Fundamentals of Airbreathing Rocket Combined Cycle (ARCC) Engine
&
Design of the ARCC Engine Powered Single-Stage-To-Orbit Vehicle

-Beyond the Atmosphere-

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PREFACE

This book was written for the commemoration of the authors' research works toward spaceplane, Authors have been conducting Japan's Spaceplane program at National Aerospace Laboratory since early 1990's, with the vehicle concepts focused on the airplane-like space vehicle powered by airbreathing rocket combined cycle (ARCC) engines.
Single-Stage-To-Orbit (SSTO) vehicle was the leading reference concept.

For SSTO vehicle to be feasible, development of the high performance propulsion system is of key ssues. With these objectives in minds, we had proposed the novel concept on the propulsion system ,continuous from low flight speed to the high flight speed regime based on the non-Brayton cycle. As compared to the Rocket-Based Combined Cycle (RBCC) propulsion system, ARCC's unique features are on minimizing the variable geometries as possible.

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