

Space Partnership Development

industry + academia + government



November 2004

NASA Research Partnership Centers

Partnering with industry to explore space and improve life

NASA Research Partnership Centers (RPCs) represent an extensive network of industry, government, and academic partners to benefit space exploration, other NASA missions, and life on Earth. This network includes small businesses, as well as many of the largest research and development companies in the world. RPCs leverage NASA funds with investments from industry, other government agencies, and universities to create dual-use technologies for NASA and to benefit society.

Located at universities or non-profit institutions throughout the country, each of the 12 RPCs focuses on a specific discipline, such as spacecraft technology, satellite communication, space power, biotechnology, and advanced materials. RPCs offer space research expertise, collaboration with industry, access to NASA facilities, and opportunities to develop new businesses and products.

Long-term human space travel for future Moon and Mars exploration requires research to ensure human health and safety. Researchers from all sectors are contributing to this endeavor. Industry contributes new technologies at a lower cost for both space and Earth applications. For example, working with the RPCs, industry has developed a new star tracker that can determine attitude as well as star patterns, and a hyperspectral imaging system that is used to identify molds and toxins in food and detect forensic materials. Pharmaceutical companies conduct research with the RPCs to develop new drugs for the treatment of health problems encountered in space and on the ground.

The Research Partnership Centers welcome new industry partners. For more information, contact the Space Partnership Development (SPD) Office (contact information on the next page) or an RPC directly.

BioServe Space Technologies (BioServe)

University of Colorado, Boulder



Research: Osteoprotegerin for bone-loss prevention, animal habitat control for space flight, plant lignin biosynthesis and cell wall biogenesis, bioreactor system design

(303) 492-4010

<http://www.colorado.edu/engineering/BioServe>

Center for Advanced Microgravity Materials Processing (CAMMP)

Northeastern University



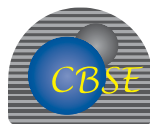
Research: Ethylene biosensor development, zeolites and carbon nanotubes for hydrogen storage, smart materials for sensor applications and detection

(617) 373-7912

<http://www.dac.neu.edu/cammp>

Center for Biophysical Sciences and Engineering (CBSE)

University of Alabama, Birmingham



Research: Development of real-time bioreactor systems for bone-loss research; repairing DNA damage due to radiation and immune system changes; development of pathogen-detection systems for air, water, and food supplies; robotics; thermal-control freezer systems

(205) 934-5329

<http://www.cbse.uab.edu>

Center for Commercial Applications of Combustion in Space (CCACS)



Colorado School of Mines

Research: Water mist fire suppression, combustion synthesis of advanced porous materials, fire suppression in spacecraft, propellant from space resources, robotic excavator

(303) 384-2096

<http://www.mines.edu/research/ccacs>

Center for Satellite and Hybrid Communication Networks (CSHCN)



University of Maryland

Research: Swarm robotics for space missions and exploration, wireless networks with mobile autonomous components, hybrid communication networks for mission communications, sensor networks, telemedicine, satellite constellations

(301) 405-7900

<http://www.isr.umd.edu/CSHCN>

Center for Space Power (CSP)

Texas A&M University



Center for Space Power

Research: Magnetic bearing technology for advanced, high-speed gyros and flywheels to store energy or provide navigational control; multi-quantum-well solar cells for mass reductions; phase separator for life support; wireless power transmission

(979) 845-8768

<http://engineer.tamu.edu/tees/csp>

**Center for Space Power
and Advanced Electronics
(CSPA)**

Auburn University



Research: High-efficiency electric thruster system; flywheels, supercapacitors, and fuel cells for energy storage; high-power switching devices; smart power electronics assemblies with 20-year lifetimes

(334) 844-5894

<http://spi.auburn.edu>

**Imaging Technology Space
Center (ITSC)**

Florida Atlantic University



Research: HDMAX™ camera system for safety inspection and experiment monitoring, portable ultrasound for crew wound care

(561) 297-2343

<http://www.fau.edu/divdept/comtech/ctchome.html>

**Medical Informatics and
Technology Applications
Consortium (MITAC)**

Virginia Commonwealth University



Research: Operating-room telecommunication system; telemedicine unit for use in remote environments, disaster areas, and space; information support for medical workers in the field

(804) 827-1020

<http://www.meditac.com>

**ProVision Technologies
(PVT)**

Stennis Space Center



Research: Hyperspectral imaging system to characterize and quantify blood perfusion and oxygen saturation in wounds, hyperspectral sensors for detection of molds and toxins in food

(228) 688-2509

<http://www.pvtech.org>

**Spacecraft Technology
Center (STC)**

Texas A&M University



Research: Star tracker for attitude determination, HDMAX™ camera base station, wireless communication, smart sensor/beacon technology for autonomous rendezvous and docking in space

(979) 845-8768

<http://stc.tamu.edu>

**Texas Center for
Superconductivity and
Advanced Materials (TcSAM)**

University of Houston



Research: Radiation hard solar cells, high-temperature superconducting power transmission for spacecraft, chemical sensors for environmental monitoring and medical diagnosis, thermophotovoltaic converters

(713) 743-8200

<http://www.tcsam.uh.edu>

What the RPCs Offer Industry

- ◆ Opportunities for innovation
- ◆ Potential new markets, businesses, and products
- ◆ Opportunity to contribute to NASA space exploration and other missions
- ◆ Collaboration with other companies
- ◆ NASA and university expertise
- ◆ Access to NASA facilities
- ◆ Ground- and space-based research



For more information, contact:

NASA Space Partnership Development Office

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<http://spd.nasa.gov>