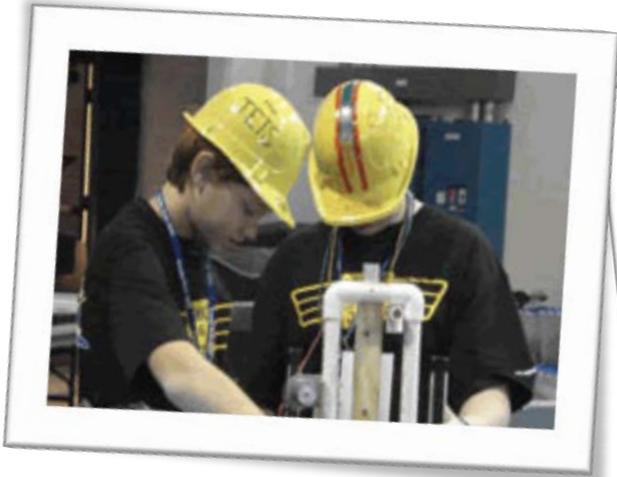




ARKANSAS  
SCIENCE & TECHNOLOGY  
AUTHORITY



2009 ANNUAL REPORT



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## *Letter from the Chairman and President*

### **Dear Governor Beebe & Distinguished Legislators:**

The Board of Directors and staff are pleased to submit to you the Authority's 2009 Annual Report. This report is a summary of the scientific and technological projects by which the Authority carries out its mission to bring the benefits of science and advanced technology to the people and state of Arkansas.

In Fiscal Year 2009, the Arkansas Science & Technology Authority's efforts to increase research activity were extensive, as Authority grants fostered cutting-edge research totaling nine million dollars in awards. Much of the funding was made available through the efforts of Accelerate Arkansas and the support of Governor Mike Beebe. The Authority's EPSCoR Program funded new discoveries in the field of plant-based bioproduction that may hold the key to the global problems of disease and drought. Research efforts in the field of neuroscience provided high-tech solutions to medical conditions like vision impairment and cardiac failure.

With a continued commitment to ensure the future of Arkansas's brightest young minds, the Authority made strides to improve STEM education through teacher training, funding of in-class materials and student academies.

The Authority's Arkansas Manufacturing Solutions (AMS) aided hundreds of Arkansas companies in the completion of helpful projects. AMS teamed with the U.S. Department of Commerce and Merwyn Research, Inc. to launch a nationwide online website that connects new business innovations and potential users. AMS also worked with clients to get "lean and clean" by integrating new green technology principles that are both profitable and environmentally conscientious.

The Authority supported the economic future of Arkansas through investments, by funding companies that offer everything from social networking websites to solar panel technology. By leveraging federal funding, these companies were able to expand commercially with the help of Authority grants and seed capital. Perhaps most significant in the realm of economic impact, Authority client Duralor, LLC opened its new production facility in the Springdale Technology Park.

With so much happening, the Authority stayed in the public eye through promotions, media interviews, and coverage of its products, services and client offerings, while also representing the needs of the state by serving on 18 boards and commissions.

The Arkansas Science & Technology Authority will continue to aid the state in meeting the rapidly changing demands of our 21<sup>st</sup> century global economy, striving to guarantee a brighter future by bringing the benefits of science & advanced technology to the people and state of Arkansas.

Sincerely,

A handwritten signature in black ink that reads "John W. Ahlen".

John W. Ahlen, Ph.D., President

A handwritten signature in black ink that reads "Paul F. Mastro".

Paul Mastro, Chair





## *Increasing Research Activities*

In Fiscal Year 2009, the Arkansas Science & Technology Authority's efforts to increase research activity were extensive. Through the Research Match Program, the Centers for Applied Technology, the Basic Research Grant Program, the Arkansas Research Alliance and the Research and Development Tax Credit Programs, the Authority completed 31 projects totaling approximately eight million dollars in awards and tax credits.

### ***SUCCESS STORY***

In April 2009, Governor Beebe signed the Arkansas Cyberinfrastructure Task Force Act. With the support of the Authority, the act helps to raise the importance and visibility of cyberinfrastructure in the state of Arkansas, particularly related to the field of research. This law followed the creation of a comprehensive strategic plan for cyberinfrastructure in Arkansas led by Dr. Amy Apon from the University of Arkansas, Fayetteville.



Cyberinfrastructure involves shared high-performance computing, data storage systems, data repositories, advanced instruments, data center facilities, visualization environments, and people all linked together by software and an advanced statewide optical network to improve and enable breakthroughs not otherwise possible.

In Fiscal Year 2009, the Authority furthered this effort by funding the Arkansas High Performance Computing Center. Its purpose is to serve as a core resource for the development of competitive research throughout the state of Arkansas and for economic development benefits.

As a result, the state will not only gain an improved understanding of cyberinfrastructure, but will also benefit from leveraging technology investments the center helps to create, energizing vital economic developments in education, research, and job creation.

At the heart of this endeavor is a goal to share cyberinfrastructure advances by linking all of the state's four-year public universities through the Arkansas Research and Education Optical Network, ARE-ON, a high-speed fiber-optic-based Internet communications network.

The combined power of the Arkansas High Performance Computing Center and ARE-ON will take the state of Arkansas to the next level in the global economy.

The Arkansas High Performance Computing Center is one of three components of the Authority-funded cyberinfrastructure center. The other two components include a telehealth project with the University of Arkansas for Medical Sciences and partial support of Connect Arkansas, which focuses on broadband mapping.



## RESEARCH AT A GLANCE

**The Research Match Program** was created to support basic and strategic research by providing state match for federal agency awards to Arkansas colleges and universities.

Number of Projects	Federal Agencies	Number of Institutions	Federal Award	Authority Award
3	2	3	\$4,160,000	\$292,653

**The Centers for Applied Technology Program** provides incentives to Arkansas industry for their participation in applied technology research. It is designed to encourage investment by industry in a center to address specific projects of the private sector partner using Arkansas colleges and universities.

Number of Projects	Number of Centers	Number of Institutions	Authority Award
3	3	2	\$1,642,609

**The Basic Research Grant Program** promotes and supports the growth and development of Arkansas scientists and enhances the status of science and engineering in Arkansas colleges and universities.

Number of Projects	Number of Institutions	Authority Award
1	1	\$275,000

**The Arkansas Research Alliance** is focusing on university-based innovation and incubating new businesses that have the greatest potential for creating sustainable businesses and high-paying jobs in Arkansas.

Number of Projects	Authority Award
1	\$250,000



**The R&D Tax Credit Program** provides incentives for university-based research, in-house research of several kinds, and research and development in start-up, technology-based enterprises.

This includes \$8,250 in tax credits from a program co-administered with the Arkansas Department of Higher Education and \$2.03 million in tax credits from a program co-administered with the Arkansas Economic Development Commission.

Number of Businesses	Total Tax Credit Amount
20	\$2,406,580

More highlights of Research Activities can be found at: <http://www.asta.arkansas.gov/researchers.html>

## Arkansas EPSCoR

The Arkansas Experimental Program to Stimulate Competitive Research (EPSCoR) is a federal program managed at the state level by the Arkansas Science & Technology Authority. The Authority coordinates the various EPSCoR programs available for Arkansas researchers, supports the activities of the Arkansas EPSCoR Advisory Committee, and directly manages the state's National Science Foundation (NSF) EPSCoR Program.

The Arkansas NSF EPSCoR Program, known as ASSET (Advancing and Supporting Science, Engineering and Technology) Initiative, is a multi-institutional, interdisciplinary, statewide program which has strengthened two specialty areas developing in Arkansas. The research areas, which have potential for regional and national significance, are known as: Plant Based Bioproduction (P3 Center) and the Wireless Nanosensor and Systems (WiNS) Research Center. Through both the P3 Center and the WiNS Center, Arkansas researchers have made strides that will generate major economic impact in our state. The Arkansas ASSET Initiative is funded by the National Science Foundation and the state of Arkansas.

### SUCCESS STORY

The **P3 Center** has used ASSET Initiative funding to expand equipment designed to boost research in molecular biology and to provide seed funding to develop a cluster of researchers with an interdisciplinary focal on increasing the production of targeted key proteins and small chemicals produced in plants. One research success has been a patent on a production technique for resveratrol. Resveratrol is a natural compound found in red wine that has been reported to have anti-aging and several anti-cancer properties. By applying his patented “tricks”, Dr. Fabricio Medina-Bolivar, P3 Center at Arkansas State University, has been able to induce peanut roots to produce a defined and controlled amount of resveratrol. These peanut roots can be further “tricked” into releasing this resveratrol-supply into the liquid solution in which the peanuts are growing (rather than soil). Resveratrol can then be cleanly and very economically “harvested” from this watery solution. Food nutrient companies have great interest in cheap ways to produce resveratrol for the supplement industry. This need has made this patented technology extremely important economically.



The **WiNS Center** has also used the ASSET Initiative funding in extremely productive ways. The WiNS Center has developed curriculum and offered a graduate level course in the latest cutting-edge advancements in nanotechnology and medical applications. The curriculum team is offering this course by access grids simultaneously on three Arkansas campuses.

