Technical Page

Proposal Type:	Regular
General Category:	Planetary Radar
Observation Category:	Solar System
Total Time Requested:	66 Hours
Minimum Useful Time:	2 hr

Proposal Title: Continuation of a Long-Term Radar Survey of Main-Belt M and E class Asteroids

ABSTRACT:

We propose to observe five M-class asteroids (77 Frigga, 337 Devosa, 441 Bathilde, 504 Cora, and 758 Mancunia) and one E-class object (44 Nysa) that have never been observed with radar. We will also re-observe 97 Klotho to obtain the first delay-Doppler images of that target. These encounters are the best available for radar study for the next 5-25 years. These new observations will bring the total number of M-class main-belt asteroids observed with radar to 17, the number of E-class to two, and the number of imaged main-belt M-class asteroids to four (16 Psyche, 21 Lutetia, 97 Klotho, and 216 Kleopatra). These M-class observations will allow us to test the hypothesis that only about one-third of the spectral M population appears metallic, test the hypothesis that a 3 um spectral (hydration) feature is incompatible with metallic compositions, and to exploit the high SNR available for the M-asteroid 97 Klotho to do delay-Doppler imaging which should allow a three-dimensional shape model. 44 Nysa will be only the second E-class main-belt asteroid observed.

Name	Institution	E-mail	Phone	Student
Michael K Shepard	Bloomsburg University	mshepard@bloomu.edu	570-389-4568	no

Remote Observing Request

- [X] Observer will travel to AO
- [ ] Remote Observing
- [ ] In Absentia (instructions to operator)

Instrument Setup

S-Band radar S-band receiver

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned