



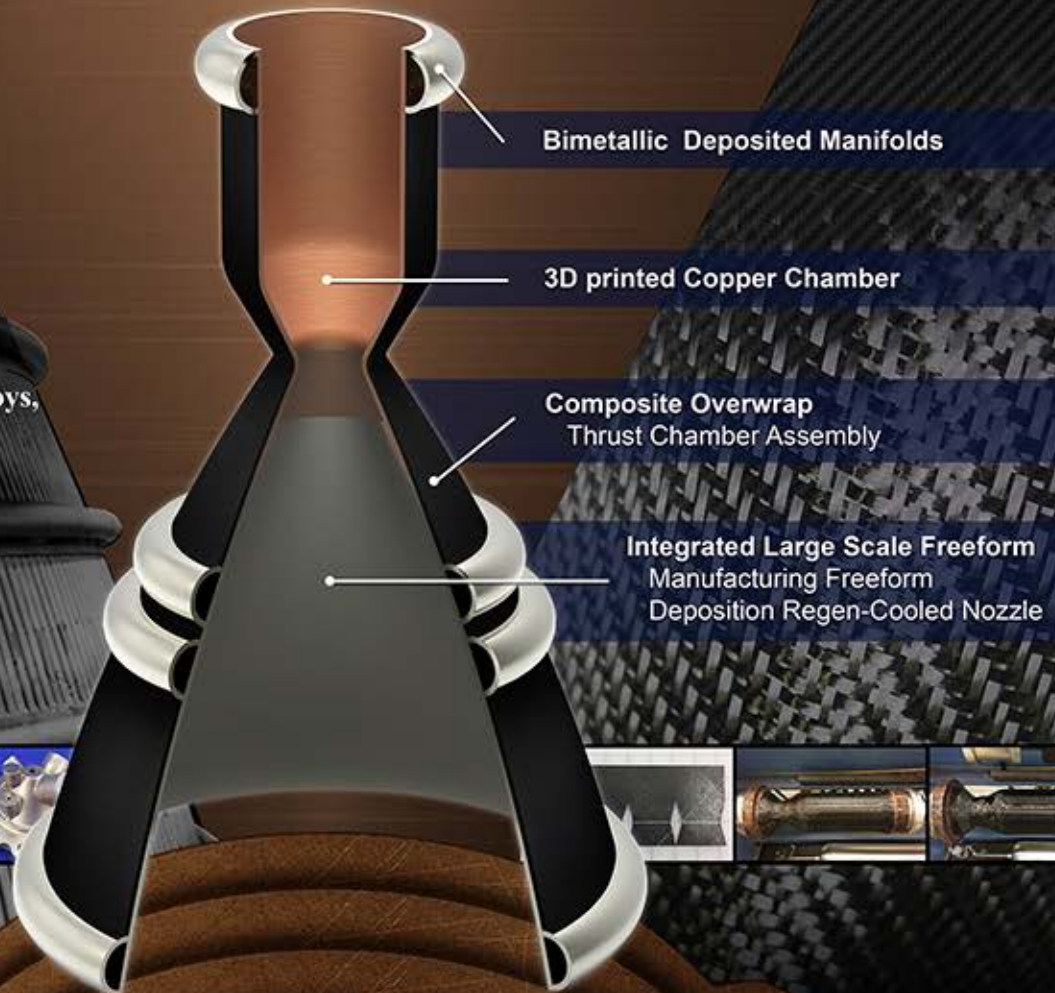
**Space Technology Mission Directorate**  
Game Changing Development Program

# Rapid Analysis and Manufacturing Propulsion Technology (RAMPT)

## *Integrated Additive-Composite Technology*

Advancing design and manufacturing technologies to increase scale, significantly reduce cost, and improve performance for regeneratively-cooled thrust chamber assemblies, specifically the combustion chamber and nozzle

Multiple advanced manufacturing techniques have evolved and are being considered for future flight applications, such as additive manufacturing and composite manufacturing together with new metallic-alloys, multi-metallic, and composite based materials.



NASA will be responsible for integration of components and specialty manufacturing processes across the entire project to optimize the overall thrust chamber assembly. Specialty manufacturing industry partners will be a key part of the development, which allows long-term industry and government access to these technologies to be used for fabrication of components in various programs including commercial space.