A unique research success has been the fabrication and testing of neural probes for treating numerous types of medical conditions. Such probes can simultaneously stimulate nerves or muscle cells and record physiological changes in the human body. These new probes can





minimize cell damage while providing higher electrode efficiency than commonly used electrodes. This will help improve quality of life for patients with severe impairments. Current clinical applications of neural prosthetics include cochlear and retinal implants, cardiac pacing and defibrillation, restoration of urinary bladder function, functional electrical stimulation in paralyzed individuals and deep brain stimulation for people with Parkinson’s Disease and Tourette’s Syndrome.

## ***ASSET AT A GLANCE***

### **Campus Subagreements**

Specific budgets for the two research themes (P3 and WiNS) on each of the three campuses were funded through subagreements with each campus.

<b>Campus Subagreements</b>	<b>Authority Award</b>
<b>University of Arkansas</b>	<b>\$885,755</b>
<b>University of Arkansas at Little Rock</b>	<b>\$1,390,834</b>
<b>Arkansas State University</b>	<b>\$569,851</b>

### **P3 Seed Grants Program**

Competitive proposals for projects that focused on the goals of the P3 Center helped develop a cadre of scientists with multi-campus, interdisciplinary projects and expanded the critical mass of researchers working on these common themes.

<b>Seed Grants</b>	<b>Authority Award</b>
<b>UALR Seed Grants</b>	<b>\$269,868</b>
<b>ASU Seed Grants</b>	<b>\$687,889</b>
<b>UAF Seed Grants</b>	<b>\$361,707</b>
<b>UCA Seed Grants</b>	<b>\$7,850</b>

### **Outreach Awards**

Outreach projects of the ASSET Initiative sought to enhance the research and entrepreneurial skills of ASSET faculty and expand the opportunities for students to be involved in research.

<b>Outreach Projects</b>	<b>Authority Award</b>
<b>Library Award</b>	<b>\$40,000</b>
<b>Research Experiences for Undergraduates</b>	<b>\$39,491</b>
<b>Student/Faculty Exchange Program</b>	<b>\$36,000</b>
<b>Communications Internship</b>	<b>\$18,300</b>
<b>MBA Internship</b>	<b>\$24,000</b>
<b>Research Day Video Production &amp; Activities</b>	<b>\$8,000</b>
<b>Entrepreneurial Training</b>	<b>\$35,500</b>

More highlights of Arkansas ASSET Initiative can be found at: <http://www.arkepscor.org/>



## Improving STEM Education

The purpose of this education grant program, funded by the Winthrop Rockefeller Foundation, is to enrich STEM (science, technology, engineering and mathematics) education throughout the state of Arkansas. Targeting middle and high school teachers and students, awards are given for teacher professional development activities, classroom equipment and supplies, robotic competitions, and student summer camps. In Fiscal Year 2009, awards benefited 391 teachers in 54 Arkansas counties reaching approximately 30,000 students.

### SUCCESS STORY

Professional Development awards provided advanced training for high school science teachers in the fields of biology and physics. Eleven high school biology teachers from across the state took part in a three-day professional development workshop on advanced biotechnology June 8-10 at the Arkansas School for Mathematics, Sciences, and the Arts in Hot Springs. *Applications of Biotechnologies in the Classroom*, taught by ASMSA biology instructors Dr. Patrycja Krakowiak and Dr. Jon Ruehle, introduced the teachers to 21<sup>st</sup> century techniques and technology as well as the latest research innovations in the fields of molecular biology, microbiology, and immunology. The goal of the program was to increase the comfort level of teachers around the state with the latest equipment and technology needed to conduct labs that will prepare their students for a future in fields associated with biotechnology. The teachers participated in five hands-on laboratory experiments including DNA extraction, gel electrophoresis, antibody immunochemistry, and microbiology isolation and culture.



In addition to the hands-on lab activities, each teacher received a kit with resource materials and lab equipment to use in their own classrooms. Each kit contained a textbook, a lecture book, a biotechnology equipment catalog, and the workshop lab manual as well as a power supply, equipment needed to run electrophoresis, a forensic DNA fingerprinting kit, and a microbiology culture kit. The workshop instructors will also be visiting each school's labs to provide support and encourage the usage of the equipment provided by the workshop.

Electricity and magnetism were the topics of instruction for high school physics teachers for a weeklong workshop held at the University of Arkansas at Little Rock. Dr. Al Adams, the instructor for *Sparking Interest in High School Physics Laboratories*, increased teacher-conceptual understanding of the principles of electricity and magnetism by utilizing 10 laboratory exercises. The content of the exercises included skills from the Arkansas Department of Education Science Frameworks for Physics. Teachers participated in hands-on laboratory inquiry using state-of-the-art computer measurement systems. The tools for the workshop included Vernier software and a variety of electric, magnetic, and electronic sensors. Guest speakers provided information on physics-related career opportunities in Arkansas.

Dr. Adams modeled instruction for the inquiry learning environment as the teachers participated as students. One physics teacher was very enthusiastic about taking the lessons back to his students. He credited the value of the workshop experience to Dr. Adams by stating "he's shown us how to not let the technology hide the physics."

Along with receiving lesson plans and supporting material, the participating teachers were awarded funds to purchase lab equipment for their classrooms. The teachers will meet again with Dr. Adams during the school year for follow-up activities.

## STEM AT A GLANCE

The **STEM Teacher Empowerment Program**, funded by the Winthrop Rockefeller Foundation assists teachers and students with inquiry-based hands-on learning activities that improve critical thinking skills in STEM classrooms.

Award	Total Number	Total Funding	Number of Teachers	Estimated Number of Students
STEM Professional Development Award	8	\$95,000	125	12,500
STEM Summer Academy	1	\$10,000	Not Applicable	20
STEM Classroom Enhancement Award	25	\$36,021	113	8,407



(Left) Physics teachers work together during a workshop at UALR.

(Right) A high school student is paired with a researcher during a university mentoring program.



The **Minigrant Program**, funded by the Winthrop Rockefeller Foundation, provides \$500 awards to Arkansas public middle school teachers to purchase consumable items for student hands-on experiences in science.

Award	Total Number	Total Funding	Number of Teachers	Estimated Number of Students
Minigrant Science Award	150	\$75,500	129	8,300

The **STUART Grant Program**, funded by a grant from the Winthrop Rockefeller Foundation, provides funds to Arkansas public middle school teachers to use technology for science instruction.

Award	Total Number	Total Funding	Number of Teachers	Estimated Number of Students
STUART Award	12	\$66,000	24	2,500

The **SMART Portal** provides science and math lesson plans that incorporate hands-on classroom activities and 21st century teaching methods and assists teachers in accomplishing Arkansas Department of Education required curriculum frameworks.

Number of Teachers	Number of Lesson Plans
80	261

More highlights of STEM outreach efforts can be seen at <http://www.asta.arkansas.gov/educators.html>



## *Maintaining and Transforming Existing Enterprises Into Knowledge-Based Companies*

The mission of Arkansas Manufacturing Solutions (AMS) is to “improve the bottom line results” of Arkansas manufacturers through hands-on training and consulting. AMS is able to increase global competitiveness, improve efficiency, reduce costs, and increase sales.

### *SUCCESS STORIES:*

AMS teamed with the U.S. Department of Commerce and Merwyn Research, Inc. to launch Arkansas Innovation Marketplace (Arkansas IM) in April 2009. Arkansas IM is a web-based market that connects Arkansas innovators with potential buyers, investors, distributors and manufacturers globally seeking breakthrough technological advancements. Arkansas IM is part of the National USA Innovation Marketplace Initiative and the Planet Eureka International Innovation Network.



Differing from other interactive marketplaces, Arkansas IM helps quantify an innovation’s probability of success and sales potential by running a series of business simulations developed by the Eureka Ranch and adopted by top Fortune 500 companies. This process teaches local inventors how to better market their innovations and build business relationships to commercialize their ideas.

In the first two months, AMS listed over thirty company requests and thirty five innovations in the Arkansas marketplace. About a dozen Arkansas companies have made connections through this program. One Arkansas company is evaluating two innovations listed on the marketplace as a possible manufacturing and distribution partner. One university innovation is being evaluated by a Canadian company that may be interested in licensing that technology.

Arkansas Manufacturing Solutions (AMS) also influenced global business partnerships and led the charge to Go Green!

Of course, thinking about global partnerships involves more than just the economic impact. It also involves recognizing the value of environmental concerns: “being lean and clean.” In that spirit, AMS worked with clients like Milbank Manufacturing in Fiscal Year 2009. Milbank Manufacturing has committed to environmentally responsible practices with a focus on staying green. The company hosted a Green Supplier Network (GSN) review event with the goal of integrating the environmental efforts with lean continuous improvement efforts.

The GSN event, which integrates an environmental review within the Lean Value Stream Mapping methodology, was able to identify several opportunities that Milbank is pursuing to become more environmentally friendly and to reduce costs. Current active projects should reduce costs by at least \$35,000 by reducing waste disposal costs. Additional recommendations are being evaluated.

As the recipient of two major awards, AMS made energy conservation a priority in Fiscal Year 2009. A \$50,000 grant from the U.S. Department of Energy’s Industrial Technologies Program (ITP) was awarded to AMS. AMS also worked with the Department of Mechanical Engineering at the University of Arkansas, Fayetteville to conduct energy analysis, plant assessments and measurement of energy savings at selected manufacturing facilities.



