Proposal Identification No.: R2795
Date Received: 2012-Aug-31 15:40:12

Technical Page

Proposal Type: Regular
General Category: Planetary Radar
Observation Category:
Total Time Requested: 13 Hours
Minimum Useful Time: 2 hrs

Proposal Title: Radar Investigation of Five X M E-class Asteroids

ABSTRACT:
We propose to observe five X M E-class asteroids to better understand their properties. Because M-class asteroids are purportedly metal-rich, radar is the best tool with which to test this compositional hypothesis. E-class asteroids are unique in that they have extremely high radar polarization ratios, an observation that remains unexplained. These observations continue our six year survey of all the M- and E-class asteroid observable at Arecibo. Two of these objects (161 Athor, 572 Rebekka, both M-class) have never been observed by radar. 216 Kleopatra (M-class) will have SNRs high enough for delay-Doppler imaging and allow us to refine that unusual target’s shape and spin properties. Our observations will help us understand the origin of metal-asteroids and aubrites (E-class analogs) in the main-asteroid belt and add to our understanding of the early solar system’s formation and subsequent evolution.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
<th>Phone</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael K Shepard</td>
<td></td>
<td><a href="mailto:mshepard@bloomu.edu">mshepard@bloomu.edu</a></td>
<td>5703894568</td>
<td>no</td>
</tr>
</tbody>
</table>

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