

# Space Technology Mission Directorate Game Changing Development Program **Rotating Detonation Rocket Engine(RDRE)**

## Project Overview

NASA GRC, in coordination with MSFC, is developing RDRE-specific computational tools and design approaches to enable the development of RDRE configurations for In-Space and Lander propulsion applications. RDRE's take advantage of the pressure rise and high flame speed of detonation to provide higher specific impulse in a shorter combustor length than a traditional chemical rocket.

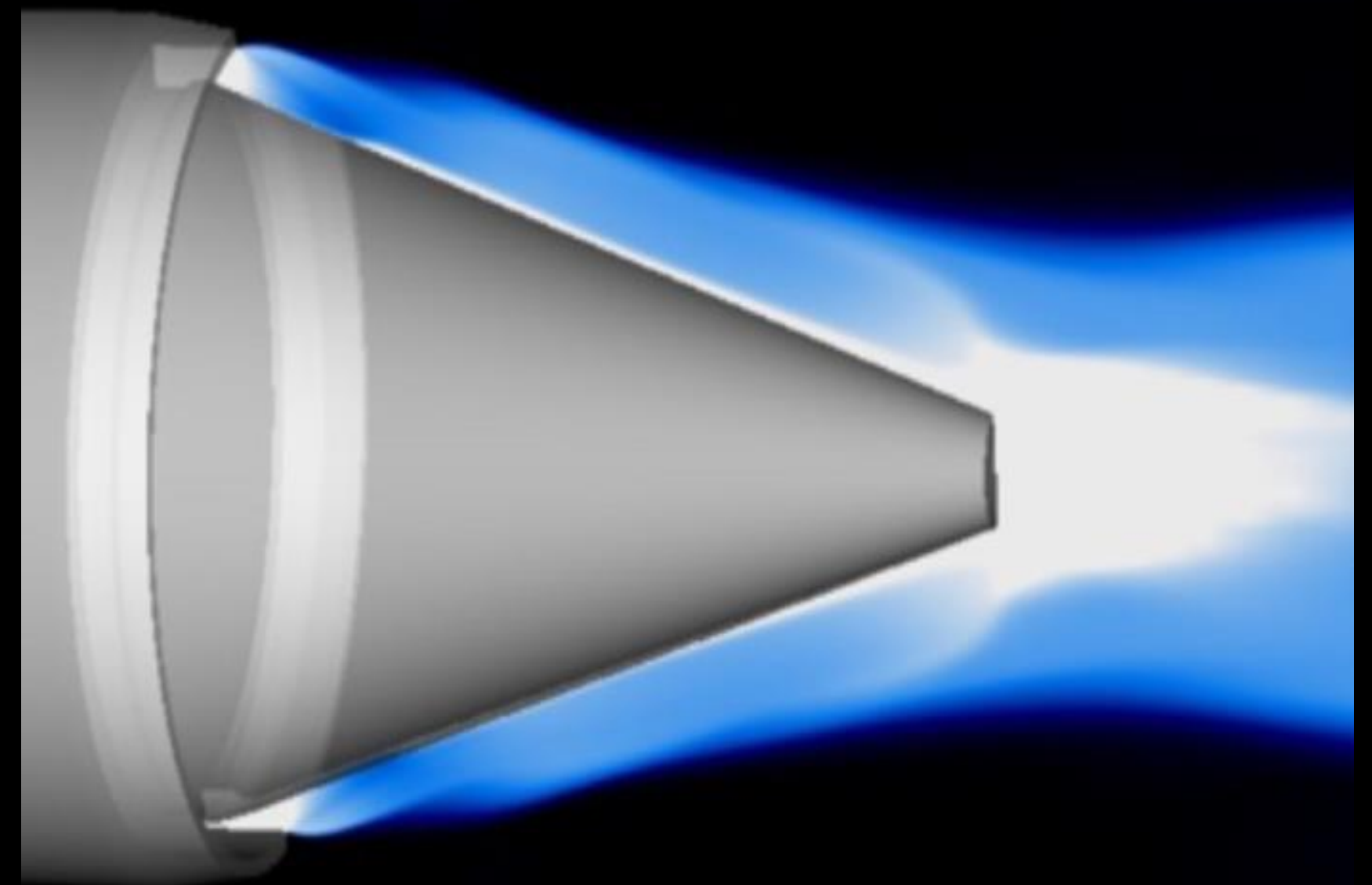
## Technical Approach

Develop and validate mixed-fidelity tools and analytical models to explore RDRE design concepts in a time-efficient manner.

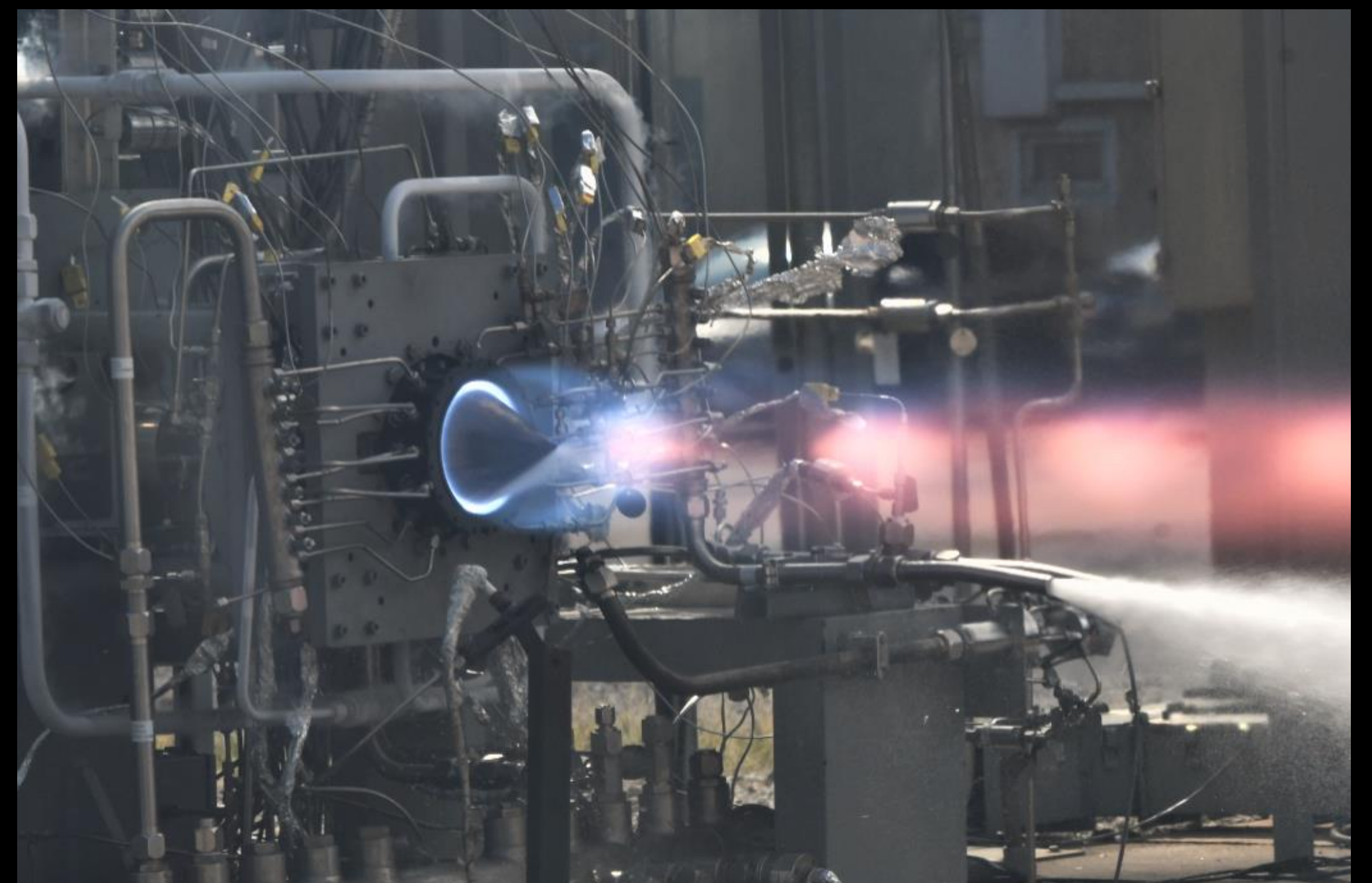
## Contributing Partners and Infusion Plans

MSFC-led ACO, ECI RDRE projects; NSTRG Fellowships; STTR & SBIR partners; SAA's with AFRL, DOE, DARPA. Planning RDRE demonstrator.

