

IAF MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Interactive Presentations - IAF MATERIALS AND STRUCTURES SYMPOSIUM (IP)

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ADDITIVE MANUFACTURING OF SATELLITE PROPULSION SYSTEMS

Abstract

The mission of the Additive Rocket Corporation (ARC) is to democratize space by providing reliable and affordable propulsion solutions. With a revolutionary design for launch vehicle engines and satellite thrusters, ARC leverages its unique IP with 3D printing to offer new and innovative options for manufacturers in the space industry.

ARC's design is rooted in nature, inspired by the process of blood flow in the human body. By implementing this theory into its design, ARC is able to increase the efficiency of thrusters by decreasing turbulence and energy loss across an entire rocket engine. By implementing this design methodology to satellite propulsion systems, ARC has the ability to create components with more predictable thrust curves, improving the overall performance of traditional monopropellant thrusters.

The use of 3D printing allows for a 50 percent reduction in weight, which is helpful for launch vehicles as it increases the payload capacity. While other companies are also taking advantage of the cost and time benefits of additive manufacturing, ARC is separated by its own novel design and ability to tailor each engine to every client's unique propulsion needs and requirements. ARC can create propulsion systems for any size, shape, and situation.

ARC's novel approach can be applied to cold gas and monopropellant thrusters, providing solutions for satellite manufacturers that include more thrust capabilities, competitive pricing, and availability.