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OPTIMAL ORBIT TRANSFER ASSESSMENT FOR MARS MISSION

Abstract

Research presented in this paper focuses on the investigation of optimal change in velocity (V) required for the interplanetary mission to Mars. It starts by investigating patched conics application and how this technique aids in determining the necessary V required for such missions. Following, an optimal patched conic technique is developed using Lambert Solver for interplanetary transfers instead of relying on conventional Hohmann transfer. Lambert Solver is used so that orbits with significant travel duration could be utilised. Application of such methodology aids in reducing required V to a significant amount for such interplanetary missions. This research demonstrates the feasibility of such orbits and proposes their application in future missions.