

SPACE PROPULSION SYMPOSIUM (C4)
Hypersonic and Combined Cycle Propulsion (9)

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PERFORMANCE EVALUATION AND THE STATUS OF TRRE

Abstract

Turbo-aided Rocket-augmented Ramjet Combined Cycle Engine (TRRE) is a novel combined engine concept which is highly integrated with the turbo, rocket, and ramjet through the structure integration, thermal cycle and working process. This paper introduced the research progress of Beijing Power Machinery Research Institute, and conducted a thrust performance study of the engine. The numerical simulation results showed that this engine is able to achieve a high specific impulse performance at Mach number 6, while considering the thrust need to relay at Mach number 2. This results present preliminary proof of the performance advantage at subsonic and hypersonic long-range cruise ability, the high maneuvering ability at hypersonic flight condition and high ceiling altitude hypersonic cruise ability.