## AMS AT A GLANCE

In Fiscal Year 2009, AMS field staff completed 274 projects and events, and served 276 manufacturing companies representing 21 different industries.

Substance	Number of Projects
Business Services	35
Quality Systems	52
Manufacturing Systems	51
Information Technology	57
Human Resources and Organizational Development	18
Engineering/Technology Services	61
<b>Total:</b>	<b>274</b>



## Energy Awards

AMS Grants	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
DOE ITP	\$50,000.00	\$0.00	\$12,580	\$3,229	\$6,013	\$21,823
AR Energy Office	\$90,000	\$1,815	\$15,552	\$15,666	\$8,821	\$41,855
<b>TOTAL</b>	<b>\$140,000</b>	<b>\$1,815</b>	<b>\$28,132</b>	<b>\$18,895</b>	<b>\$14,834</b>	<b>\$63,678</b>

## Leverage of State Funding

State Funding	Total Match	Match Breakdown					
		Federal	State Agencies		Universities	Non-Profits	Clients
			Authority	AEDC			
\$257,182	\$3,494,997	\$941,110	\$117,320	\$1,150,509	\$606,523	\$137,477	\$542,058
<b>Leverage Ratio</b>							<b>13.6</b>

The following improvements were reported in Fiscal Year 2009 by clients during the NIST MEP Surveys of AMS projects, including TTAG funded projects, completed from April 2007 to September 2008 with Arkansas companies.

NIST MEP Survey : AMS Client Survey Results	
Increased and Retained Sales	\$592,637,368
Cost Savings	\$12,708,590
Company Investments	\$25,045,961
Jobs Created or Retained	3,335

More highlights of Arkansas Manufacturing Solutions can be found at: <http://www.mfgsolutions.org/>

## *Developing New Products and Entrepreneurial Firms*

As part of its focus on business commercialization, the Authority's programs foster companies through various stages of development. From the inception of a technology-based business to the commercialization of new products, the Authority partners with the people who are changing our state.

### *SUCCESS STORY*

Authority client Duralor is a Springdale-based producer of high-performance coatings and coating processes for cutting tools and machine-wear parts. In May, the opening of its new facility marked a milestone in technology-based economic development for the state and region.

With dignitaries that included Governor Mike Beebe in attendance, Dr. Ajay P. Malshe, co-founder and Chief Technology Officer (CTO) of NanoMech, shared his story of arriving in the United States after having emigrated from India and deciding to make his home in Arkansas. He was an inventor and innovator with a vision to take "nanomanufacturing science" to society.



NanoMech is bringing an array of nanotechnology innovations that can help fuel the global nanomanufacturing engine and take new products to the market. Through Duralor, the company has introduced the world's first nanocomposite cubic boron nitride coating. This multiple award-winning product can extend the wear life of cutting tools and machine components by 300% or more compared to conventional coatings.

Duralor manufactures cubic boron nitride (cBN) coatings for cutting tool applications. It is currently used by a global automotive manufacturer and in the heavy machinery industry under the product name TuffTek®.

Diamonds, unsuitable for hardened steel machining, are the only cutting surface harder than cBN.

Duralor's technology supports the global effort to increase manufacturing efficiency while reducing costs, increase output and save energy. In a side-by-side comparison for hardened steel machining, TuffTek-coated tools outperformed traditional coatings by 300 percent or more and provided a 50 percent reduction in the time required to cut each shaft, thus reducing labor costs.

"NanoMech and Duralor are prime examples of Arkansas's capacity for translating university-based fundamental science into high-value products and employment," said Jerry Adams, CEO of the Arkansas Research Alliance. A recent study commissioned by the Alliance and conducted by the Battelle Technology Partnership Practice found Arkansas gaining ground against the national average in university research and development investment.

"For our economy to thrive, we must have a strong high-technology manufacturing base and knowledge-based jobs to complement the large service economy," said Bob Reed, president of Duralor. "Duralor's products



strengthen that base by providing Arkansas with high-paying engineering and technology-related jobs, as well as 21st century manufacturing processes.”

During the next five years, Duralor could potentially employ more than 100 personnel and NanoMech could add as many as 200 employees.

## *A Pilot Project For Entrepreneurship in Arkansas*

### ***FUTURE LEADERS TAKE ACTION***

At the start of Fiscal Year 2009, teams comprised of high school EAST students, undergraduate summer interns, and Authority graduate intern Aaron Sites conducted a study of Dumas to determine issues important to the future of the community. The effort was part of an Authority project funded by the Winthrop Rockefeller Foundation called *A Pilot Project for Entrepreneurship in Arkansas*.



The team wanted to create a community technology center in Dumas. With information technology as the central theme, the team drafted a community technology handbook that focused on four key areas to reverse the decline of the city population: agriculture, healthcare, education, and economic development. With Authority intern Aaron Sites leading, the group developed a promotional brochure and draft business plan for the facility. After extensive research on Dumas and a review of information developed during the summer and a site visit, Sites produced a brochure for the Dumas Center for Technology and Education. By December, Sites used floor plans of the proposed center to develop a conceptual layout for the facility, which was

approved by community leaders and forwarded to an architectural firm to finalize plans and cost estimates.

Also in December, the EAST students and undergraduate summer interns presented their findings and premiered a video they produced about Dumas to the community’s leadership. Their overview of the situation and opportunities in Dumas was inspiring and warmly received.

The four areas vital for Dumas’ revitalization are highlighted in the community technology handbook, and three of the four will be the focal points in building the Dumas economy: healthcare, education, and economic development.

### ***POWER LUNCH***

The Authority, along with the Dumas Chamber of Commerce, coordinated two luncheons in May 2009 to give experts in the state an opportunity to discuss these topics for an audience of community stakeholders. The first meeting focused on the role of STEM (Science, Technology, Engineering, and Mathematics) education in the future economy. Speakers included Becky Hart, Education Outreach Coordinator at the Authority, who explained the



STEM pipeline, referring to the path and relationship of STEM education, careers, and economic growth. She concluded that to improve the per capita income in Arkansas, the workforce must contain four-year and advanced degrees in STEM areas.

This sentiment was echoed by Tommie Sue Anthony, President of Arkansas Advanced Initiative for Math & Science, Inc., who emphasized the need for students to take the highest levels of math and science offered in Arkansas schools. She encouraged community support of student enrollment in Advanced Placement courses, as well as the school's participation in the National Math and Science Initiative Grant.

Also in attendance was Dr. Michael Gealt, Dean of the College of Science and Mathematics at the University of Arkansas at Little Rock and Chairman of the Arkansas STEM Coalition, who pointed to remediation rates as a reason for America falling behind other nations in education. He said better STEM education is needed throughout the country in order to guarantee that students have the potential to earn a high-wage salary.

Leslie Lane, Senior Vice President with Arkansas Capital Corporation, concurred, presenting a potential solution with a recipe for community development that included "better education, opportunities for innovation, and utilizing current technologies." He encouraged the leaders to connect students with community business leaders, and endorsed the idea of an educational environment where innovation and entrepreneurship could thrive to create new industries and produce a more competitive workforce.

The second luncheon focused on a real-world example of starting a high-tech company in a rural area and telemedicine programs in Arkansas.

Brian Stack, an entrepreneur who expanded businesses in the Northeast and later in Florida, now operates his business, Unityware, in Carlisle, Arkansas - population 2,362. Unityware is an entirely virtual company that is developing software for a virtual logic server to manage real-time database integrations and numerous other applications.

Echoing the ideas presented by the EAST leadership team, Mr. Stack spoke about how a broadband internet connection is vital and the key to starting a high-tech company in a rural town. He said that broadband is necessary to build a technology company for sales and support through virtual conferencing, as well as accessing a virtual workforce made up of people in other parts of the country.

Speaking of the need for 21<sup>st</sup> century workers, Mr. Stack said, "There has always been a shortage of qualified technical talent," but he suggested that the solution to this problem is often in a town's own backyard. High school students with a passion for technology are possible high-tech recruits.



Representative David Rainey talks with Brian Stack, CEO of Unityware.



Mr. Stack mentioned that Arkansas has an array of support for start-up companies including Accelerate Arkansas and the Arkansas Small Business and Technology Development Center. He also stated that when an entrepreneur creates a successful company, that company will produce other entrepreneurs that will create new business. In this way a self sustaining cluster of high-tech business can develop.

Next, Mr. Michael Manley, the Director of Outreach for the University of Arkansas for Medical Sciences, Center for Distance Health, described how telemedicine provides rural facilities with real-time video-conferencing units designed for use in exam rooms, surgical settings and emergency departments. Utilizing a broadband connection, patients in rural areas can be connected with specialists in metropolitan areas and the specialists can see and talk to the patient. Such applications have included UAMS' ANGELS program, the nation's only university-based disease management system, which gives Arkansas physicians and obstetric/gynecological specialists the opportunity to interact with and manage high-risk pregnancies. Mr. Manley also gave Dumas community leaders an overview of a new stroke-based telemedicine project that provides neurology consults for patients where specialists can observe the patient, review patient records, and see if the patient is a candidate for Tissue Plasminogen Activator (TPA), a drug that dissolves blood clots. Such resources could prove tremendously beneficial to the patient's overall well-being. Other telemedicine efforts include depression treatment and asthma management.

