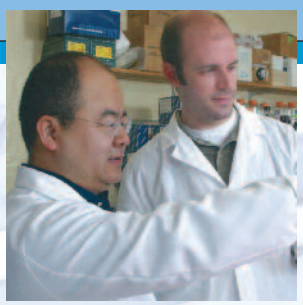
West Virginia Higher Education Policy Commission

SCIENCE and RESEARCH



2007-2008

fiscal years in review

A good investment for West Virginia

About the Division of Science and Research

The Division of Science and Research, West Virginia Higher Education Policy Commission, provides strategic leadership for infrastructure advancement and development of competitive research opportunities in science, technology, engineering and mathematics disciplines. The office directs the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR) in West Virginia, coordinates scientific research grants to academic institutions from federal and state agencies, and conducts outreach activities to broaden the public's understanding of science and technology.

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"What part will West Virginia have in this next great explosion of knowledge and expansion of human capital? Although this question has not yet been fully answered, it is obvious research will play a vital role."

Brian E. Noland, Ph.D.
Chancellor
West Virginia Higher Education Policy Commission

For much of the past 50 years, the United States led the world in science, medicine and technology. The historic investments our country made in higher education fueled this growth.

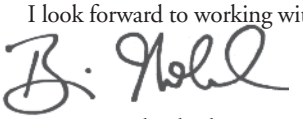
Today, however, our leadership is challenged. Nations like China, India and Singapore are building great universities, investing billions in research, and creating linkages between public policy and individual enterprise. The U.S. last year took a significant step to reclaim the leadership role by passing the America COMPETES Act. Once again, we have made a commitment as a nation to invest in our future and promote innovation and development.

What part will West Virginia have in this next great explosion of knowledge and expansion of human capital? Although this question has not yet been fully answered, it is obvious research will play a vital role.

In recognition of the increasing importance of our state's research enterprise, in 2007 the Higher Education Policy Commission was pleased to welcome a new division to lead the state's research policy efforts—the Division of Science and Research. As you will read in this report, the Division has taken a leadership role in unifying the higher education research community and raising its profile as the key to innovation and entrepreneurship in West Virginia.

The outlook for research and West Virginia is bright. We have the pieces in place to position our state as a globally competitive, economically prosperous and dynamic player in the nation's efforts to once again lead the world in science and technology.

I look forward to working with every West Virginian to realize that goal.



Brian E. Noland, Ph.D.
Chancellor
West Virginia Higher Education Policy Commission

I'm pleased to report that the last two years have been marked by unprecedented growth for West Virginia's research enterprise. Our university scientists are securing more competitive research awards and are partnering with more federal and private agencies than ever.

Perhaps just as importantly, however, policymakers have substantially increased the state's investment in research. Over just 12 months, Governor Manchin and the legislature worked together to provide $60 million in additional funds to help West Virginia University and Marshall University attract top scientists and their labs. These appropriations—$10 million for the Eminent Scholars Recruitment and Enhancement initiative in 2007 and $50 million for the "Bucks for Brains" West Virginia Research Trust Fund in 2008—are truly momentous developments that will give us opportunities to expand our efforts in ways we could have only imagined just a couple of years ago.

These significant state investments will help stimulate world-class research and entrepreneurship, and provide a leap forward toward the goals in the state's *Vision 2015* strategic plan for science and technology. We will all reap the related benefits of the high-tech, high-wage industries this research will bring to our state.

West Virginia's research community is prepared to meet the challenges ahead. *Vision 2015* has established a clear pathway. With strong leadership and a long-term commitment, West Virginia will continue to wisely invest resources in research infrastructure as a foundation for economic diversification and expansion.

Paul L. Hill, Ph.D.
Vice Chancellor for Science and Research

"With strong leadership and a long-term commitment, West Virginia will continue to wisely invest resources in research infrastructure as a foundation for economic diversification and expansion."

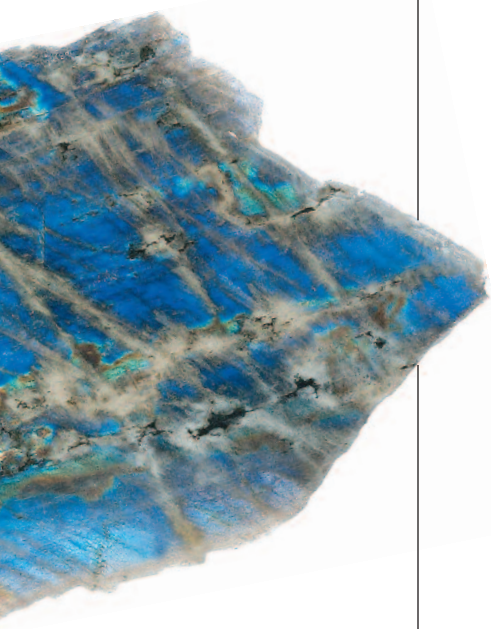
Paul L. Hill, Ph.D.
Vice Chancellor for Science and Research

VISION 2015—
A Plan for West Virginia's Future

Vision 2015: The West Virginia Science and Technology Strategic Plan, developed through the West Virginia Experimental Program to Stimulate Competitive Research, calls for the state to grow its research enterprise by investing $250 million over 10 years to recruit scientists and engineers, construct state-of-the-art science and engineering facilities, increase the production of West Virginia scientists and engineers with advanced degrees, and develop new technology-based businesses.

If fully funded, it is projected this investment would result in a cumulative economic impact through 2015 of $3.3 billion and 33,000 new jobs in West Virginia.

The *Vision 2015* plan is available online at www.wvresearch.org.



HIGHLIGHTS 2007-08

January 2007
A partnership is announced to market the Reality Computing™ platform developed at West Virginia University's GeoVirtual Lab. The partnership is the fifth startup company to result from research funded through the state's Research Challenge Fund.

