

IAF EARTH OBSERVATION SYMPOSIUM (B1)
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INLET SECTIONAL ANALYSIS AND OPTIMIZATION OF RAMJET ENGINE

Abstract

Amidst immense technological furtherance over supersonic and hypersonic flights, restraints reach the conditional working of systems dealing with the same, counting the Ramjet and Scramjet engines. Effective gain in the functioning, stretching out opportunities over escalated performances, following which the study encompasses the optimization through comprehensive design and analysis of open face divergent structure at the inlet section of Ramjet engines in action with shock wave configurations to enable greater relative compressibility ratio. The design intends to provide theoretical and computational scrutiny over designing software's as Autodesk Fusion 360, Xflr 5, and OpenVSP. Iterative computational aided simulational study is included by operations on COMSOL Multiphysics over the fluid flow domain. The study imparts domain design physics in regard to the front face inlet section of ramjet engines over collective applications providing an advanced frontline for numerous analytical approaches contributing to the effective optimization and development of ensuing supersonic flight machines.