Multi-Static/vlbi Imaging Radar for Characterizing Space Objects

Title: Multi-Static/VLB Imaging Radar for Characterizing Space Objects

Invention: This invention is a methodology for using multi-static, long baseline imaging radar for the tracking, imaging and classification of Near-Earth Objects (NEOs).

Background: Since the launch of Sputnik in 1957, mankind has progressively added more satellites, and consequently more debris, into Earth’s orbit. As of 2013, NASA has tracked over 500,000 pieces of debris larger than the size of an average marble, and this number is constantly increasing. The amount of satellites and debris have posed a problem with the ability to track and image objects, especially those that are small but still problematic because of their high speed. Traditional techniques for tracking these satellites are not sufficient enough to provide high-resolution images, meaning small objects are often missed. The technique presented here will allow researchers and defense agencies to locate space objects and track them in a more timely manner.

Applications:

- High resolutions imaging of NEOs
- Characterization of NEOs

Advantages:

- Produces high-resolution images
- Potential to support improvements to tracking and predicting NEO flight paths
- Potential to support mitigation of space debris

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