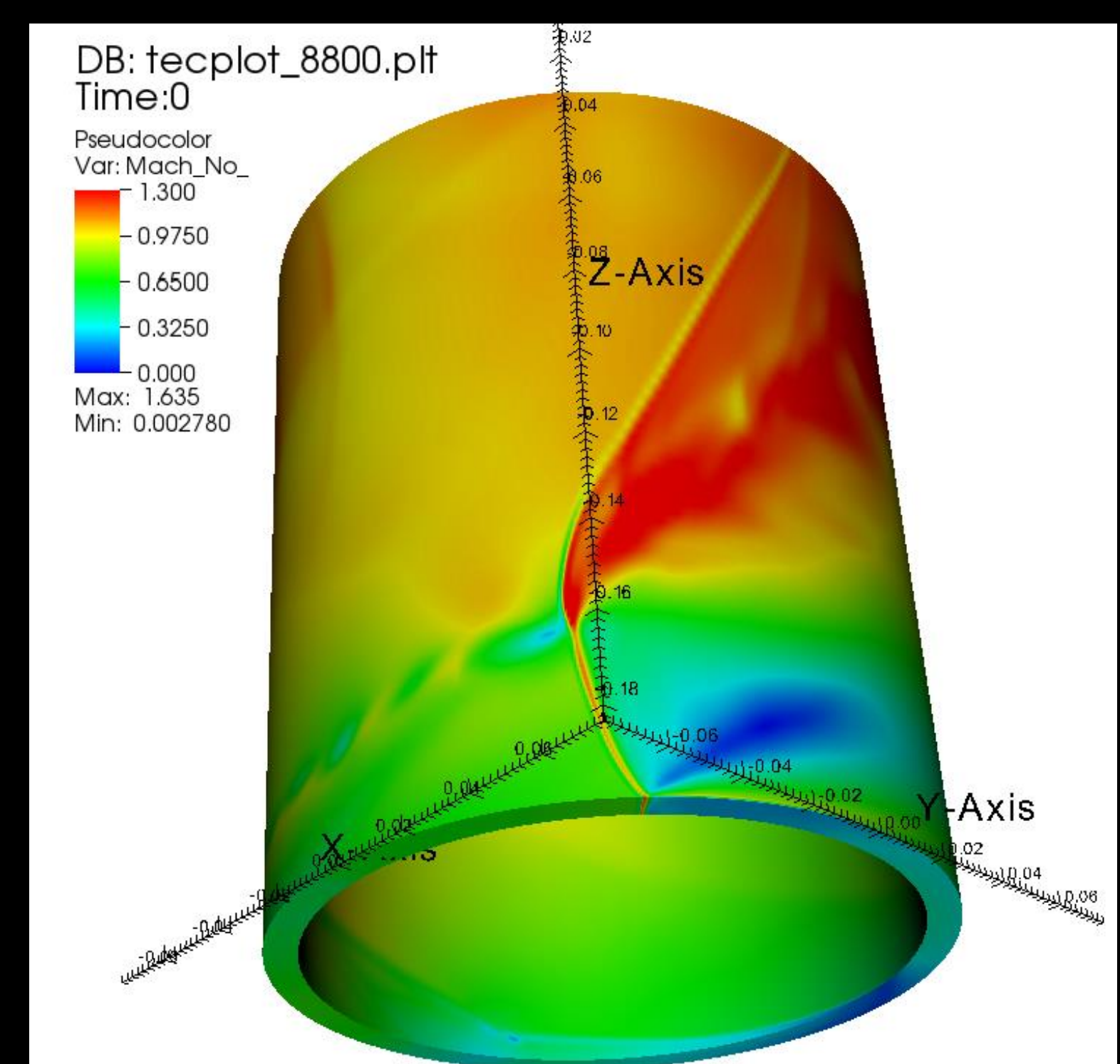
## Additional Information



ACO RDRE Nozzle Simulation



ACO RDRE Test at MSFC



RDRE Combustor Simulation