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## 恢复系数对弹丸膛内运动参数的影响 (PDF)

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Title: The Influence of Restitution Coefficient on the Projectile Motion Parameters in Bore

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摘要: 弹丸膛内运动过程中,将其前定心部和膛壁碰撞的恢复系数看成定值,不能真实反映弹丸运动过程。实际上,恢复系数是随前定心部撞击膛壁的速度而变化的。通过对弹炮模型简化成的单球碰撞系统进行有限元仿真,得到恢复系数随前定心部径向速度变化的函数关系。将上述关系应用于弹丸膛内运动的数学模型,计算结果与测量结果基本一致,因此考虑恢复系数的变化具有一定的合理性。

Abstract: During in-bore projectile motion, considering the restitution coefficient of the collision between the former bourrelet and the bore as a constant couldn't really describe the projectile motion process. In fact, the restitution coefficient varies with the velocity of the former bourrelet hitting the bore. Through the finite element simulation on a single ball collision system of the projectile and tube's simplified model, the functional relation between the restitution coefficient and the radial velocity of the bourrelet was obtained. The relation was applied to the mathematical model of the projectile motion, the calculation result and the measured result showed the similar trend, so

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considering the change of the restitution coefficient has certain