

SOLICITATION NO. NNG14490137R

**NASA Sounding Rocket Operations Contract III
(NSROC III)**

ENCLOSURE 4

AREAS FOR INNOVATION

November 2014

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Enclosure 4 – Areas for Innovation**

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AREAS FOR INNOVATION

1. **Background:** In recent years, Principal Investigators (PI's) increasingly have been proposing scientific investigations involving multiple small sub-payloads being released from the main payload in order to collect data simultaneously at different points in space. Heritage sounding rocket electronic components and sensors make it difficult to design a sub-payload telemetry, power system, and attitude determination system small enough to meet PI needs. Consequently, much of the design effort to fit the sub-payloads into a small package has been undertaken by the various PI's and their teams. The Program desires to offer smaller and lighter-weight support electronics, sensors, and associated structural and mechanical elements so that the PI's can maximize their time designing the science instrument.

Innovation Area: Provide miniaturized electronics, sensors, and associated structural and mechanical elements to enable smaller and lighter payload and sub-payload systems. Examples may include, but are not limited to, smaller and lighter battery technology that is also reliable and safe, power distribution and control electronics, encoders, transmitters, antennas, inertial measurement units, solar sensors, magnetometers, rate sensors, release mechanisms, deployment mechanisms, and structural enclosures.

2. **Background:** The manufacturing industry is constantly developing new methods to improve quality, streamline processes, and offer superior technical capabilities. The Program has invested a significant amount of money in recent years to purchase machinery and equipment or collaborate with outside manufacturing expertise to take advantage of some of these advancements. Nonetheless, further improvements can benefit the program if properly selected and planned.

Innovation Area: Provide advanced and affordable mechanical and electrical manufacturing techniques to enhance technical capabilities, improve quality, and reduce production time and material waste.