE algorithm is validated for simulating the prefabricated-fragment warheads.