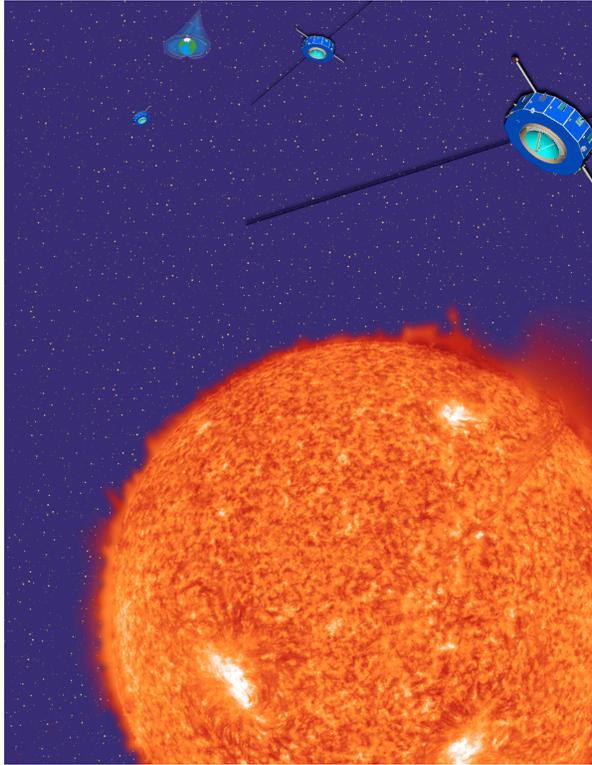




HELIX - A multi-spacecraft mission to the inner heliosphere



Technology Features:

- Low mass, low cost spacecraft design
- X-band downlink from Owens Valley Radio Astronomy facility

Fundamental Question:

- What is the nature of the solar wind and its transient phenomena?

Science Questions:

- How is the solar wind accelerated? How does it evolve?
- What is the origin of Coronal Mass Ejections? How are they related to solar flares? How do they evolve in transit?
- What are the topology and dynamics of the heliospheric magnetic field?
- How and where are solar energetic particles accelerated?

Mission Description:

- Proposed to MIDEX Opportunity for launch in 2007
- Four identical satellites launched together on Delta II
- Inserted to heliospheric orbits after Venus gravity assist
- Final orbits between 0.4 and 1 AU, with wide radial and longitudinal coverage and some latitudinal variation

Measurement Strategy:

- 2D x-ray imaging at 18-180 arcsec resolution
- Energetic ions and electrons - suprathermal to ~ 100 MeV
- Neutron, positron, and γ -ray observations
- Solar wind plasma, including ion composition and suprathermal e^-
- Radio bursts, from 2 solar radii to 1 AU, and *in situ* plasma waves
- Interplanetary vector magnetic field
- Complementary observations with STEREO, Mercury Messenger, and Solar B