Currently, Arkansas is in the top five of states connected virtually in health care through projects such as these. Mr. Manley stressed that such endeavors are the right things to do for the patients and that the "overall savings realized surpassed the cost of infrastructure development."

Based on the remarks from these speakers, and the findings of the EAST student team, it seems clear that for a rural community to survive and grow in the 21<sup>st</sup> century economy, a common denominator of broadband connectivity should be part of the community's scaffolding.



Tommie Sue Anthony, President of Arkansas Advanced Initiative for Math & Science, Inc., speaks to community leaders in Dumas.



**INVESTMENT AT A GLANCE**

The **Technology Transfer Assistance Grant Program (TTAG)** assists Arkansas’s enterprises in developing or improving products or processes through the transfer of technical solutions to technology-based, industry-driven problems, thus enhancing that enterprise’s market competitiveness.

The following are results for the Technology Transfer Assistance Grant Program. In total, 56 companies received 79 awards in Fiscal Year 2009.

Number of Companies Assisted	Funds Awarded	Company Match	Total Award
56	\$280,725	\$90,025	\$370,750

The **Seed Capital Investment Program (SCIP)** fosters the development of innovative technology-based businesses and projects that will stimulate economic growth and industrial competitiveness in Arkansas.

The following are results for the Seed Capital Investment Program in Fiscal Year 2009.

Number of Companies Assisted	Investment Amount
5	\$450,000

The **Technology Development Program (TDP)** provides assistance in the development and commercialization of new technology-based products and processes through innovative technology development projects.

The following are results for the Technology Development Program in Fiscal Year 2009.

Number of Companies Assisted	Investment Amount
2	\$75,000

**A Pilot Project for Entrepreneurship in Arkansas**

ID Number	Project	Total
09-WRF-02, 08-WRF-02	A Pilot Project for Entrepreneurship in Arkansas	\$27,178

Lydia Carson with Balm Innovations (Authority client) demonstrates the benefits of the company’s product offerings during a press conference in April.



More highlights of Authority investments can be found at: <http://www.asta.arkansas.gov/business.html>

## *Increasing Visibility*

The Arkansas Science & Technology Authority stayed firmly in the public eye in Fiscal Year 2009 with coverage in news print, online stories, radio interviews and television features.

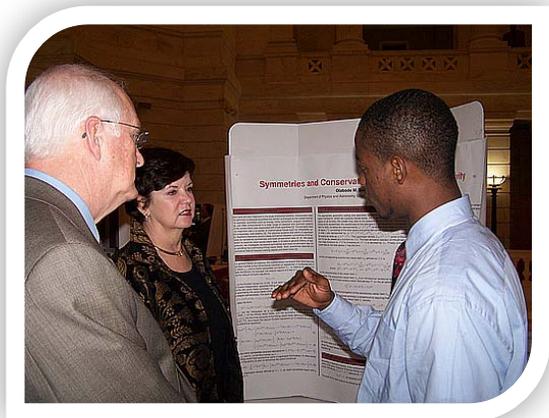
Authority President Dr. John Ahlen was featured in Arkansas Business where he turned a spotlight on such vital issues as the state's engineering and science shortage and the importance of the Arkansas Broadband Initiative. He also weighed in on the importance of staying globally competitive in an issue of UALR magazine.

Authority Vice Presidents traveled the state to talk about education and economic development. In addition, they teamed up with our state's most valuable resource: high school students. Convening for Research Day at the Capital, the Authority staff introduced state legislators to a group of talented teens who gave them an up-close look at the exciting science and technology projects they'd created in their classrooms.

Arkansas Manufacturing Solutions enjoyed promotion on the radio. In addition to a radio campaign with the station, AMS Director and Vice President Industry Dan Curtis sat down a number of times with Bob Steele on KARN. He also stopped in for an interview on National Public Radio Affiliate, KUAR, and was a featured guest on the nationally syndicated "America's Business with Mike Hambrick."



Dr. Gail McClure and Dr. John Ahlen address the Arkansas Technology Taskforce.



A high school student explains his class project to legislators during Research Day at the Capital.

As in years past, Authority clients were the focus of media coverage from such varied channels as USA Today.com, Talk Business, Arkansas Democrat Gazette, arkansasbusiness.com, the Associated Press and multiple small town newspapers. One Authority client, Balm Innovations, even used the opportunity to do some marketing with the launch of its latest product line on KARK's noon day show.

In addition, the Authority staff served on 18 boards and commissions.

More highlights of Authority News can be found at: <http://www.asta.arkansas.gov/newsroom/index.php>



## *Committee/Board Affiliations*

The staff of the Authority continues to stay visible throughout the education, scientific, technological and economic development communities by gubernatorial appointments and their statutory involvement on various boards and commissions.

Gubernatorial Appointments	Who Serves
Governor's Workforce Cabinet	President
Southern Technology Council	President

Statutory Affiliations	Who Serves
Arkansas Capital Corporation	President
Arkansas Tobacco Settlement Commission	President
Arkansas Biosciences Institute	President
Commission for the Coordination of Educational Efforts	President
Connect Arkansas	President
Arkansas Broadband Council	President
Cyberinfrastructure Task Force	President
Venture Capital Investment Trust	President
Information Network of Arkansas	Executive Vice President
Distance Learning Coordinating Council	Vice President EPSCoR
Arkansas School for Mathematics, Sciences and the Arts	Vice President Research

Other Professional Affiliations	Who Serves
UALR EIT Industry Council	Vice President Industry
Steering Committee, Arkansas Technology Task Force	Vice President EPSCoR
Executive Committee, STEM Coalition	Vice President EPSCoR
College of Science and Mathematics Advisory Board, UALR	Vice President EPSCoR
Arkansas Space Grant Consortium	Vice President Research

## Operations Report

FISCAL YEAR 2009

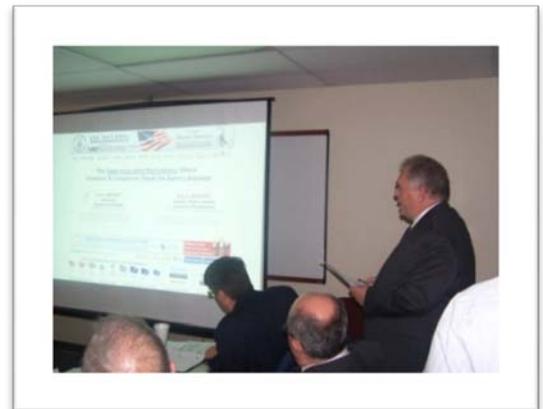
General Operations	Actual					
Character	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Regular Salaries	\$569,867	\$137,590	\$128,558	\$173,40	\$166,17	\$605,694
Extra Help	\$12,000	\$0	\$0	\$0	\$0	\$0
Maintenance and Operations	\$166,703	\$48,599	\$27,752	\$42,589	\$28,441	\$147,380
Fringe Benefits	\$166,723	\$38,264	\$36,579	\$45,85	\$45,694	\$166,391
Research	\$0	\$0	\$0	\$0	\$0	\$0
(Reallocation)	\$0	\$0	\$0	\$0	\$0	\$0
Conference Fees and Training	\$27,223	\$275	\$1,839	\$1,538	\$5,964	\$9,616
Professional Fees	\$16,800	\$1,116	\$2,624	\$4,210	\$2,700	\$10,650
Capital Outlay	\$2,786	\$0	\$0	\$2,694	\$0	\$2,694
Marketing and Redistribution	\$0	\$0	\$0	\$0	\$0	\$0
Technology Development	\$156,975	\$40,000	\$11,250	\$30,725	\$75,000	\$156,975
Research Matching	\$292,653	\$0	\$292,653	\$0	\$0	\$292,653
Seed Capital Investments	\$292,653		\$100,000	\$0	\$192,653	\$292,653
<b>TOTAL</b>	<b>\$1,704,383</b>	<b>\$265,844</b>	<b>\$601,255</b>	<b>\$300,991</b>	<b>\$516,618</b>	<b>\$1,684,707</b>

Seed Capital Fund	Actual					
Character	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Seed Capital Fund Balance	\$1,900,000	\$0	\$0	\$100,000	\$57,347	\$157,347

Industry Support	Actual					
Character	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
AMS Support	\$257,182	\$0	\$34,729	\$125,468	\$96,985	\$257,182



(Left) Dr. Steve Stanley presents Justin Mattocks of Immigreat Now with a Seed Capital Investment check.



(Right) AMS Director Dan Curtis gives the Authority Board an online tour of the Innovation Marketplace.

AMS Operations	Actual					
Character	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Regular Salaries	\$141,835	\$31,063	\$35,438	\$38,594	\$33,080	\$138,175
Maintenance and Operations	\$124,456	\$24,688	\$34,675	\$31,974	\$27,799	\$119,136
Fringe Benefits	\$41,322	\$8,946	\$9,761	\$10,401	\$9,318	\$38,427
Grants	\$389,585	\$56,90	\$87,159	\$115,406	\$126,072	\$385,515
\$24,600	\$2,972	\$1,219	\$4,465	\$13,671	\$22,327	\$22,326
Professional Fees	\$50,000	\$13,084	\$567	\$13,417	\$15,558	\$42,626
Capital Outlay	\$0	\$0	\$0	\$0	\$0	\$0
Field Services	\$1,122,849	\$227,491	\$255,316	\$158,180	\$215,915	\$856,902
Miscellaneous Fees	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL</b>	<b>\$1,894,647</b>	<b>\$365,123</b>	<b>\$424,134</b>	<b>\$372,436</b>	<b>\$441,414</b>	<b>\$1,603,107</b>

EPSCoR Operations	Actual					
Character	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Regular Salaries	\$100,940	\$34,924	\$39,019	\$23,294		\$97,237
Maintenance and Operations	\$106,183	\$18,768	\$14,896	\$6,254	\$44,928	\$84,845
Fringe Benefits	\$30,502	\$8,617	\$9,39	\$5,799	\$0	\$23,797
Conference Fees and Training	\$3,333	\$525	\$842	\$0	\$0	\$1,367
Professional Fees	\$46,667	\$11,000	\$2,175	\$15,557	\$7,079	\$35,811
Grants	\$3,415,963	\$256,737	\$734,446	\$301,478	\$1,154,001	\$2,446,662
Grants (GIF)kbmd50p	\$1,500,000	\$83,855	\$260,026	\$171,179	\$382,314	\$897,374
<b>TOTAL</b>	<b>\$5,203,588</b>	<b>\$414,424</b>	<b>\$1,060,785</b>	<b>\$523,5611</b>	<b>\$1,588,322</b>	<b>\$3,587</b>

General Improvement Funds	Actual					
Project	Funds Released	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Arkansas Research Alliance	\$250,000	\$0	\$0	\$250,000	\$0	\$250,000
Cyberinfrastructure Center	\$542,609	\$0	\$0	\$442,609	\$0	\$442,609
Risk Capital Matching Fund	\$3,000,000	\$0	\$0	\$0	\$3,000,000	\$3,000,000
Avian Influenza Research	\$275,000	\$0	\$0	\$275,000	\$0	\$275,000
<b>TOTAL</b>	<b>\$4,067,609</b>	<b>\$0</b>	<b>\$0</b>	<b>\$967,609</b>	<b>\$3,000,000</b>	<b>\$3,967,609</b>



(Left) Researchers at the University of Arkansas' WiNS Center work with high-density electronics.



(Right) A researcher conducts an experiment at UALR's P3 Center.

Grants Received	Actual					
	Budget	1 <sup>st</sup> Qtr.	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	Total
Winthrop Rockefeller Grants						
Middle School Science Year 3 of 3 Total award \$405,000	\$0	\$0	\$0	\$0	\$0	\$0
Entrepreneurial Arkansas 2008 No Cost Extension Total award \$169,500	\$236,855	\$5,496	\$0	\$8,043	\$13,639	\$27,178
Operating Expenses	\$0	\$0	\$0	\$0	\$0	\$0
Grants	\$169,500	\$5,496	\$0	\$8,043	\$13,639	\$27,178
Transition of Middle School Science to AR Community Foundation Year 1 of 2 Total award \$49,830	\$14,600	\$0	\$0	\$522	\$19,221	\$19,743
Operating Expenses	\$37,969	\$0	\$0	\$522	\$19,221	\$19,743
Winthrop Rockefeller Foundation: Models for Growth: Using Minigrants to Improve Science Education and to Connect the Arkansas Community Foundation Affiliates to Public Schools Years 1 and 2 of 6 Total award \$913,200	\$171,900	\$140,500	\$11,340	\$2,535	\$16,513	\$170,889
Operating expenses	\$12,000	\$0	\$6,114	\$536	\$1,839	\$8,489
Mini grants/Stuart grants	\$149,400	\$140,500	\$0	\$2,000	\$9,400	\$151,900



(Left) Teachers participate in a Minigrant Writing Workshop.



(Right) A Super Coach Training Workshop in progress.



Grants Received	Actual					
	Budget	1 <sup>st</sup> Qtr.	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	Total
2009 Winthrop Rockefeller Grants						
Evaluator	\$10,500	\$0	\$5,226	\$0	\$5,274	\$10,500
AR Community Foundation	\$0	\$0	\$0	\$0	\$0	\$0
Evaluations Mini/Stuart	\$0	\$0	\$0	\$0	\$0	\$0
Winthrop Rockefeller Foundation: Science and Mathematics Accessible Resource Tool (SMART) Year 1 of 5 Total award \$441,000	\$84,125.00	\$5,186	\$19,520	\$8,668	\$44,622	\$77,995
Operating expenses	\$0	\$186	\$451	3,868	\$41	\$4,546
Teacher Stipends	\$30,000	\$5,000	\$14,500	\$4,800	\$21,600	\$45,900
Teacher/Sci. Spec. Travel	\$0	\$0	\$0	\$0	\$0	\$0
Consultant/External Evaluator	\$9,125	\$0	\$4,569	\$0	\$4,531	\$9,100
Workshop Expense	\$20,000	\$0	\$0	\$0	\$0	\$0
Printing/Pubs./Outreach	\$0	\$0	\$0	\$0	\$0	\$0
Intern	\$18,000	\$0	\$0	\$0	\$18,450	\$18,450
Database Development (INA)	\$7,000	\$0	\$0	\$0	\$0	\$0
Winthrop Rockefeller Foundation: STEM Empowerment Year 1 of 5 Total award \$1.4 million	\$333,333	\$1,963	\$84,184	\$17,324	\$152,478	\$255,950
Operating Expenses	\$3,000	\$165	\$593	\$1,477	\$362	\$2,597
Grants	\$295,333	\$0	\$76,267	\$0	\$141,021	\$217,288
Consultants (Evaluator)	\$35,000	\$0	\$6,274	\$14,791	\$8,845	\$29,910
Travel	\$0	\$0	\$0	\$0	\$1,200	\$1,200
Salary and Fringe	\$0	\$1,799	\$1,050	\$1,057	\$1,050	\$4,956
<b>WRF TOTAL</b>	<b>\$840,813</b>	<b>\$153,145</b>	<b>\$115,044</b>	<b>\$37,092</b>	<b>\$246,474</b>	<b>551,756</b>

AMS Energy Grants	Actual					
Character	Budget	1 <sup>st</sup> Qtr.	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	Total
AT&T Accelerator Grant 2008 -- STEM	\$15,000	\$0	\$0	\$0	\$0	\$0
Grants	\$15,000	\$0		\$0	\$0	\$0
AEDC Energy Efficiency 2008 -- AMS	\$90,000	\$7,482	\$14,386	\$11,166	\$8,821	\$41,856
Operating Expenses	\$71,700	\$5,667	\$14,386	\$11,166	\$8,821	\$40,040
Grants	\$18,300	\$1,815	\$0	\$0	\$0	\$20,115
AEDC Save Energy Now 2008 -- AMS	\$50,000	\$0	\$0	\$0	\$0	\$0

## 2009 Board of Directors

### **Paul Mastro - Chair**

Vice President - Manufacturing and Engineering  
George Fischer Sloane  
Term Expires 2010

### **George Williams - Vice Chair**

Director of Business Development  
Intellimation Technologies  
Jonesboro  
Term Expires 2011

### **Heartsill Ragon, III - Secretary**

Attorney  
Gill Elrod Ragon Owen & Sherman, PA  
Term Expires 2011

### **Gary Campbell**

Retired - IBM Corporation  
City Director/Vice Mayor, Fort Smith  
Term Expires 2013

### **Joel Harrison**

Nuclear Operations  
Manager, NDE for  
Washington Group Int'l  
Term Expires 2012

### **Wayne Hartsfield**

Chairman  
Regions Bank  
Searcy, AR  
Term Expires 2011

### **Stephen Seidman, Ph.D.**

Dean  
College of Natural Sciences & Mathematics  
University of Central Arkansas  
Term Expires 2010

### **Collis Geren Ph.D.**

Vice Provost for Research  
University of Arkansas, Fayetteville  
Authority Research Committee Chair  
Term Expires 2013



### **Steve Floyd, Ed.D.**

Deputy Director  
Arkansas Department of Higher Education  
Term Permanent

### **Robert Hall**

President  
Hall Manufacturing  
Authority Industry Committee Chair  
Term Expires 2012

### **Cesar Compadre, Ph.D.**

UAMS  
Associate Professor  
Pharmacy and Public Health  
Term Expires 2011

### **Beverly Dawkins Lyn-Cook, Ph.D.**

Senior Research Scientist  
Division of Personalized Nutrition and Medicine  
Branch: Pharmacogenomics and Molecular  
Epidemiology  
National Center for Toxicological Research (NCTR)  
Term Expires 2013

### **Glen Jones, Jr., J.D.**

Senior Associate Vice Chancellor For Academic  
Affairs and Research  
Executive Associate to the Chancellor for Diversity  
Arkansas State University  
Term Expires: 2010

## *New Faces*

### ***STAFF***

(from left to right)

Greg Henderson  
Dr. Blake Perry  
Alex Cone



### ***INTERNS***

(from left to right)

Aaron Sites  
Slade Wright



### ***BOARD MEMBERS***

Gary Campbell





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## Index

### Research Projects

#### The Research Match Program

Project ID	Federal Agency	Institution	Federal Award	Authority Award
09-AR Research Match-01	NSF	UAPB	\$3,500,000	\$70,000
09-AR Research Match-02	NASA Training Grants	UALR	\$535,000	\$200,000
09-AR Research Match-03	NASA Research Infrastructure	UALR	\$125,000	\$22,653

#### The Centers for Applied Technology Program

Project ID	Center	Institution	Authority Award
08-CAT-01	Cyberinfrastructure Center	UAF	\$442,609
08-CAT-01	Connect Arkansas	UAF	\$192,609
08-CAT-01	High Performance Computing Center	UAF	\$250,000
08-CAT-02	Arkansas Institute for Nano Science	UAF	\$350,000
08-CAT-03	UALR Nanotechnology Center	UALR	\$850,000

Note: The Cyberinfrastructure Center includes Connect Arkansas and the High Performance Computing Center.

