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STUDY ON NUMERICAL CALCULATION METHOD FOR THE EXPLOSIVE FRAGMENTS IN INITIAL SEGMENT OF ROCKET LAUNCH

Abstract

Fragments of rocket explosive is a crucial ingredient for the safety of personnel and equipment during the launch initial segment. And the significance of launch site system reliability lies on forecasting of the fragments range. According to the randomicity of shape, measure, velocity, attitude and flight route of the explosive fragments, safety design and general planning of launch site system is very difficultly. The method and process of explosive fragments safety analyzing which based on investigation the effect of fragments are established in this paper. Several critical techniques such as fragments generation, aerodynamic parameters calculation of anomalistic fragments and six freedom ballistic trajectory calculation of fragments in complex aerodynamic condition, are solved. Finally, the numerical analytical platform system which possessed the technology of generation of fragments, trajectory calculation, trajectory analyzing and data control is developed. Combining the needs of launch site general planning, analysis of fragments in launch initial segment of the rocket explosion had been completed, and vast safety data had been obtained in multi-time and multi-direction condition in complex aerodynamics. The data is useful for the choice of launch site and safety design of general planning.