

SPACE DEBRIS SYMPOSIUM (A6)
Hypervelocity Impacts and Protection (3)

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INFLUENCES OF IMPACT POSITION AND ANGLE ON SHIELDING PERFORMANCE OF
N-SHAPE CONFIGURATION

Abstract

Simulation and hypervelocity tests were carried out, to analyze the shielding performance of N-shape configuration under impact conditions that the impact points were not on the center of buffer and the impact angles were 10 and 20. The range of impact velocity was from 4.6km/s to 4.8km/s, and the diameter of aluminium projectile was 5.5mm. Results showed that the shielding performance of N-shape configuration declined when projectile impacted the top of the configuration, however, its performance was improved when projectile impacted the bottom of the configuration. The shielding performance of N-shape configuration decreased when the impact angle of projectile was 10 or 20, and the shielding performance declined slightly when the impact angle of projectile was -10, however, its performance was improved obviously when the impact angle of projectile was -20. The performance anisotropy of the N-shape configuration was verified preliminary in the study.

Key words: Hypervelocity impact, Shield configuration, Oblique impact, Debris