February 2007
As part of the annual Undergraduate Research Day at the State Capitol, Governor Joe Manchin and First Lady Gayle Manchin present more than $1.2 million in grants to help advance scientific research at West Virginia colleges and universities. The grants were funded primarily through the state's Research Challenge Fund.

April 2007
Dr. Paul L. Hill, vice chancellor for science and research, testifies before the U.S. Congress regarding the missions of the National Science Foundation and NASA.

May 2007
Marshall University announces establishment of a new biotech company, Progenesis Technologies LLC—another startup with its roots in research funded through the state's Research Challenge Fund.

2006 2007

September 2006
Governor Joe Manchin addresses an audience of more than 800 of the nation's top scientists and policymakers at the National Academies of Sciences "Rising Above the Gathering Storm" convocation in Washington, D.C., and endorses *Vision 2015: The West Virginia Science and Technology Strategic Plan*.

May 2007
The West Virginia Legislature and Governor Joe Manchin set aside an additional $10 million in the state's budget for research—the first payment toward the state's *Vision 2015* plan. The new funds support the Eminent Scholars Recruitment and Enhancement initiative.

September 2007
More than 170 members of West Virginia's business, science, technology and research communities gather in Morgantown at the statewide Science, Technology and Research (STaR) Symposium hosted by the Division.

November 2007
The West Virginia Higher Education Policy Commission approves a new master plan, with recurring emphases on research, partnerships and entrepreneurial leadership.

Dr. Brian Noland, chancellor of the West Virginia Higher Education Policy Commission, creates the West Virginia IDeA Research Council to provide a more direct line of communication between biomedical researchers and state policymakers.

December 2007
Nearly 200 researchers attend "NSF Day in West Virginia," a workshop sponsored by the West Virginia University Research Corporation and the Division to provide information about the foundation and its proposal processes.

The Division hosts a daylong forum for more than 60 research administrators and faculty from West Virginia's undergraduate institutions of higher education. The program focused on the role of these institutions in the state's growing research enterprise.

January 2008
In conjunction with Undergraduate Research Day activities at the State Capitol, Governor Joe Manchin presents nearly $500,000 in grants for scientific research at the state's institutions of higher education. The grants were funded through the West Virginia Department of Education and the Arts, the Division's Research Challenge Fund and the West Virginia IDeA Network of Biomedical Research Excellence.

February 2008
The first episode of "Lab 304" premieres on West Virginia Public Broadcasting. The segments highlight research and technology in West Virginia.

March 2008
The Division releases a report that shows the state's $8.4 million investment in the Research Challenge Grant program has resulted in a substantial return on investment, including five startup companies.

April 2008
Dr. Paul L. Hill, vice chancellor for science and research, provides testimony before the U.S. Congress regarding the importance of the National Science Foundation and NASA EPSCoR programs.

2008

December 2007
National Science Foundation Director Dr. Arden Bement visits the West Virginia University campus to tour the physics and engineering facilities and meet the research faculty and students.

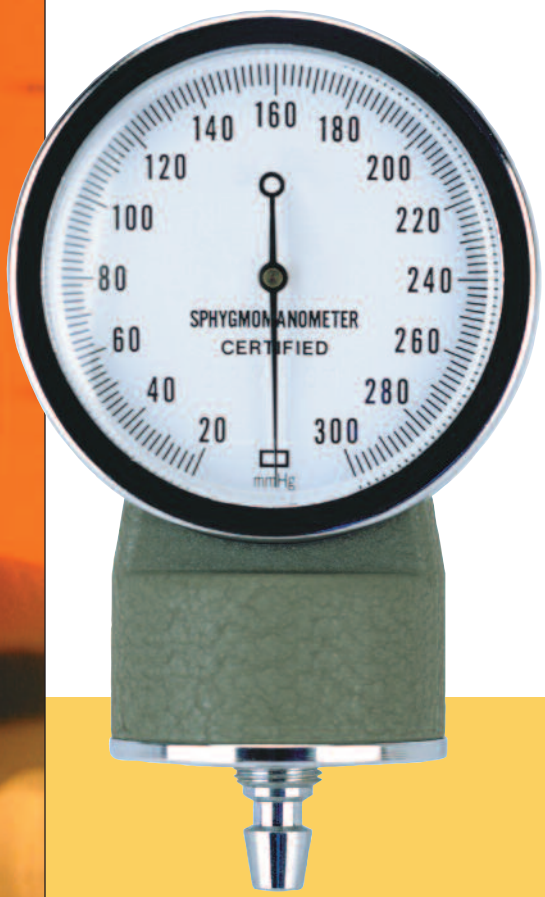
February 2008
Cutting-edge biometrics research programs sponsored by the West Virginia Experimental Program to Stimulate Competitive Research are selected from among all 27 EPSCoR jurisdictions in the country to be featured at a National Science Foundation open house in Washington, D.C.

March 2008
The West Virginia Legislature passes Senate Bill 287 to create the "Bucks for Brains" West Virginia Research Trust Fund, which will match state dollars with private donations to strengthen promising research programs at West Virginia University and Marshall University. Governor Joe Manchin proposed the initiative during the State of the State address.

SELECTED RESEARCHER PROFILES

West Virginia's world-class scientists are working at the forefront of research to use science and technology to improve the lives of people here at home as well as across the country and around the world. These researchers are not only making names for themselves internationally in the fields of biometrics, forensics, biomedicine, environmental sciences, crop sciences and alternative energy sources, they are also training students—the research and manufacturing workforce of tomorrow.

The following profiles highlight some of this vital research being funded through the West Virginia Research Challenge Fund, the National Science Foundation's West Virginia Experimental Program to Stimulate Competitive Research and other federal and private agencies.



Searching for Answers about Killer Diseases

Marshall University biology professors **Dr. Eric Blough** and **Dr. Philippe Georgel** have received a $500,000 grant from the state's Research Challenge Fund to help them develop a center to focus on cardiovascular and cancer research—the mechanisms that cause the diseases to progress and ways to identify the diseases earlier.

