

## Walter Wright

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**From:** EPA Media Relations <noreply-subscriptions@epa.gov>  
**Sent:** Tuesday, February 16, 2016 2:00 PM  
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**Subject:** EPA Awards Grants to 38 Student Teams for Innovative Sustainable Projects



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**FOR IMMEDIATE RELEASE**  
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## EPA Awards Grants to 38 Student Teams for Innovative Sustainable Projects

*Since 2004 the competition has funded more than 600 student team projects nationwide – some leading to start-up companies*

**WASHINGTON-** Today, the U.S. Environmental Protection Agency (EPA) announced 38 People, Prosperity and the Planet (P3) grants to university student teams for proposed projects to develop new, sustainable products and strategies. Each team will receive up to \$15,000 for their proposals.

“This year’s P3 teams have created innovative research projects that tackle some of our most pressing environmental and public health challenges,” said Dr. Thomas A. Burke, EPA’s Science Advisor and Deputy Assistant Administrator of EPA’s Office of Research and Development. “These students have the opportunity to bring their exciting new ideas for innovation in sustainability to life, by expanding their learning experience beyond the classroom.”

Funding for the P3 competition is divided into two phases. Teams selected for Phase I awards receive grants of up to \$15,000 to fund the development of their projects, which are then showcased at the National Sustainable Design Expo in the spring. Following the Expo, P3 teams compete for Phase II awards of up to \$75,000 to further develop their designs and potentially bring them to the marketplace.

Grantees include student teams from the following universities:

- Auburn University - Auburn, Ala.
- University of Arkansas - Fayetteville, Ark.
- California State University, Chico - Chico, Calif.
- California State University, Monterey Bay - Seaside, Calif.

- California State University, Sacramento - Sacramento, Calif.
- University of California, Davis - Davis, Calif.
- University of California, Riverside - Riverside, Calif.
- University of California, Santa Cruz - Santa Cruz, Calif.
- Embry-Riddle Aeronautical University - Daytona Beach, Fla.
- University of Central Florida - Orlando, Fla.
- Georgia Institute of Technology - Atlanta, Ga.
- University of Hawaii, Manoa - Honolulu, Hawaii.
- Lewis University - Romeoville, Ill.
- Southern Illinois University - Carbondale, Ill.
- Purdue University - West Lafayette, Ind.
- University of Kansas - Lawrence, Kan.
- Kansas State University - Manhattan, Kan.
- University of Kentucky - Paducah, Ky.
- University of Maryland Eastern Shore - Princess Anne, Md.
- Mississippi State University - Starkville, Miss.
- University of Missouri - Columbia, Mo.
- New Jersey Institute of Technology - Newark, N.J.
- Cornell University - Ithaca, N.Y.
- Manhattan College - Bronx, N.Y.
- University of North Carolina at Chapel Hill - Chapel Hill, N.C.
- University of Cincinnati - Cincinnati, Ohio.
- University of Dayton - Dayton, Ohio.
- North Central State College - Mansfield, Ohio.
- University of Toledo - Toledo, Ohio.
- Antioch College - Yellow Springs, Ohio.
- Lamar University - Beaumont, Texas.
- Southern Methodist University - Dallas, Texas.

- Texas Southern University - Houston, Texas.
- James Madison University - Harrisonburg, Va.
- Gonzaga University - Spokane, Wash.
- Washington State University - Pullman, Wash.

This year's teams are testing innovative ideas such as repurposing chemical byproducts from the mining industry into new concrete that helps inhibit the corrosion of steel and developing a food waste collection kiosk that will spur food waste to energy production in the local community.

Previous P3 teams have used their sustainable ideas and gone on to start businesses. Lucid Design traces its beginnings back to EPA's first P3 award to the founders' Oberlin College team in 2004. Lucid Design specializes in tracking and analyzing energy consumption and resource use data for clients that include Google and Sony.

In 2011, a P3 team from Embry-Riddle Aeronautical University developed a portable, solar powered, water purification system in the form of a backpack. The team went on to launch AquaSolve Ventures to produce backpacks that are capable of purifying an impressive 4,300 gallons of water a day. Yet another P3 success is the startup OneEarth Designs, which specializes in solar powered technology, formed from a 2010 Harvard University P3 team. One Earth Designs' signature product, the SolSource 3-in-1, is a 100 percent solar powered grill that can harness the power of the sun to provide home heating and electricity.

View the P3 winners: <http://www.epa.gov/P3/20152016-p3-grant-recipients>

For more information on the P3 Program, visit: <http://www.epa.gov/P3>

View highlights from the 2015 P3 event: <https://youtu.be/URGEUcDtaMA>

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## Research Grants/Fellowships/SBIR

### Grantee Research Project Results

Grantee Research Project Results

## Biosensor design for infectious, water-borne agents

**EPA Grant Number:** SU836137

**Title:** Biosensor design for infectious, water-borne agents

**Investigators:** Beitle, Robert

**Institution:** University of Arkansas - Fayetteville

**EPA Project Officer:** Lank, Gregory

**Project Period:** September 1, 2015 through August 31, 2016

**Project Amount:** \$14,943

**RFA:** P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet (2015) RFA Text | Recipients Lists

**Research Category:** P3 Awards , Pollution Prevention/Sustainable Development , Sustainability , P3 Challenge Area - Water

### Description:

#### Objective:

Low cost, diagnostic platforms capable of detecting the presence of water borne agents can be developed to operate in a minimalist environment by individuals with a modicum of formal training with the device

#### Approach:

Our innovation relies on a systems approach to develop a DNA based detection system based on Loop Mediated Isothermal Amplification (LAMP). The chemistry associated with LAMP can greatly simplify the deployment of PCR (polymerase chain reaction) as a diagnostic tool. Despite the fact that LAMP has been in existence for several years, this molecular biochemistry innovation has not been broadly adopted. Designing a LAMP based method for water-borne agent(s) that is capable of operating without electricity or equipment will require a method to deliver the heat

required for LAMP and visualization of positive result. These challenges can be overcome through the use of chemical methods of heat generation and judicious choice of reactions to identify a positive result by eye.

**Expected Results:**

The P3 effort will demonstrate the use of LAMP to detect water borne agents, examine sensitivity limits of our design, and provide the basis for packaging into a small, disposable device capable of self heating and visual identification of a positive result. We also will develop educational tools for deployment in a K-12 environment that demonstrates PCR use for pathogen detection.

**Supplemental Keywords:**

*PCR, LAMP, water borne agents*

The perspectives, information and conclusions conveyed in research project abstracts, progress reports, final reports, journal abstracts and journal publications convey the viewpoints of the principal investigator and may not represent the views and policies of ORD and EPA. Conclusions drawn by the principal investigators have not been reviewed by the Agency.

Last updated on Friday, February 12, 2016