#### The Basic Research Grant Program

Project ID	Project	Institution	Authority Award
09-B-01	Avian Influenza Vaccine	UAF	\$275,000

#### The Arkansas Research Alliance

Project ID	Authority Award
09-RA-02	\$250,000

#### R & D Tax Credit Program

Project ID	Name of Business	Credit Amount
Applied Research Tax Credits		
09-A01	APEI, Inc.	\$1,650
09-A01	OG&E, Inc.	\$6,600
In-House R&D Tax Credits		
04-9783	Space Photonics, Inc.	\$370,759
06-10300	Biodetection Instruments, LLC	\$105,618
06-10302	Vegrandis, LLC	\$86,112
04-10322	NanoMech, LLC	\$170,864
06-10304	SFC Fluidics, LLC	\$113,139
06-10101	NN-Labs, LLC	\$295,091
05-10323	APEI, Inc.	\$388,135
06-10324	Insight Ecosystems, LLC	\$58,232



**R & D Tax Credit Program (cont'd)**

<b>Project ID</b>	<b>Name of Business</b>	<b>Credit Amount</b>
08-11125	Mesolight, Inc.	\$60,261
08-11119	Eureka Aero, LLC	\$87,436
08-11115	Axcept, LLC	\$71,993
07-10545	BlueInGreen, LLC	\$52,251
07-10544	BioBased Systems, LLC	\$48,464
07-10543	BioBased Insulation, LLC	\$43,806
07-10542	BioBased Technologies, LLC	\$183,306
08-10836	Lynguent, LLC	\$83,520
07-10656	Ocean NanoTech	\$108,915
07-10541	InvoTek, Inc.	\$70,426



*ASSET Projects*

**Campus Subagreements**

Project ID	Institution	Authority Award
09-EPSCoR-0002	UALR	\$885,755
09-EPSCoR-0003	UALR	\$1,390,834
09-EPSCoR-0001	ASU	\$569,851

**P3 Seed Grants Program**

Project ID	Institution	Authority Award
08-EPSCoR-0024, 09-EPSCoR-0081, 09-EPSCoR-0085	UALR	\$269,868
08-EPSCoR-0025, 09-EPSCoR-0082, 09-EPSCoR-0086	ASU	\$687,889
08-EPSCoR-0026, 09-EPSCoR-0083, 09-EPSCoR-0087	UAF	\$361,707
09-EPSCoR-0084	UCA	\$7,850

**Outreach Awards**

Project ID	Outreach Projects	Authority Award
09-EPSCoR-0088	Library Award	\$40,000
09-EPSCoR-0065, 09-EPSCoR-0080	Research Experiences for Undergraduates	\$39,491
09-EPSCoR-0007, 09-EPSCoR-0062, 09-EPSCoR-0090, 09-EPSCoR-0097	Student/Faculty Exchange Program	\$36,000
09-EPSCoR-0064	Communications Internship	\$18,300
08-EPSCoR-0027	MBA Internship	\$24,000
08-EPSCoR-0007, 09-EPSCoR-0063	Research Day Video Production & Activities	\$8,000
09-EPSCoR-0005	Entrepreneurial Training	\$35,500
09-EPSCoR-0004	Stone Ward	\$24,500
09-EPSCoR-0089	Minnick	\$50,000



*STEM Projects*

**The STEM Teacher Empowerment Program**

ID Number	STEM Professional Development Award	Total Award
09-WRF-STEM02	Algebra and Science Connections Through Technology	\$12,000
09-WRF-STEM03	STEM Leadership Academy	\$11,500
09-WRF-STEM04	Applications of Biotechnologies in the Classroom	\$12,000
09-WRF-STEM05	Leading into the 21st Century	\$12,000
09-WRF-STEM06	Nanotechnology in Grades 7-12 Classrooms (Nano)	\$12,000
09-WRF-STEM07	Sparking Interest in High School Physics Laboratories	\$11,500
09-WRF-STEM08	Science and Technology Engaging Middle School Students (STEMSS)	\$12,000
09-WRF-STEM09	Technology for Inquiry-Based Learning II	\$12,000

ID Number	STEM Summer Academy	Total Award
09-WRF-STEM35	Audubon Arkansas	\$10,000

ID Number	STEM Classroom Enhancement Award	Total Award
09-WRF-STEM10	Harrisburg High	\$1,494
09-WRF-STEM11	Washington Jr. High	\$1,425
09-WRF-STEM12	East Junior High	\$1,499
09-WRF-STEM13	Washington Jr. High	\$1,478
09-WRF-STEM14	Washington Jr. High	\$1,467
09-WRF-STEM15	Washington Jr. High	\$1,445
09-WRF-STEM16	Horatio High	\$1,470
09-WRF-STEM17	Lakeside High	\$1,500
09-WRF-STEM18	Benton Jr. High	\$1,500
09-WRF-STEM19	Bauxite High	\$1,490
09-WRF-STEM20	Bismarck High	\$1,445
09-WRF-STEM21	Sheridan Middle	\$1,500
09-WRF-STEM22	Nevada High	\$1,422
09-WRF-STEM23	Fouke High	\$1,500
09-WRF-STEM24	England Elementary	\$1,500
09-WRF-STEM25	Alma Middle	\$1,500
09-WRF-STEM26	Cross County High	\$1,252
09-WRF-STEM27	Black Rock	\$1,492
09-WRF-STEM28	REAP Academy	\$1,130
09-WRF-STEM29	Lavaca Middle	\$1,435
09-WRF-STEM30	DeQueen Middle	\$1,391
09-WRF-STEM31	Central High	\$1,500
09-WRF-STEM32	Washington Jr. High	\$1,422
09-WRF-STEM33	Kirksey Middle	\$1,444
09-WRF-STEM34	Coleman Jr. High	\$1,314



**The Minigrant Program**

ID Number	School	Total Award
N09UAPB00P001	Humphrey Elementary	\$500
N09UA00P036	Washington Jr. High	\$500
N09UA00P039	Spring Hill Middle	\$500
N09UA00P022	Washington Jr. High	\$500
N09UA00P023	Washington Jr. High	\$500
N09UA00P041	Washington Jr. High	\$500
N09UA00P021	Washington Jr. High	\$500
N09UA00P015	Lincoln Jr. High	\$500
N09UA00P048	Washington Jr. High	\$500
N09UA00P010	Washington Jr. High	\$500
N09UA00P049	Ruth Hale Barker Middle	\$500
N09UA00P053	Ruth Hale Barker Middle	\$500
N09UA00P005	Lincoln Jr. High	\$500
N09UA00P016	Ruth Hale Barker Middle	\$500
N09UA00P032	Kirksey Middle	\$500
N09UA00P063	Kirksey Middle	\$500
N09UA00P047	Oakdale Middle	\$500
N09UA00P027	Oakdale Middle	\$500
N09UA00P026	Oakdale Middle	\$500
N09UA00P025	Oakdale Middle	\$500
N09UA00P031	Kirksey Middle	\$500
N09UA00P033	Kirksey Middle	\$500
N09UA00P034	Alpena Elementary	\$500
N09UA00P035	Alpena Elementary	\$500
N09UA00P056	Valley Springs Middle	\$500
N09UA00P057	Valley Springs Middle	\$500
N09UAM00P004	Hermitage Middle	\$500
N09UAM00P005	Hermitage Middle	\$500
N09UAFS00P006	Alma Middle	\$500
N09UAFS00P004	Alma Middle	\$500
N09UAFS00P005	Alma Middle	\$500
N09UAFS00P012	Northridge Middle	\$500
N09UAFS00P014	Northridge Middle	\$500
N09UAFS00P015	Northridge Middle	\$500
N09ASUD00P005	Marion Jr. High	\$500
N09ASUD00P006	Bragg Elementary	\$500
N09ASUD00P008	East Jr. High	\$500
N09ASUD00P020	Weaver Elementary	\$500
N09ASUD00P031	Wonder Jr. High	\$500
N09ASUD00P012	Faulk Elementary	\$500
N09ASUD00P032	Wonder Jr. High	\$500
N09ASUD00P033	Wonder Jr. High	\$500
N09ASUD00P007	Bragg Elementary	\$500



The Minigrant Program (cont'd)