Their project will capitalize on the investments the university, the state of West Virginia and federal agencies have made in molecular biology and genomics research, and will result in the creation of new jobs, increased workforce training opportunities and cutting-edge educational experiences for students.

Photos by Rick Haye, Marshall University

"We wanted to pick areas in which we have expertise, but also areas important to Appalachia and West Virginia. With the state ranked so high in deaths related to cardiovascular disease and various types of cancer, it's an area of research that could benefit people locally."

Dr. Eric Blough
Marshall University

"Terrorist attacks worldwide have shown the devastating effects that conventional and improvised explosives and weapons can have on checkpoints, bridges, dams and tunnels. This Research Challenge Grant will enable us to bring together researchers from different disciplines to carry out cutting-edge research to help address the world-wide pressing needs for infrastructure security and innovations."

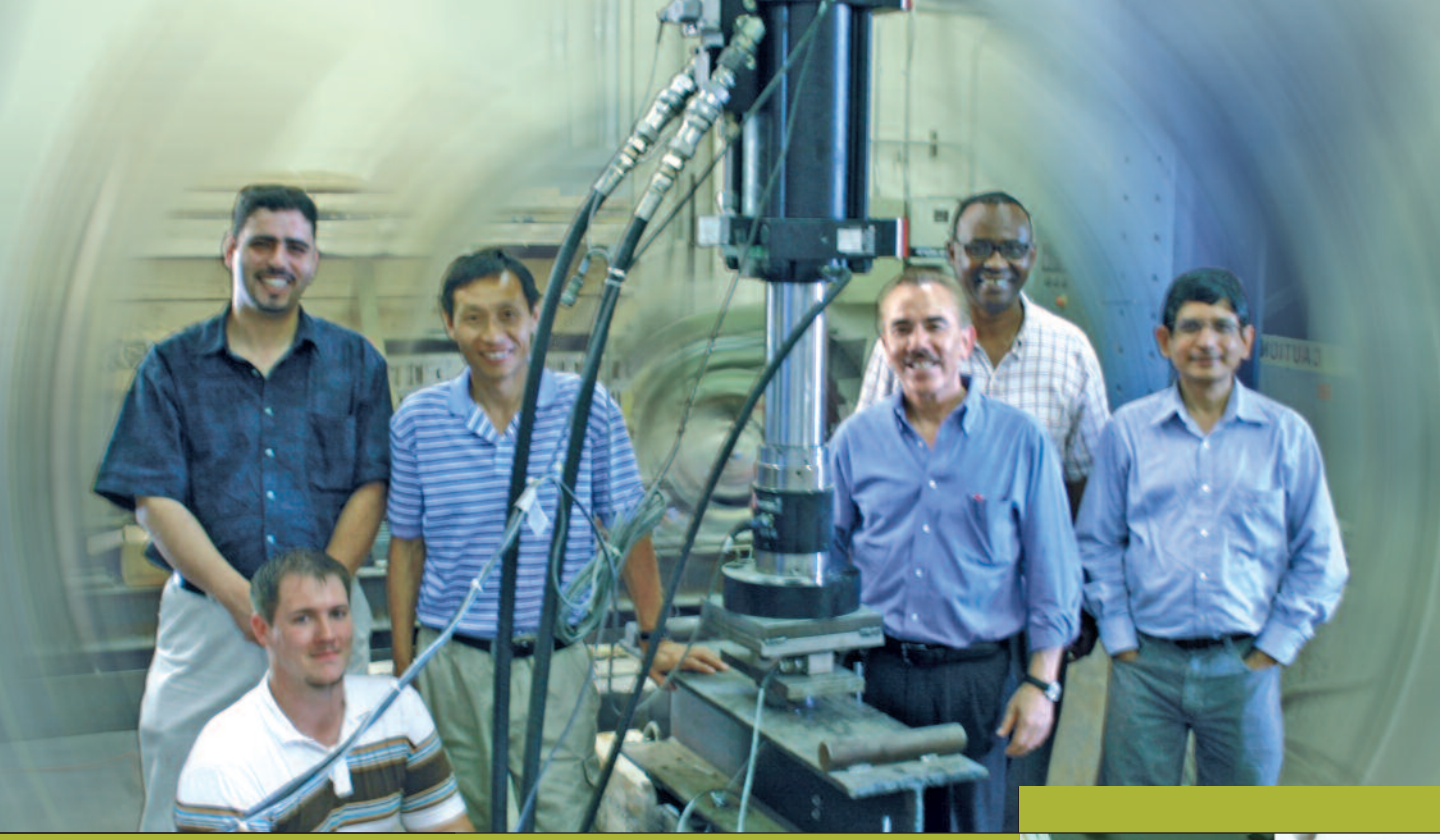
Dr. Julio Davalos
West Virginia University

Making Bridges and Tunnels Safer

Structural engineering professor **Dr. Julio Davalos** of West Virginia University is widely recognized for his research to enhance and upgrade transportation infrastructure, making it more secure against potential terrorist attacks.

His tunnel protection research, funded by the U.S. Department of Homeland Security, involves a system that can automatically deploy giant air bags if a tunnel starts to collapse or sustains a gaping blast hole. These air bags would be made of a heavy-duty, but inflatable, material that would temporarily seal breaks in the tunnel, allowing just enough time for people to evacuate.

Davalos's team, including a Marshall University collaborator, will use its $500,000 Research Challenge Grant to help establish a center for transportation infrastructure research.



