

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Space Vehicles – Mechanical/Thermal/Fluidic Systems (7)

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APPLICATION OF INERTIA RELIEF IN STRUCTURAL STRENGTH ANALYSIS OF REUSABLE
LAUNCH VEHICLE

Abstract

In order to eliminate the effects of the reaction force from the constrained points on the structural stress conditions in the FEM static analysis inertia relief analysis was introduced in the evaluation of reusable launch vehicle structure. Static analysis was carried out under inertia relief method and usual constrain method the results of which were compared afterwards especially in the aspect of the stress distribution and displacement. The results and comparison showed that the utilization of inertia relief method could eliminate the structural stress conditions caused by the constrained points and asset the structural strength more appropriately.