

Science and Engineering

- Nano-bio researchers are developing new nanostructured biomaterials with enhanced thermal, physical, mechanical, and biodegradable “green” properties.
- Biotechnology researchers are studying biological mechanisms to adapt to natural and manmade environmental challenges.
- Optical scientists are developing new spectroscopy based sensors for environmental monitoring and medical diagnosis.
- Nanofabrication engineers are developing nanostructures with applications in chemical, biological, and thermo-electric devices.
- Robotic researchers are developing robot-aided virtual rehabilitation for physical training of individuals with disabilities.

Agriculture

- USDA EPSCoR research investigates how colostrum, the first milk made by mother’s after birth, affects reproductive development and function in mammals.
- Alabama scientists are developing new drugs for the treatment of farm parasites.
- New nanophotonics sensors are being developed to monitor food safety.
- New materials are being developed for research in transplantation therapy for diabetics.



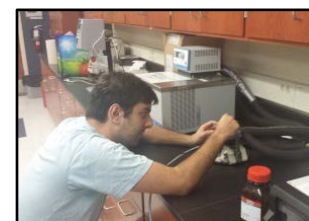
Space

- Alabama NASA EPSCoR researchers are initiating a model to describe and ultimately forecast radiation levels for NASA and defense missions.
- Alabama fluid dynamics research has the potential to reduce airflow drag by 30%, which could lead to substantial airline cost savings (a 1% drag reduction can save \$100K-\$200K per year per aircraft).



Energy

- Alabama EPSCoR researchers are studying nano-structure enhanced phase change materials for thermal storage and enhanced cooling of power electronics.
- Alabama researchers are studying butanol as a promising next generation advanced biofuel.



Commercialization

- EPSCoR research has developed new laser based systems for biomedical and industrial applications, leading to a new Birmingham start-up company, Photonics Innovations (now part of IPG Photonics).
- EPSCoR Cyber research has created a data-analytics method for identifying and minimizing infection outbreaks, which has been commercialized in Birmingham by MedMined, now part of CareFusion.
- EPSCoR nanomagnetic research has discovered that iron oxide nanoparticles can make MRIs safer for certain population segments, leading to a new Tuscaloosa based start-up company, MagnnPro, LLC.
- EPSCoR researchers are replacing metal machine parts with lightweight, longer lasting composite materials, leading to a new start up company, Innovative Composite Solutions, LLC in Leeds, AL.
- EPSCoR funded protein research led to a new start-up company, Foresight Biosciences, dedicated to the development of new protein based drug therapies located in Huntsville, AL.

EPSCoR Funding Impact in Alabama

- EPSCoR funded research has led to the development of PhageCon LLC, a company commercializing contraceptives for feral (wild) pigs in Auburn, AL.

Outreach

- The Annual Science and Technology Open House hosted by Tuskegee University and Alabama EPSCoR included 141 Alabama graduate and undergraduate students who presented research posters and conducted numerous introductory science and technology hands-on research activities for over 100 K-12 students.
- Auburn University EPSCoR researchers hosted a Woman in Engineering Camp for 55 African-American K-8 at-risk students to participate in science and nanotechnology activities.
- Rising Birmingham 9th graders participated in The Physics Bridge at UAB that provided hands-on experience in optics, lasers, and light.
- UAB EPSCoR researchers are investigating stress in plants and fostering plant biology related education to minorities in the OUTPACE program to undergraduate students and citizen scientists in local community gardens.



Workforce Development

- The State-funded Alabama EPSCoR Graduate Research Scholars Program (GRSP) supports graduate students pursuing both MS and PhD degrees doing EPSCoR related research. This program has resulted in 111 EPSCoR related PhDs and 39 EPSCoR related MS degrees since its inception in 2006. Thirty-six students are currently being supported.



Alabama EPSCoR Award History 2009 - 2014			
Agency	Type of Award	QTY	Awards
NSF	Infrastructure (Tracks 1 and 2)	5	\$19.5M
	Co-funding (EPSCoR and Directorate)	114	\$59.0M
DOE	Implementation Grant	2	\$2.2M
	State/Laboratory Partnership	1	\$0.5M
NASA	Cooperative Agreement Notice (CAN)	4	\$3.0M
	Research Infrastructure Development (RID)	13	\$0.5M
USDA	Strengthening	21	\$8.9M
TOTAL		160	\$93.6M

Alabama EPSCoR NSF RII Track 1 Outcomes 2001-2014				
Number of Track 1 awards	Award total	New non-EPSCoR federal funding generated	Patents	New Companies started
4	\$ 32M	\$158.9M	35 (2 licensed)	7

For more information see www.alepscor.org