ID Number	School	Total Award
N09ASUD00P009	East Jr. High	\$500
N09ASUD00P015	L.R. Jackson	\$500
N09ASUD00P014	Jackson Elementary	\$500
N09ASUD00P019	Richland	\$500
N09ASUD00P013	Faulk Elementary	\$500
N09ASUD00P025	West Jr. High	\$500
N09ASUD00P017	Maddux Elementary	\$500
N09ASUD00P028	Wonder Elementary	\$500
N09ASUD00P029	Wonder Elementary	\$500
N09ASUD00P010	East Jr. High	\$500
N09ASUD00P011	East Jr. High	\$500
N09ASUD00P018	Richland	\$500
N09ASUD00P022	Wedlock Elementary	\$500
N09ASUD00P023	Wedlock Elementary	\$500
N09ASUD00P016	Maddux Elementary	\$500
N09HSU00P016	Fordyce Middle	\$500
N09HSU00P017	Fordyce Middle	\$500
N09UAM00P001	Drew Central Elementary	\$500
N09UAFS00P008	Charleston Middle	\$500
N09UAFS00P010	Ozark Middle	\$500
N09UAFS00P009	Ozark Jr. High	\$500
N09HSU00P023	Poyen Elementary	\$500
N09HSU00P022	Poyen Elementary	\$500
N09HSU00P025	Sheridan Intermediate	\$500
N09HSU00P027	Sheridan Intermediate	\$500
N09HSU00P028	Sheridan Intermediate	\$500
N09HSU00P011	Bismarck Middle	\$500
N09HSU00P018	Glen Rose Middle	\$500
N09HSU00P021	Malvern Jr. High	\$500
N09HSU00P020	Malvern Jr. High	\$500
N09ASUR00P002	Eagle Mtn Health and Intermediate Studies Magnet	\$500
N09ASUR00P003	Central Elementary Math/Sci	\$500
N09ASUR00P006	West Magnet Visual and Performing Arts	\$500
N09ASUR00P005	West Elementary	\$500
N09ASUR00P004	Central Elementary Math/Sci	\$500
N09ASUR00P007	Midland Elementary	\$500
N09ASUR00P008	Midland Elementary	\$500
N09ASUR00P010	Swifton Middle	\$500
N09ASUR00P009	Swifton Middle	\$500
N09ASUR00P012	Hoxie High	\$500
N09ASUR00P016	Walnut Ridge High	\$500
N09ASUR00P013	Walnut Ridge High	\$500
N09ASUR00P014	Walnut Ridge High	\$500
N09ASUR00P017	Walnut Ridge Middle	\$500
N09ASUR00P015	Walnut Ridge High	\$500
N08ATU00P001	Booneville Elementary	\$500



The Minigrant Program (cont'd)

ID Number	School	Total Award
N09HU00P011	Lonoke Middle	\$500
N09HU00P001	Cabot Jr. High South	\$500
N09HU00P013	Lonoke Middle	\$500
N09UA00P042	Huntsville Intermediate	\$500
NO09UCA00P005	Anne Watson	\$500
NO09UCA00P006	Bigelow High	\$500
NO09UCA00P004	Anne Watson	\$500
N09HSU00P013	Centerpoint Jr. High	\$500
N09HSU00P014	Centerpoint Jr. High	\$500
N09HSU00P015	Centerpoint Jr. High	\$500
N09ASUD00P036	Harrisburg Middle	\$500
N09ASUD00P038	Harrisburg Middle	\$500
N09ASUD00P039	Harrisburg Middle	\$500
N09ASUD00P041	Weiner High	\$500
N09ASUD00P040	Weiner High	\$500
N09HSU00P003	Acorn Elementary	\$500
N09HSU00P002	Acorn Elementary	\$500
N09HSU00P001	Acorn Elementary	\$500
N09ASUR00P018	M.D Williams Intermediate	\$500
N09ASUR00P019	Twin Rivers	\$500
N09HSU00P004	Bauxite Jr./Sr. High	\$500
N09HSU00P007	Benton Middle	\$500
N09HSU00P008	Benton Middle	\$500
N09HSU00P009	Benton Jr. High	\$500
N09HSU00P010	Benton Jr. High	\$500
N09HSU00P012	Salem Elementary	\$500
N09UAFS00P016	Waldron Middle	\$500
N09UAFS00P017	Waldron Middle	\$500
N09UAFS00P018	Waldron Middle	\$500
N09UAFS00P019	Waldron Middle	\$500
N09ASUR00P021	Mountain View Middle	\$500
N09ASUR00P022	Mountain View Middle	\$500
N09ASUR00P023	Mountain View Middle	\$500
N09SAU00P002	Norphlet	\$500
NO09UCA00P002	Southside Bee Branch	\$500
NO09UCA00P001	Southside Bee Branch	\$500
N09UA00P044	Elkins Middle	\$500
N09UA00P043	Elkins Middle	\$500
N09UA00P038	Randall G. Lynch Middle	\$500
N09UA00P019	Randall G. Lynch Middle	\$500
N09UA00P002	Randall G. Lynch Middle	\$500
N09UA00P024	Randall G. Lynch Middle	\$500
N09UA00P030	Woodland Jr. High	\$500



**The Minigrant Program (cont'd)**

ID Number	School	Total Award
N09UA00P037	McNair Middle	\$500
N09UA00P059	McNair Middle	\$500
N09UA00P028	Woodland Jr. High	\$500
N09UA00P051	Woodland Jr. High	\$500
N09UA00P003	Grace Hill Elementary	\$500
N09UA00P050	Hellstern Middle	\$500
N09UA00P029	Hellstern Middle	\$500
N09UA00P004	Helen Tyson Middle	\$500
N09UA00P014	Helen Tyson Middle	\$500
N09UA00P040	Helen Tyson Middle	\$500
N09UA00P020	Hellstern Middle	\$500
N09UA00P013	Hellstern Middle	\$500
N09UA00P061	Hellstern Middle	\$500
N09UA00P018	Helen Tyson Middle	\$500
N09UA00P062	West Fork Middle	\$500
N08ATU00P002	Plainview-Rover	\$500
N08ATU00P003	Plainview-Rover	\$500
N08ATU00P004	Plainview-Rover	\$500

**STUART Award**

ID Number	School	Total Award
09-RFGS-01	Ashdown New Tradition	\$5,500
09-RFGS-02	Paragould Jr. High	\$5,500
09-RFGS-03	Morrilton Jr. High	\$5,500
09-RFGS-04	Oak Park School	\$5,500
09-RFGS-05	Hector Elementary	\$5,500
09-RFGS-06	Ruth Hale Barker Middle	\$5,500
09-RFGS-07	Wynne Intermediate	\$5,500
09-RFGS-08	Allbritton Elementary	\$5,500
09-RFGS-09	Dora Kimmons Jr. High	\$5,500
09-RFGS-10	Wonder Jr. High	\$5,500
09-RFGS-11	Sylvan Hills Middle	\$5,500
09-RFGS-12	Ashdown New Tradition	\$5,500



SMART Portal

ID Number	Contributing Teacher	School
07-SMART-01	Toshiba Thomas	Academic Center of Excellence
07-SMART-02	Brenda Webb	Clarksville Jr. High
07-SMART-04	Brenda Langley	Fouke Elementary
07-SMART-05	Wendy Ellis	Kensett Middle
07-SMART-06	Alice Robertson	Maumelle Middle
07-SMART-07	Carolyn Davis	West Side Elementary
07-SMART-08	Charlotte Upshaw	Williford High
07-SMART-09	Martha McClure	Hardy
07-SMART-10	Karon Watts	Arkansas Tech University
07-SMART-12	Lynn Kelsh	Pinkston Middle
07-SMART-15	Carolyn Lee	Dover Intermediate
07-SMART-16	Bobby Rehm	Pottsville Jr. High
07-SMART-17	Katina Vaughn	Oark High
07-SMART-18	Lisa Honey	Gibbs Albright Elementary
07-SMART-19	Cindy Broadhead	Russellville Jr. High
07-SMART-20	Jayna Moffit	Lincoln Jr. High
08-SMART-ASUD-01	Karen Busby	Delta Institute for Math/Sci
08-SMART-ASUD-02	Deanna Duncan	Univ. of AR at Monticello, Center for Math & Science
08-SMART-ASUD-03	Kathy Gore	Osceola High
08-SMART-ASUD-04	Retha Gipson	Westside Consolidated High
08-SMART-ASUD-05	Linda Maples	Earle High
08-SMART-ASUD-06	Kisa Morman	West Memphis High
08-SMART-ASUR-01	Patrick Brown	Riverview High
08-SMART-ASUR-02	Linda Clarke	S.U.C.C.E.S.S. Achievement Academy
08-SMART-ASUR-03	Michelle Guinn	Paragould High
08-SMART-ASUR-04	Linley Lyerly	Fayetteville High
08-SMART-ASUR-05	Cheryl Massengale	Stuttgart High
08-SMART-ASUR-06	Sharon Rondone	Paragould High
08-SMART-HSU-01	Quinn Johnson	Kirby High
08-SMART-HSU-02	Kathey Roberts	Lakeside High
08-SMART-HSU-03	Tina Manning	Bryant High
08-SMART-HSU-04	Audrey Bailey	Dierks High
08-SMART-HSU-05	Scott Horne	Nashville High
08-SMART-HSU-06	Angela Collins	Bauxite High
08-SMART-UAF-01	Tamara Shreve	Ramay Jr. High
08-SMART-UAF-02	Robin Buff	Fayetteville High
08-SMART-UAF-03	Allan Geery	Norfolk Elementary
08-SMART-UAF-04	Deborah Jones	Bigelow High
08-SMART-UAF-05	Melissa Miller	Lynch Middle
08-SMART-UAF-06	Kathy Prophet	Hellstern Middle
08-SMART-UAF-07	Connie Tenberge	Huntsville Middle
08-SMART-UAF-08	B Ruth Mobley	Holt Middle
08-SMART-UAF-09	Brian Schuller	Wickes
08-SMART-UAFS-01	Velvet Barr	Van Buren High



