



NASA SBIR 2018 Phase I Solicitation

Z1.01 High Power Arrays for Solar Electric Propulsion

Lead Center: GRC

Participating Center(s): JPL, LaRC

Technology Area: TA3 Space Power and Energy Storage

NASA is seeking developments in advanced solar array power technology for very high power (500kW) systems to support future NASA missions involving Solar Electric Propulsion (SEP) and other in-space applications. The objective is to develop solar-powered systems and components that are lightweight, reliable, compactly stowed, survivable within the space environment (i.e., minimal degradation due to space particulate radiation, UV, micrometeoroid impacts, thermal cycling, spacecraft contaminants, and space environmental effects), and provide sufficient stiffness to minimize adverse spacecraft dynamics issues. Of particular interest are technologies that:

- Reduce the overall solar array cost through modularity, minimization of part counts, automated fabrication and testing, and reduced material costs.
- Enable high voltage operation of the solar array with minimal space environmental interactions that could lead to degraded array performance.
- Survive long-term exposure within a solar electric propulsion thruster environment.

Technology advancements may include developments in solar cells, blanket technology, array designs, array deployment techniques (including in-space robotic assembly), improved manufacturing processes, and the ability to adequately ground-test and space-qualify these large array designs.