

BRIEFING CHART

NASA SBIR/STTR Phase II Enhancement
Very Low-Cost, Rugged High Vacuum System for Mass Spectrometers
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Contract No.: NNX09CA64C

Identification and Significance of Innovation

- New, miniature mass spectrometers are being developed at NASA for use in planetary and atmospheric exploration.
- DHS and DoD use similar detectors for toxic industrial chemicals, biological warfare agents, and explosives.
- Low-cost, rugged vacuum systems are needed to support all of the above applications in space and on the ground.
- Creare proposes to design, build, test, and deliver an extremely low-cost and rugged high vacuum system whose performance is optimized for miniature mass spectrometers used in space and on Earth.



Photograph During Assembly of High Vacuum Turbomolecular/Molecular Drag Pump for Use in NASA Mars Missions and for ASTID Program

Phase II Enhancement Technical Objectives

- Adapt technology developed under Phase II SBIR for use in ASTID program.
- Design and fabricate pump specifically to meet ASTID program requirements.
- Demonstrate performance of ASTID pump design.

Phase II Enhancement Work Plan

Task 1—Optimize Pump Design
Task 2—Fabricate Pump Design
Task 3—Test Pump Performance
Task 4—Manage and Report

NASA Applications

- Planetary exploration initiatives.
- Atmospheric measurement instrumentation.
- Health and safety near launch facilities.

Non-NASA Applications

- Portable/remote mass spectrometers used to detect chemical and biological weapons, toxic industrial chemicals, and explosives.
- Military and homeland security instrumentation.

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NON-PROPRIETARY DATA