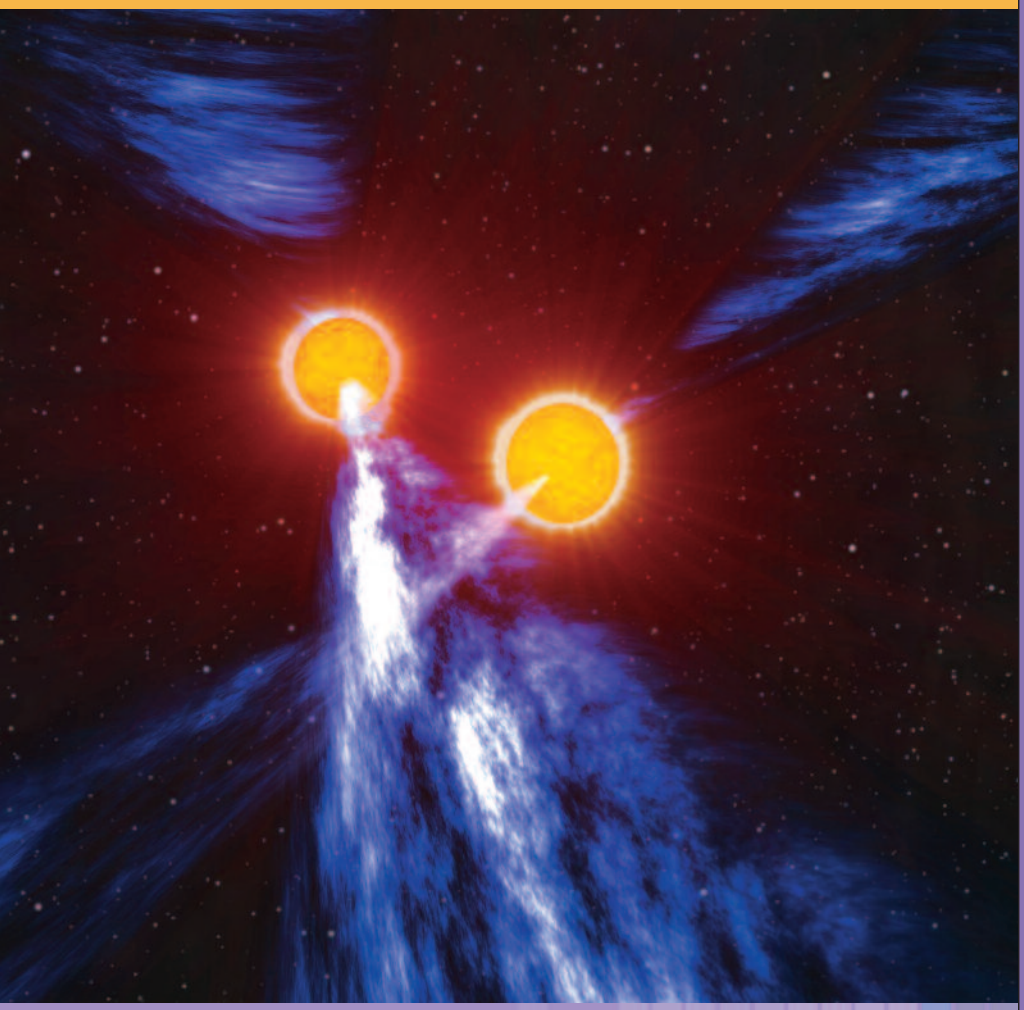
Proving Einstein's Theory of Relativity

Dr. Maura McLaughlin is taking the astronomy program at West Virginia University to new heights. As a 2008 Alfred P. Sloan Research Fellow, she is one of only 118 early career researchers in the U.S. and Canada to be selected for the highly competitive fellowship.

She and her husband, fellow astrophysicist Dr. Duncan Lorimer, were members of a group of researchers who discovered the only known double-pulsar system in 2003. Most recently, McLaughlin was part of a team that used the double-pulsar to confirm Albert Einstein's theory of general relativity.

McLaughlin and Lorimer are co-investigators in a $490,000 grant from the state's Research Challenge Fund to develop a center for astrophysics at WVU.

Photos by Ted Webb and Greg Ellis, WVU Photographic Services



"I'd like to think Einstein would be proud of the team's work and excited that we were able to confirm his theory. . . . I am thrilled to be a part of a chapter in the history of this important scientific theory."

Dr. Maura McLaughlin
West Virginia University

Discovering Threats to the Immune System

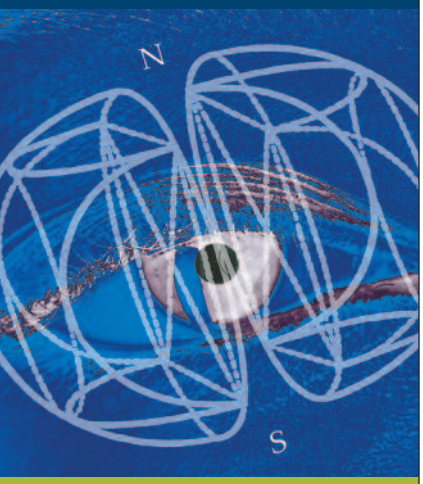
Marshall University researcher **Dr. Hongwei Yu** has discovered how a relatively benign form of common environmental bacteria becomes pathogenic. The discovery will not only have profound health benefits for patients with cystic fibrosis, but it may also have major economic development implications.

Yu's findings were published in April 2007 in the *Proceedings of the National Academy of Sciences*, one of the world's most prestigious scientific journals. His discovery also led to a patent application and the development of a new West Virginia biomanufacturing business—Progenesis Technologies LLC.

Photo by David Fattaleh for Marshall University

"This is truly a major milestone for my lab. This national recognition by our peers is very important. It is equally important that this [research] originated at Marshall University."

Dr. Hongwei Yu
Marshall University



Using Biometrics to Enhance National Security

Computer science and engineering professor **Dr. Arun Ross** and his colleagues at West Virginia University are at the cutting edge of research in one of the fastest-growing technologies of the future—biometrics. The university is a national leader in this area of science, which uses genetic "signatures" like fingerprints, iris scans and vocal scans as foolproof means of personal identification.