SMART Portal (cont'd)

ID Number	Contributing Teacher	School
08-SMART-UAFS-02	Sue Bledsoe	Russellville High
08-SMART-UAFS-03	Deena Dunn	Van Buren High
08-SMART-UAFS-04	Kevin Porter	Van Buren High
08-SMART-UAFS-05	Nelson Brock	Chaffin Jr. High
08-SMART-UAFS-06	Cecilia Jarry	North Little Rock High School East
08-SMART-UAFS-07	Regina McElhaney	Ozark Jr. High
09-SMART ASUD01	Susan Creekmore	West Memphis Christian
09-SMART ASUD02	Retha Gipson	Westside Consolidated High
09-SMART ASUD03	Johnette Goldman	Heber Springs High
09-SMART ASUD04	Kathy Gore	Osceola High
09-SMART ASUD05	Linda Maples	Earle High
09-SMART ASUD06	Christy Thomas	Heber Springs High
09-SMART ASUR01	Linda Clarke	S.U.C.C.E.S.S. Achievement Academy
09-SMART ASUR02	Bonnie Moody	Cabot Jr. High North
09-SMART ASUR03	Cheryl Massengale	Stuttgart High
09-SMART ASUR04	Ellen Holloway	Walnut Ridge High
09-SMART ASUR05	Amanda Herring	Hoxie High
09-SMART ASUR06	Sonja Scruggs	Dardenelle High
09-SMART ASUR07	Diann Skelton	Paragould Jr. High
09-SMART ASUR08	Alan Hays	Genoa Central High
09-SMART UAM01	Faye Jackson	Star City High
09-SMART UAM02	Shelley Owen	Star City High
09-SMART UAM03	Karen Russell	Monticello High
09-SMART UAM04	Joyce Mangum	McGehee
09-SMART UAM05	Carole Harper	Dermott Public
09-SMART UAM06	Jennifer Luchsinger	Cabot High
09-SMART-ASUD	Cynthia Miller	NEA Delta Rural Institute Math/Science Center
09-SMART-ASUR	Jannie Trautwein	NEA Rural Institute for Math/Science Education
09-SMART-UAFS	Darlynn Cast	Math & Science Education Partnership
09-SMART-UAFS-01	Steve Brodie	Arkansas Department of Education
09-SMART-UAFS-02	Julia Gibbons	Stuttgart High
09-SMART-UAFS-03	Bret Shane Gordon	Magazine Public
09-SMART-UAFS-04	Lance Holt	Magazine High
09-SMART-UAFS-05	Suzanne Martin	Booneville High
09-SMART-UAFS-06	Robert Pham	Cedarville High
09-SMART-UAM	Deanna Duncan	Math & Science Center, UAM



## Investment Projects

### Technology Transfer Assistance Grant Program (TTAG)

ID Number	Company	Total Award
09-TTAG-54	ACC, Inc.	\$5,000
09-TTAG-86	ACC, Inc.	\$5,000
09-TTAG-18	Acetominphen Toxicity Diagnostics	\$2,000
09-TTAG-82	Aerotech Machine Corporation	\$1,250
09-TTAG-77	Almatis, Inc.	\$5,000
09-TTAG-27	AMFUEL	\$5,000
09-TTAG-07	Arkansas Power Electronics International, Inc.	\$5,000
09-TTAG-52	Armedica Manufacturing Corporation	\$5,000
09-TTAG-57	Art-Exchange.com	\$5,000
09-TTAG-49	B&M Painting Co., Inc.	\$5,000
09-TTAG-19	Belleville Shoe Manufacturing Co.	\$5,000
09-TTAG-04	BioDetection Instruments	\$5,000
09-TTAG-40	BioDetection Instruments	\$5,000
09-TTAG-25	Cameron Valves & Measurements	\$5,000
09-TTAG-23	Cantrell Drug Co.	\$5,000
09-TTAG-26	Cantrell Drug Co.	\$5,000
09-TTAG-61	Cloyes Gear & Products, Inc.	\$5,000
09-TTAG-62	Cloyes Gear & Products, Inc.	\$5,000
09-TTAG-37	Columbia Forest Products	\$5,000
09-TTAG-38	Columbia Forest Products	\$5,000
09-TTAG-65	Conway Precision Products, Inc.	\$5,000
09-TTAG-17	DCV Technologies	\$2,000
09-TTAG-33	Deceuninck North America	\$5,000
09-TTAG-46	Defiance Metal Products	\$3,000
09-TTAG-88	Delta Consolidated Industries	\$5,000
09-TTAG-21	Dixie Consumer Products	\$5,000
09-TTAG-22	Dixie Consumer Products	\$5,000
09-TTAG-53	Ed4U, LLC	\$5,000
09-TTAG-02	EquityNet, LLC	\$5,000
09-TTAG-12	EquityNet, LLC	\$5,000
09-TTAG-16	EZRA Innovations, LLC	\$2,000
09-TTAG-41	F.M. Corporation	\$5,000
09-TTAG-84	F.M. Corporation	\$5,000
09-TTAG-24	Franklin Electric	\$5,000
09-TTAG-75	Gilbert Lumber & Supply	\$5,000
09-TTAG-56	Greenville Tube Co.	\$5,000
09-TTAG-31	H & T Truss Mill, Inc.	\$5,000
09-TTAG-34	Hiram Walker - Pernod Ricard USA	\$5,000
09-TTAG-35	Hiram Walker - Pernod Ricard USA	\$5,000
09-TTAG-66	HITCO Carbon Composites	\$5,000
09-TTAG-67	HITCO Carbon Composites	\$5,000



Technology Transfer Assistance Grant Program (TTAG) (cont'd)

ID Number	Company	Total Award
09-TTAG-15	InterveXion Therapeutics, LLC	\$2,000
09-TTAG-03	InvoTek, Inc.	\$5,000
09-TTAG-29	InvoTek, Inc.	\$5,000
09-TTAG-10	KAT Manufacturing, Inc.	\$5,000
09-TTAG-76	LOREAL USA Products, Inc.	\$5,000
09-TTAG-79	Molex, Inc.	\$5,000
09-TTAG-39	NanoMech Corporation	\$5,000
09-TTAG-50	NanoMech Corporation	\$5,000
09-TTAG-42	Norandal	\$5,000
09-TTAG-43	Norandal	\$5,000
09-TTAG-44	Nutraceutical Innovations, LLC	\$5,000
09-TTAG-28	Packaging Specialties	\$5,000
09-TTAG-78	Packaging Specialties	\$5,000
09-TTAG-60	PC Turnkey, Inc.	\$1,500
09-TTAG-72	Plastic Ingenuity	\$5,000
09-TTAG-73	Plastic Ingenuity	\$5,000
09-TTAG-59	Power Technology, Inc.	\$5,000
09-TTAG-87	Power Technology, Inc.	\$5,000
09-TTAG-70	Preformed Line Products	\$5,000
09-TTAG-74	Preformed Line Products	\$5,000
09-TTAG-63	Robert Bosch Tool Corporation	\$5,000
09-TTAG-64	Robert Bosch Tool Corporation	\$5,000
09-TTAG-89	Robert Bosch Tool Corporation	\$5,000
09-TTAG-80	Sage V Foods	\$5,000
09-TTAG-36	Saint Jean Industries	\$5,000
09-TTAG-11	SARA Technologies	\$5,000
09-TTAG-06	Spectar, LLC	\$5,000
09-TTAG-51	Spectar, LLC	\$5,000
09-TTAG-14	Stage I Diagnostics, LLC	\$2,000
09-TTAG-30	Sterling Machine Co., Inc.	\$5,000
09-TTAG-47	Synergy Manufacturing Inc.	\$5,000
09-TTAG-68	Synergy Manufacturing Inc.	\$5,000
09-TTAG-32	Trane Commercial Systems	\$5,000
09-TTAG-55	TWH Enterprises, Inc.	\$5,000
09-TTAG-81	TWH Enterprises, Inc.	\$5,000
09-TTAG-05	Vegrandis, LLC	\$5,000
09-TTAG-45	Vegrandis, LLC	\$5,000
09-TTAG-01	Wright Design and Manufacturing, LLC	\$5,000



**The Seed Capital Investment Program (SCIP)**

Company Name	Total Investment
Balm Innovations	\$100,000
BIG	\$100,000
Accupal/MSTP	\$100,000
MeritBuilder	\$100,000
ImmiGreatNow	\$50,000

**The Technology Development Program (TDP)**

Company Name	Total Investment
EquityNet, LLC	\$25,000
CFO Network	\$50,000

**A Pilot Project for Entrepreneurship in Arkansas**

ID Number	Project	Budget	Total
09-WRF-02,	Academic Year Long Internships	\$25,000	\$21,682
08-WRF-02	Update Video to Documentary Film	\$0	\$5,496