National Aeronautics and Space Administration

NASA's Impact in Missouri: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe.
But did you know about the space program's economic impact here on Earth?

In 2011, NASA invested more than **$24 million** in the state of Missouri.

Since 2001, NASA's SBIR/STTR Program has invested over
$2 million in **7 Missouri companies**
and more than **$1.2 billion** nationwide.

How NASA's SBIR/STTR Program Benefits Missouri

NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights Missouri businesses that received SBIR/STTR contracts from NASA since 2001. **(Visit http://sbir.nasa.gov for more information on the SBIR/STTR program.)**

NASA SBIR/STTR Companies in Missouri

Ceramitron, LLC	Saint Louis
Innovative Technology Applications Company, LLC	Chesterfield
IntelliDyne, Inc.	Kansas City
IST-Rolla	Rolla
Mo-Sci Corporation	Rolla
MOXtronics, Inc.	Columbia
United States Semiconductor Corporation	Independence

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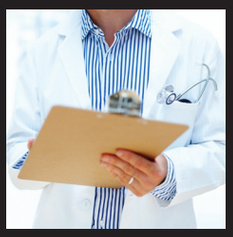
How NASA Spinoffs Benefit Missouri

Environmentally Friendly Product for Mosquito Control *(Jefferson City)*
With NASA's help, Arctic Products developed a product capable of eliminating mosquitoes without the use of pesticides. The mosquito control system uses carbon dioxide and a specialized heat source to lure and capture mosquitoes. It also attracts and eradicates gnats, biting flies, and "no-see-ums," but it will not draw the attention of beneficial insects that are good for the environment. Unlike products that use propane or chemicals, the system is environmentally friendly, non-flammable, and non-toxic. The product helps protect the environment and lower the risk of spreading diseases carried by mosquitoes.

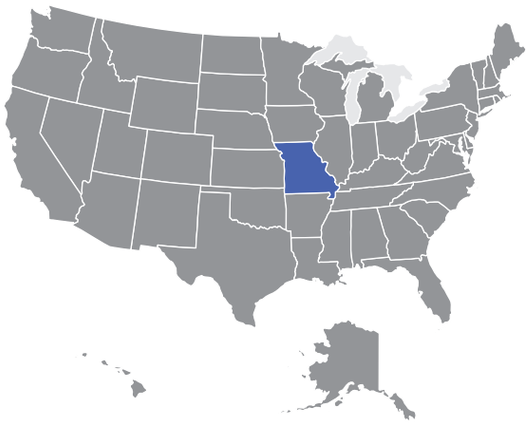
The Best Workout on Earth…and in Space *(Kansas City)*
An exercise system aboard the International Space Station (ISS) used by crewmembers to avoid musculoskeletal degradation also promotes good health on Earth. In partnership with Wyle Laboratories and NASA, SpiraFlex, Inc. invented and supplied this resistance exercise device to the ISS. SpiraFlex duplicates the benefits of free weights in a lightweight, portable, and safe system. Using SpiraFlex technology, Schwinn Cycling & Fitness, Inc. launched an international fitness program for health clubs and select retail distributors. SpiraFlex has generated over $150 million in sales.

Pumped Up Lasers *(St. Charles)*
Through a NASA contract, Cutting Edge Optronics (CEO) developed an ultraviolet laser for NASA to use in atmospheric remote sensing. CEO commercialized the laser's diode pump module, which introduced innovative cooling methods to produce smaller lasers with better quality beams. Diode-pumped lasers are safer to use, because they do not rely on poisonous gases like gas-discharge laser systems. Cutting Edge Optronics, owned by Northrop Grumman Corporation, has become the key supplier of laser diode arrays and laser system hardware for several major Northrop Grumman laser programs.



Advanced Diagnostics Improve Infectious Disease Management *(Hazelwood)*
A NASA-sponsored study aimed at measuring microbial growth in zero gravity served as the cornerstone for an impressive line of medical diagnostic devices. Vitek Systems, Inc. (now bioMerieux, Inc.) developed a fast, accurate microbial identification device that speeds up patient treatment by providing the physician with clear diagnostic information and quickly identifying the most effective medication. By providing faster test results, the device helps contribute to reduced hospital stays for patients. bioMerieux has since become one of the world's largest medical diagnostic corporations.

NASA Spinoff Helps Control Pollution *(Kansas City)*
A NASA initiative to safely dispose of refuse led to the development of a device that removes particulate matter from smokestack gases before they are expelled into the atmosphere. An electrostatic precipitator cleans the smoke by removing particulate matter from smokestack gases. The unit's ability to fine-tune itself after initial set-up virtually eliminates the need for monitoring by highly skilled operators. Marketed by BHA Group, Inc., the unit has been used on precipitators in cement plants, paper mills, steel mills, utilities, and refuse incinerators.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country have helped 34 Missouri companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff*, an annual publication that highlights NASA's most significant technology transfer successes.
(Available at: http://www.sti.nasa.gov/tto)

National Aeronautics and Space Administration

Office of the Chief Technologist
NASA Headquarters
Washington, DC 20546

www.nasa.gov

Publication herein does not constitute NASA endorsement of the product or process, nor confirmation of manufacturer's performance claims related to any particular spinoff development.

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