



TOPIC # - TDC - 204

NASA PSYCHE: In-Situ Resource Utilization for Hypothesized Surfaces

BACKGROUND

The NASA Psyche mission is an orbiter mission to the metal-rich asteroid, Psyche, in the asteroid belt between Mars and Jupiter. The spacecraft, which launched in October 2023 and will arrive at the asteroid in mid-2029, will study the asteroid from orbit for the first time and will not land on the surface.

Using the latest knowledge about asteroids in general, the latest published ground-based observations of the Psyche asteroid specifically, the current scientific hypotheses about its formation history and surface characteristics, and considering new and emergent technologies for remote observation and science data collection, you will identify and design (or modify) a suite of instruments for an orbiter that could best enable data collection to inform scientific understanding of Psyche from a follow-on orbiter. The project deliverables can include, for example, calculations, simulations, design packages, or, if time and resources in your course allow, physical prototyping.

NASA PSYCHE

The Psyche mission is developing Psyche-focused projects for capstone courses across a range of disciplines. Note: to participate in the PSYCHE topics, teams should be part of a capstone class.

See NASA PSYCHE for additional program information.

DESIGN TEAM PROFILE

NASA MENTOR:	Cassie Bowman
LEVEL:	Undergraduate students of any level
MAJOR/DISCIPLINE:	All relevant majors welcome
TEAMS:	Teams should be capstone classes.
DURATION:	1 or two semesters

