

STATEMENT OF WORK

Algorithm for Inversion of Gravity Acceleration for Tomography of Asteroids (AIGATA)

PR: 4200572915

Background

Study of internal structure of an asteroid, we propose the development of a gravity inversion algorithm appropriate to the asteroid tomography, and an evaluation of the effectiveness of the developed algorithm.

Scope

- Contractor shall develop gravity inversion algorithm.
- Contractor shall demonstrate the performance of the inversion algorithm in simulations using design reference data.

Requirements

1. Mission requirements:

- Collaborate with GSFC to determine mission parameters and performance goals.

2. Instrument model:

- Update the gravity gradiometer error model and design parameters to reflect the mission parameters and goals.

3. Inversion algorithm:

- Develop an exploratory algorithm that uses gravity gradient data, in combination with auxiliary inputs and appropriate assumptions, to estimate the mass density distribution of asteroids.

4. Simulation:

- Simulate the estimation of the density distribution of a model asteroid by using the exploratory inversion algorithm, as well as the gradiometer instrument model.

5. Meetings/Reports:

- Participate in meetings:
 - Weekly meetings
 - Other meetings as necessary
- Provide interim data/feedback as required by the PI.
- Provide bi-monthly reports.

Deliverables or Delivery Schedule

- Contractor shall provide bi-monthly status reports summarizing progress for that period, any significant findings or deviation from the plan, and recommended areas for further investigation or focus. The final bi-monthly report shall:
 - Review cost performance
 - Propose a scope of work for a follow-on period of performance

Government-Furnished Equipment and Government-Furnished Information

- The Government will provide operations scenarios/instrument constraints as necessary parameters for the simulation and instrument and determination of the instrument design parameters.

Place of Performance

- The work is to be performed at the contractor's site

Period of Performance End Date

- September 28, 2016