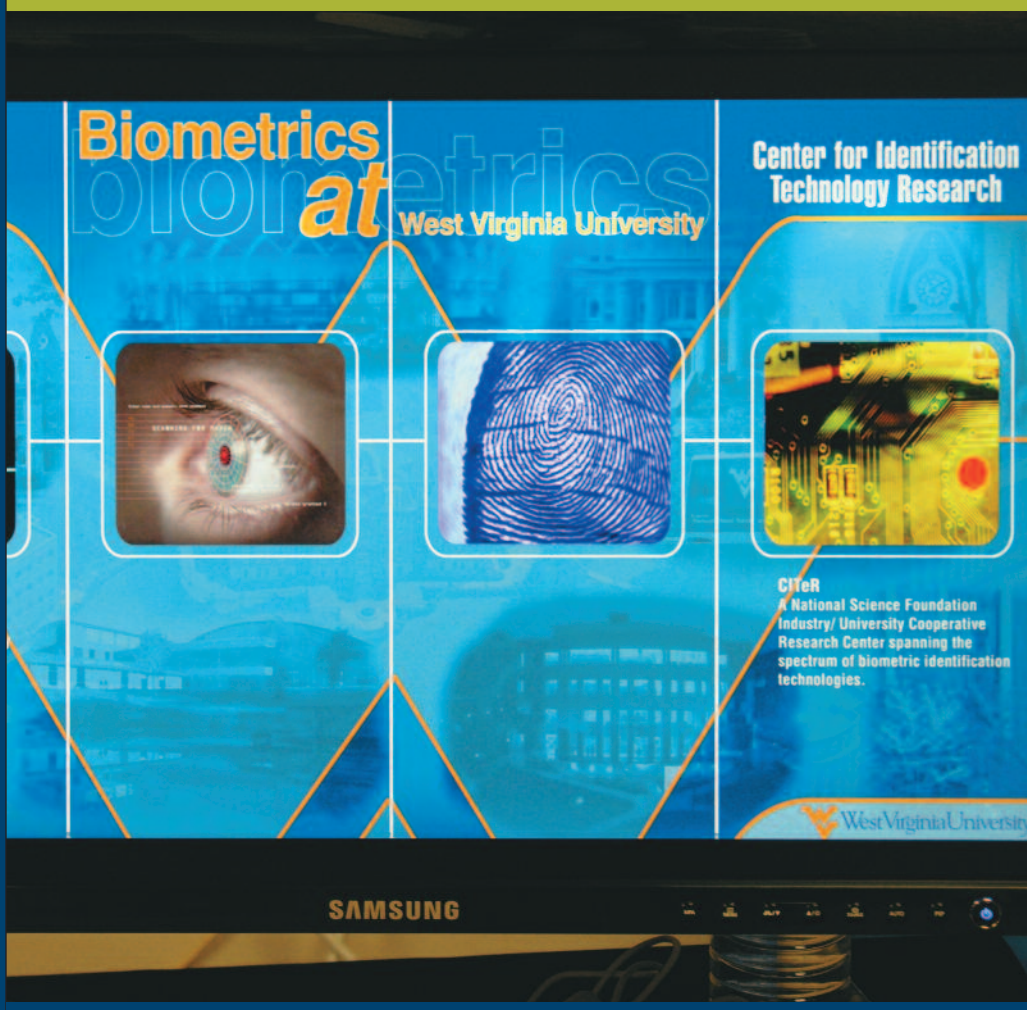
The recipient of the National Science Foundation's prestigious CAREER award for young researchers, Ross also recently received a $470,000 Research Challenge Grant from the state to develop comprehensive systems for storing, analyzing and using the data being collected from multiple sources for the purposes of intelligence and national security.

He joined WVU in 2003 as part of the NSF EPSCoR Research Infrastructure Improvement faculty recruitment program.

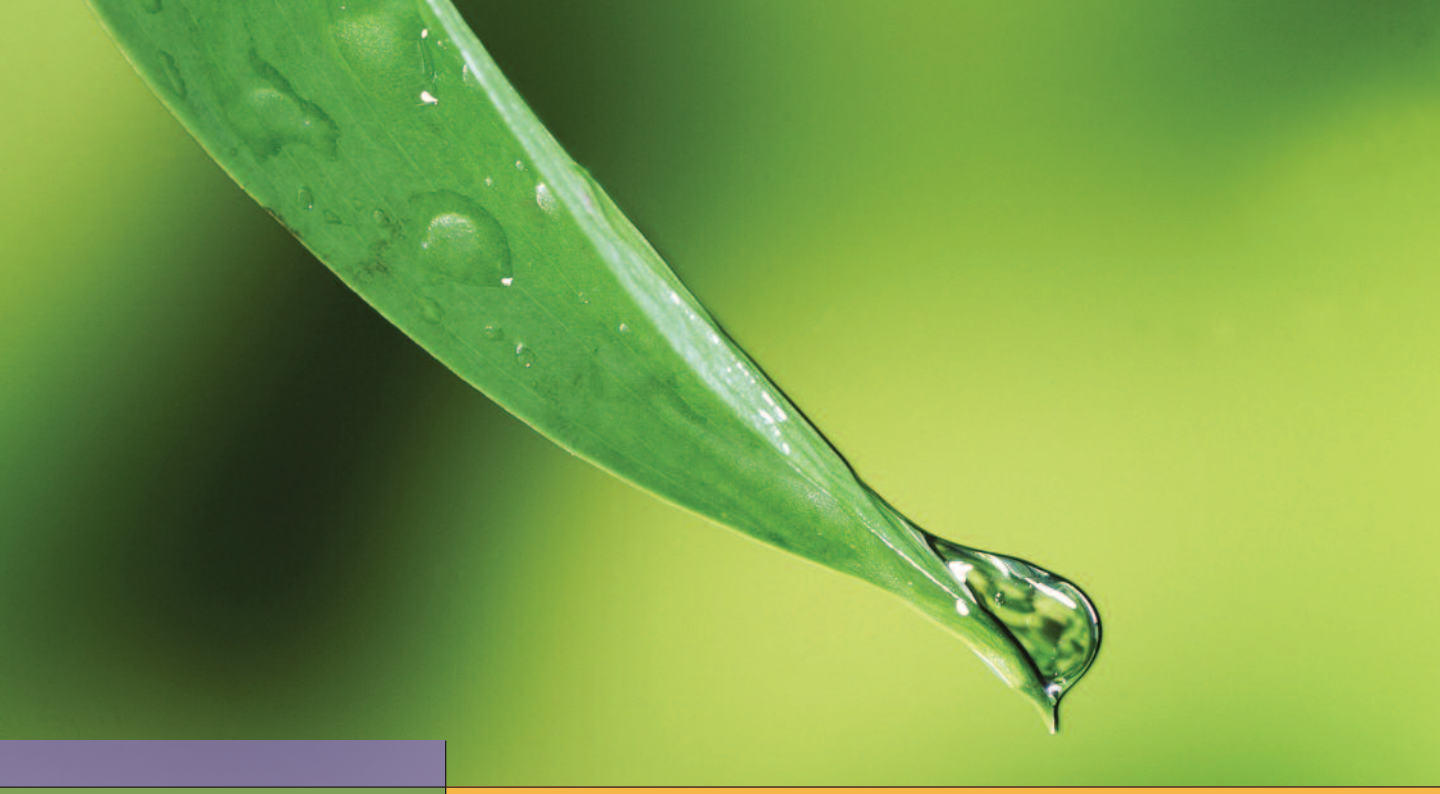
Photos by Gwen Morgan, National Science Foundation

