



## **NASA SBIR 2011 Phase I Solicitation**

### **S3.06 Guidance, Navigation and Control**

**Lead Center: GSFC**

**Participating Center(s): ARC, JPL, JSC**

Advances in the following areas of guidance, navigation and control are sought.

Navigation systems (including multiple sensors and algorithms/estimators, possibly based on existing component technologies) that work collectively on multiple vehicles to enable inertial alignment of the formation of vehicles (i.e., pointing of the line-of-sight defined by fixed points on the vehicles) on the level of milli-arcseconds relative to the background star field.

Lightweight sensors (gyroscopic or other approach) to enable milli-arcsecond class pointing measurement for individual large telescopes and low cost small spacecraft.

Isolated pointing and tracking platforms (pointing 0.5 arcseconds, jitter to 5 milli-arcsecond), targeted to placing a scientific instrument on GEO communication satellites that can track the sun for > 3 hours/day.

Working prototypes of GN&C actuators (e.g., reaction or momentum wheels) that advance mass and technology improvements for small spacecraft use. Such technologies may include such non-contact approaches such as magnetic or gas bearings. Superconducting materials, driven by temperature conditioning may also be appropriate provided that the net power used to drive and condition the "frictionless" wheels is comparable to traditional approaches.

Proposals should show an understanding of one or more relevant science needs, and present a feasible plan to fully develop a technology and infuse it into a NASA program.

