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## 末敏弹减速伞充气运动建模与仿真(PDF)

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Title: Modeling and Simulation Research on Drag Parachute Inflation Motion of Target—sensitivity Projectile

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关键词: [末敏弹](#); [充气过程](#); [有限元](#); [降落伞](#)

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摘要: 针对降落伞具有非线性柔性变形的特点,应用了有限元技术来建立末敏弹减速伞充气运动模型。首先将减速伞三维模型离散成粒子系统,在考虑伞衣结构内力和内部气流运动基础上,建立充气运动的粒子节点动力学模型,其模型仿真计算结果与风洞实验的伞形运动变化、投影直径变化和动载变化规律基本一致。该理论研究非常适合在新型末敏弹减速伞的初步设计中应用。

Abstract: Aiming at parachute having nonlinear flexible deformation features, finite element technology was applied to modeling and simulation research on drag parachute inflation motion of target—sensitivity projectile (TSP). Particle system was used to construct the 3D model of drag parachute. On the basis of considering the inner force in the canopy and the flowfield inside it, the dynamics models during inflation process is built in the form of mass particles, and the numerical results through the simulation are validated to be in basic agreement with experiment's results. This research adapts to be used for an elementary design in the drag parachute of new TSP.

导航/NAVIGATE
<a href="#">本期目录/Table of Contents</a>
<a href="#">下一篇/Next Article</a>
<a href="#">上一篇/Previous Article</a>
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<a href="#">引用本文的文章/References</a>
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