

### Technical Page

Proposal Type: Long-term  
 General Category: Planetary Radar  
 Observation Category: Solar System  
 Total Time Requested: 201 Hours

**Proposal Title:** A Radar Survey of X/M/E Type Asteroids: A Search for Metallic Cores  
*ABSTRACT:*

We propose to conduct a radar survey of 18 X/M/E class main-belt (MB) asteroids using the Arecibo radar facility during the next two years. A similar survey using NASA’s Infrared Telescope Facility (IRTF) will be conducted simultaneously to obtain a complementary data set. Our research objectives are to physically characterize the M and E asteroids, search for the metallic cores of disrupted parent bodies, and look for correlations between the asteroids’ radar properties, size, and spectral properties. The radar data are critical to our objectives because radar is the only method currently capable of unambiguously identifying metal-rich asteroids. Our goals are to resolve the compositional ambiguities of these important asteroid classes and answer outstanding questions about solar system formation.

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**Service Observing Request**

**Remote Observing Request**

- None
- All of the observing run.
- Part of the observing run.
- Queue Observing

- No
- Maybe
- Yes

**Instrument Setup**

S-Band radar

**Atmospheric Observation Instruments:**

**Special Equipment or setup:** none

**RFI Considerations**

## Frequency Ranges Planned