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From Earth Missions to Deep Space Exploration (05)
Poster Session (P)

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PROJECT ICARUS: A 21ST CENTURY INTERSTELLAR STARSHIP STUDY

Abstract

Interstellar missions have been proposed as a priority for research into (1) the interstellar medium and any number of astrophysical studies which could be performed en-route, (2) astrophysical studies of a target star, or stars, if a multiple system is selected, (3) planetary science studies of any planets in the target system, including moons and large asteroids, and (4) astrobiological and exobiological studies of any habitable planets which may be found in a target system.

The primary challenges associated with any interstellar mission relate to the distances involved, and missions conducted on timescales of a human lifetime are not possible using conventional chemical propulsion. Numerous unique solutions have been proposed including; beamed energy propulsion, fission/fusion propulsion, antimatter propulsion as well as more exotic ideas. This talk presents a broad overview of the state-of-the-art in starship design and discusses the merits and limitations of these proposals. Also discussed is an overview of Project Icarus, a volunteer five year theoretical design study for an interstellar starship that could reach a nearby star in a journey time of 100 years or less.