

عنوان مقاله:

Investigation of Flow Separation Phenomenon for Supersonic Convergent–Divergent Nozzles

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خلاصه مقاله:

The nozzle, an end-element of the propulsive process Cycle, represents a critical part of any aerospace vehicle. The task of accelerating and efficiently exhausting combusted and reactive gases according to the delivered thrust represents the main objective of the propulsion system design. Flow separation in supersonic convergent–divergent nozzles has been the subject of several experimental and numerical studies in the past. Now, with the renewed interest in supersonic flights and space vehicles, the subject has become increasingly important, especially for aerospace applications (rockets, missiles, supersonic aircrafts, etc). Flow separation in supersonic nozzles is a basic fluid dynamics phenomenon that occurs at a certain pressure ratio of chamber to ambient pressure, resulting in shock formation and shock/turbulent-boundary layer interaction inside the nozzle. From purely gas-dynamics point of view, this problem involves basic structure of shock interactions with separation shock, which consists of incident shock, Mach reflections, reflected shock, triple point and slip lines. In this article A Review on Flow Separation Phenomenon for Supersonic Convergent–Divergent Nozzles has been investigated

کلمات کلیدی:

gas-dynamics, Flow Separation, supersonic convergent divergent nozzles, shock interactions, Mach reflections

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