"This [Research Challenge Grant] funding will enable us to . . . address the very real and challenging problem of processing intelligence information collected from a variety of sources, thereby accurately identifying potential threats to national security."

Dr. Arun Ross
West Virginia University




Result



West Virginia
EPSCoR Goals

- Sponsor and maintain world-class research
- Develop academic resources, a skilled workforce and a competitive research infrastructure
- Encourage the transfer of technology to support economic growth, jobs and life enhancement
- Encourage participation of K-12, women, rural underserved and minorities in science, technology, engineering and mathematics
- Maintain a focus within state government to attain these goals statewide

EPSCoR—
A National Infrastructure Program for Scientific Research

West Virginia is one of 27 states and territories that participate in the National Science Foundation Experimental Program to Stimulate Competitive Research. In West Virginia, the NSF's EPSCoR is administered by the Division and overseen by the West Virginia EPSCoR Advisory Council.

NSF established the national EPSCoR in 1979 in response to congressional concerns about the geographic concentration of federal support for academic research. The program is intended to enhance the research capability of scientists in states that traditionally have lacked strong university-based research efforts, to help them to compete more successfully for a portion of the federal academic research and development budget. Today, EPSCoR is a family of competitive, merit-based programs at seven federal agencies including NSF; the National Institutes of Health; the departments of Defense, Energy and Agriculture; NASA; and the Environmental Protection Agency.

The NSF program helps eligible states improve their competitiveness through Research Infrastructure Improvement awards. These five-year awards of up to $3 million annually support academic research infrastructure improvements in areas selected by the state as critical to its long-term science and technology competitiveness and economic development.

West Virginia received its second infrastructure improvement award from NSF in May 2006. The goal of the project is to propel West Virginia researchers toward competitiveness in cutting-edge nanoscale science. New knowledge generated by this work will have potential applications in the areas of health care, homeland security, forensic science and other related fields. The West Virginia EPSCoR's partners in this exciting research and education opportunity are West Virginia University, Marshall University and West Virginia State University.

West Virginia Research Challenge Fund

The Research Challenge Fund provides the foundation for many of the competitive grant programs administered by the Division. The fund's establishment in 2004 by the West Virginia Legislature is evidence of West Virginia's ongoing commitment to supporting science and technology research and education.

The largest awards the Division sponsors through the fund are the Research Challenge Grants, which support the creation of research centers and foster economic development and work force advancement at the state's two research universities.

The Division released a report in March 2008 that shows the state's $8.4 million investment in this grant program has resulted in a substantial return on investment.

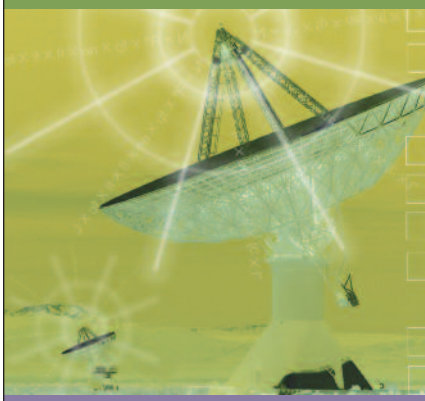
The report summarizes the results of the first six scientific research projects funded through the program and concludes that over five years, these projects at West Virginia University and Marshall University leveraged external funding of more than $20 million, and resulted in five startup companies with five-year projected revenues of $124 million, 10 patent applications and five patents. In addition, two university research centers with industry partners were formed and one production facility is under development.

Two of the startup companies—Protea Biosciences LLC in Morgantown and Vandalia Research Inc. in Huntington—estimate they will be hiring 295 additional employees in the next five years.

The second round of Research Challenge Grant awards, made in May 2007, is funding projects ranging from the development of a world-class center for astrophysics at WVU to cardiovascular and cancer research at MU.

