



## NASA SBIR 2009 Phase I Solicitation

### A4.01 Ground Test Techniques and Measurement Technology

Lead Center: LaRC

Participating Center(s): ARC, GRC

NASA is strategically positioning its ground test facilities to meet the future testing needs for our nation. NASA's aeronautics and space research and development pushes the limits of technology, including the ground test facilities that are used to confirm theory and provide validation and verification of new technical concepts. By using state-of-the-art test measurement technologies, data acquisition, testing techniques and enhancing facility performance, NASA will be able to operate its facilities more efficiently and effectively and also be able to meet the challenges presented by NASA's cutting edge research and development programs. Therefore, NASA is seeking highly innovative and commercially viable test measurement technologies, test techniques, and facility performance technologies that would increase efficiency, capability, productivity for ground test facilities.

The emphasis for this subtopic is in the area of test measurement technology. Examples of the types of technology solutions sought, but not limited to, are: skin friction measurement techniques; improved flow transition and quality detection methodologies; non-intrusive measurement technologies for velocity, pressure, temperature, and strain measurements; force balance measurement technology development; and improvement of current cutting edge technologies, such as Particle Based Velocimetry (LDV, PIV), Pressure Sensitive Paint (PSP), and focusing acoustic measurements that can be used more reliably in a production wind tunnel environment. Instrumentation solutions used to characterize ground test facility performance are being sought in the area of aerodynamics performance characterization (flow quality, turbulence intensity, mach number measurement, etc.). Areas of interest are in the subsonic, transonic, supersonic, and hypersonic speed regimes. Specialized areas may include cryogenic conditions, icing conditions, and rotating turbo machinery.

Proposals that lead to products or processes that are applicable specifically to the ATP facilities (see <http://www.aeronautics.nasa.gov/atp>) and across multiple facility classes are especially important. The proposals will also be assessed for their ability to develop products that can be used in government-owned, industry and academic institution aerospace ground test facilities.

