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Strategies for Rapid Implementation of Interstellar Missions: Precursors and Beyond (4)

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INTERSTELLAR EXOTIC PROPULSION TRAIL GUIDE

Abstract

To convey how exotic propulsion research might ultimately lead to interstellar flight breakthroughs, a provisional "technology roadmap" is offered. Considering the early stage of this pioneering work, it is perhaps more fitting to use the term "trail guide." Milestones are defined according to the steps of the Scientific Method and thereafter according the Technology Readiness Levels. Critical research objectives and approaches are extracted from recent literature including the landmark compilation, *Frontiers of Propulsion Science* (AIAA, 2009). The research objectives include ambitions for propellantless space drives, faster-than-light flight, and the energy requirements for both. Instead of being a predictive tool, this "trail guide" is presented to illustrate how the research conducted today is relevant to interstellar flight, and to show the steps necessary to advance those notions through fruition. Further, by including estimates for the typical time it takes to advance any concept, this trail guide can also be used to estimate how long it would take to evolve from the point of a new physics discovery to the achievement of the first flight using that discovery. Ad astra incrementis.