Research Challenge Fund
Return on $8.4M Investment

- More than $20M in external funding
- Five startup companies with five-year projected revenues of $124M
- Ten patent applications/five patents
- Two university research centers with industry partners

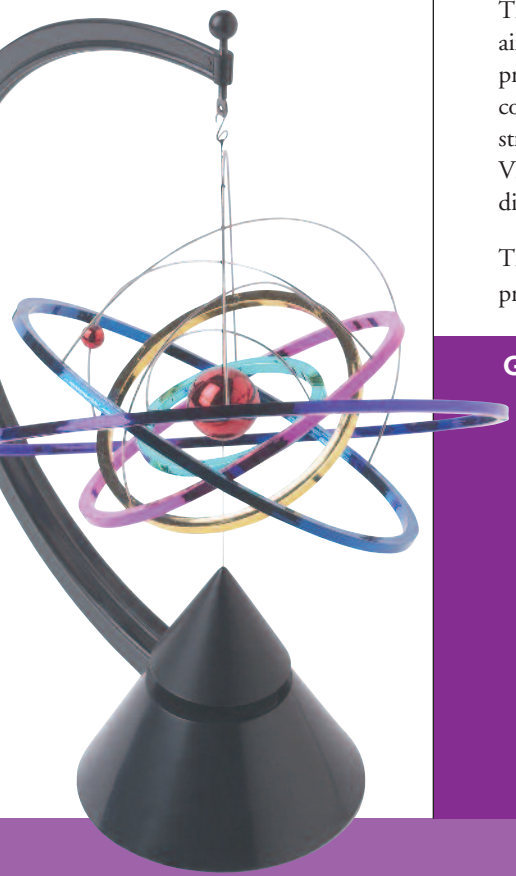


Eminent Scholars Recruitment and Enhancement Program

Governor Joe Manchin and the West Virginia Legislature set aside an additional $10 million for research in fiscal year 2008. This new, one-time funding is in addition to the state's ongoing commitment through the Research Challenge Fund, and will be used to further the goals of the state's *Vision 2015* strategic plan for building research infrastructure.

The new funding supports an Eminent Scholars Recruitment and Enhancement initiative aimed at increasing the doctoral-level workforce at the state's two research universities. The program will allow the institutions to hire a total of 12 scholars with demonstrated research competitiveness in specialties that will help the universities build on their core research strengths, including biotechnology at Marshall University and energy materials at West Virginia University. In addition, researchers who specialize in clinical trials for new drug discoveries and treatment therapies will be recruited for the WVU Health Sciences Center.

The institutions received $5 million each and were required to match the state funds with private donations, for a net investment of $20 million in the state's research infrastructure.



Goals

- Securing a larger share of federal and foundation research funds
- Increasing the institutions' volume of intellectual property creation, patenting and licensing
- Enhancing the stature of Marshall University and West Virginia University as vibrant, world-class research institutions
- Attracting other talented faculty and graduate students to West Virginia
- Fostering new companies and creating new collaborations with industry to commercialize technologies
- Creating new economic opportunities and jobs for West Virginians

West Virginia Research Trust Fund

A Good Investment for West Virginia's Future

Thanks to the vision and leadership of West Virginia's policymakers, the state is poised to take a giant leap forward in its efforts to develop a new, prosperous and diverse economy based on a highly skilled and educated workforce.

On March 8, 2008, the West Virginia Legislature passed Senate Bill 287 to create the "Bucks for Brains" West Virginia Research Trust Fund, which will match state dollars with private donations to encourage university research and leverage private giving. Governor Joe Manchin proposed the initiative, saying the investment would be necessary for West Virginia to stimulate world-class research and development and to reap the related benefits of high-tech, high-wage industries. The initial $50 million for the fund came from surplus state revenue.

The goal of the trust fund, which is similar to successful programs in other states, is to strengthen the most promising research departments at Marshall University and West Virginia University—ultimately leading to business spin-offs, new patents and job creation. The West Virginia School of Osteopathic Medicine and the state's four-year colleges and universities also will benefit from the program through grants for research supported by interest earned on the trust fund.

The trust fund will support research in energy and environmental sciences; nanotechnology and materials science; biological, biotechnical and biomedical sciences; and biometrics, security, sensing and related information technologies.

Goals

- Expanding the economy
- Creating jobs
- Patenting new ideas
- Keeping the state's best and brightest here at home

Outreach and Education Initiatives

Lab 304

The Division is sponsoring a segment focusing on science, technology and research during "Outlook," West Virginia Public Broadcasting's news and public affairs television program.

The series of stories, called "Lab 304," premiered in February 2008 with a story about replacing the azimuth track on the Robert C. Byrd Green Bank Telescope in Pocahontas County. Other segments have focused on the Governor's Schools for Math and Science, the new astrophysics program at West Virginia University, and a Marshall University project to develop LCD screen technology for the visually impaired.

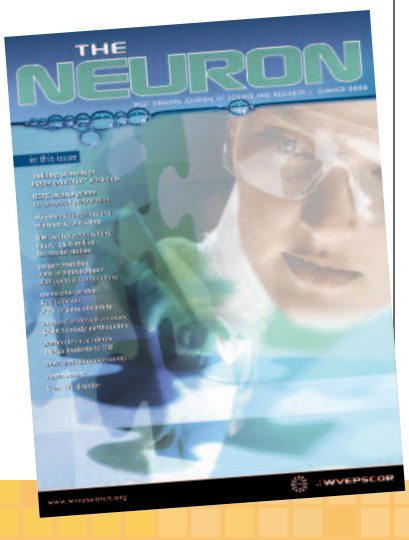
Louis Stokes Alliance for Minority Participation

The Kentucky-West Virginia LSAMP supports the long-term goal of increasing the number of students who earn doctorates in STEM (science, technology, engineering and mathematics) fields from racial/ethnic minorities underrepresented in these fields.

The Division supports the alliance by reserving up to $40,000 from its Underrepresented Research Scholars Program for grants to LSAMP students.

The Neuron

The Neuron is the Division's quarterly journal of science and research. The publication, which features faculty achievements, university technology transfer initiatives and other news, is mailed to more than 1,700 people and is available online.



www.wvresearch.org

The Division rolled out a redesigned website in May 2008. The new website, www.wvresearch.org, is designed to be easier to use and is accessible for users with disabilities. The new site features the latest information for the state's research community, including grant opportunities, news and a library.

