

18th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)
Innovative Concepts and Technologies (1)

Author: Mr. Les Johnson
National Aeronautics and Space Administration (NASA), Marshall Space Flight Center, United States,
c.les.johnson@nasa.gov

NASA INTERSTELLAR PROPULSION ASSESSMENT

Abstract

A NASA Workshop on Interstellar Propulsion was held at the 6th Interstellar Symposium in the fall of 2019 in Wichita, Kansas. The workshop was convened to assess the viability of selected advanced propulsion technologies for their potential to meet the goal of launching a true interstellar probe within the next century and achieving $>0.1c$ transit velocity. Experts in Beamed Energy Propulsion, Fusion, and Antimatter participated over 2.5 days. In addition to assessing the state-of-the-art of each technology, competing approaches to advancing the Technology Readiness Level (TRL) of each were presented by advocates and assessed by non-advocates for synthesis into a workshop report that may serve as the blueprint for possible future interstellar propulsion technology development.

This paper will describe the requirements, ground rules, and assumptions for each candidate technology's technology readiness assessment, the fundamental physics and engineering requirements of each, and a high-level technology maturation approach to enable a true interstellar mission within the next 50 years.