STaR Symposium

The biennial Science, Technology and Research (STaR) Symposium serves as a forum for the state's science and technology enterprise. Higher education faculty members, researchers, students, state policymakers and members of the business community gather at the event to share research developments, ideas and collaborations.

The 2007 symposium drew more than 170 people to Morgantown. The next event is scheduled for April 2009.

GRANTS PROGRAMS

GRANTS TO INSTITUTIONS FOR RESEARCH INFRASTRUCTURE

Eminent Scholars Recruitment and Enhancement Program

This program builds research infrastructure at the state's two research universities, primarily funding salaries and startup packages for nationally competitive researchers in targeted specialties. The program has allowed the universities to hire a total of 12 scholars with demonstrated research competitiveness, supported research infrastructure and provided graduate fellowships.

Eligibility: West Virginia University and Marshall University are eligible.

West Virginia Research Trust Fund

This program allows the state's two research universities to double private gifts that support expansions to research faculty and infrastructure in key areas linked to economic development, health care and job growth. This "Bucks for Brains" fund supports research in energy, biotechnology, biomedical, identification technology, material science and engineering, and environmental science. Private gifts are matched dollar-for-dollar.

Eligibility: West Virginia University and Marshall University are eligible. The state's other public four-year institutions of higher education, as well as the West Virginia School of Osteopathic Medicine, are eligible to apply—by responding to specific requests for proposals—for matching grants supported by the interest earned on the trust fund.

GRANTS TO INSTITUTIONS FOR STUDENT PROGRAMS

Governor's School for Math and Science Grants

These grants provide funding to support residential summer programs for middle school students to explore scientific research.

Eligibility: All four-year institutions of higher education and non-profit educational organizations in West Virginia are eligible.

STEM Fellows Program

This grant program helps recruit and support outstanding graduate students in STEM (science, technology, engineering and mathematics) fields. Block grants are awarded to institutions for the purpose of providing fellowships to graduate students.

Eligibility: Full-time faculty, deans and academic administrators at West Virginia University and Marshall University are eligible.

SURE Program

These grants help colleges and universities provide Summer/Semester Research Experiences to undergraduates in STEM (science, technology, engineering and mathematics) fields. Block grants are awarded for the purpose of providing small research stipends to undergraduate students.

Eligibility: Full-time faculty, deans and academic administrators at all four-year institutions of higher education in West Virginia are eligible.

Underrepresented Research Scholars Program

This program supports the meaningful involvement of outstanding underrepresented students in STEM (science, technology, engineering and mathematics) research at the undergraduate level. Women, underrepresented racial/ethnic minorities (Hispanic/Latino; American Indian or Alaskan Native; Black or African American, and Native Hawaiian or other Pacific Islander), people with disabilities and first-generation/low socioeconomic status students may participate.

Eligibility: Tenure-track or research faculty at all four-year institutions of higher education in West Virginia are eligible.

GRANTS TO FACULTY MEMBERS

Innovation Grants

These grants fund improvements in scientific equipment, curriculum, minor renovations, classroom instruction, delivery and pedagogy. The program targets innovative, cohesive and/or comprehensive projects in laboratory/classroom settings that encourage undergraduate students to continue careers in science, mathematics and engineering.

Eligibility: Full-time faculty at the primarily undergraduate institutions in West Virginia may apply; West Virginia University and Marshall University faculty are not eligible.

International Innovation Grants

This program supports development of an international component in one or more STEM (science, technology, engineering, and mathematics) programs. The program encourages STEM faculty and students to think globally about research, collaboration, grant opportunities and exchange programs. Grant funds may be used for a variety of innovative purposes and activities including curriculum, scientific equipment and travel.

Eligibility: Tenure-track faculty at all four-year institutions of higher education in West Virginia are eligible.

Instrumentation Grants

The program purchases scientific equipment for advanced undergraduate laboratories to help encourage undergraduate students in West Virginia to continue careers in science, mathematics and engineering.

Eligibility: Full-time faculty at the primarily undergraduate institutions in West Virginia may apply; West Virginia University and Marshall University faculty are not eligible.

Mini-Grants for Proposal Preparation

These grants aid faculty members in the preparation of research or research equipment proposals for submission to external agencies or foundations. This program may support the applicant in collection of preliminary data, idea development or dedication of time to focus on a larger research program and proposal.

Eligibility: Tenure and tenure-track faculty at all four-year institutions of higher education in West Virginia are eligible.

Research Challenge Grants

This grant program supports large, focused STEM (science, technology, engineering and mathematics) research projects that may lead to research centers and economic development. Projects should assist the institution in its ability to successfully compete for external funding on a national and international basis by providing incentives to significantly increase capacity.

Eligibility: Full-time faculty or research professors at all four-year institutions of higher education in West Virginia are eligible.

GRANTS AWARDED

Fiscal Year 2007

Instrumentation Grants

John Enz	*Alderson-Broaddus College*	$20,000
John Burns	*Bethany College*	$20,000
Sharmistha Roy	*Davis & Elkins College*	$20,000
Sarah Dodson	*Fairmont State University*	$20,000
Andreas Baur	*Fairmont State University*	$ 9,425
Bruce Edinger/Zac Loughman	*West Liberty State College*	$20,000
Jay Wiedemann	*WVU Institute of Technology*	$17,000
Luke Huggins	*West Virginia Wesleyan College*	$19,024

Innovation Grants

Mark Flood	*Fairmont State University*	$40,000
Michelle Herdman	*University of Charleston*	$40,000

International Innovation Grant

James Lewis	*West Virginia University*	$40,000

STEM Fellowships

Sarah Denman	*Marshall University*	$228,276
Peter Gannett	*West Virginia University*	$330,116

SURE Stipends

Stephen Brown	*WVU Institute of Technology*	$10,000
Sarah Denman	*Marshall University*	$71,000
Robert Kreisberg	*West Liberty State College*	$40,500
Keith Garbutt	*West Virginia University*	$69,000

Mini-Grants for Proposal Preparation

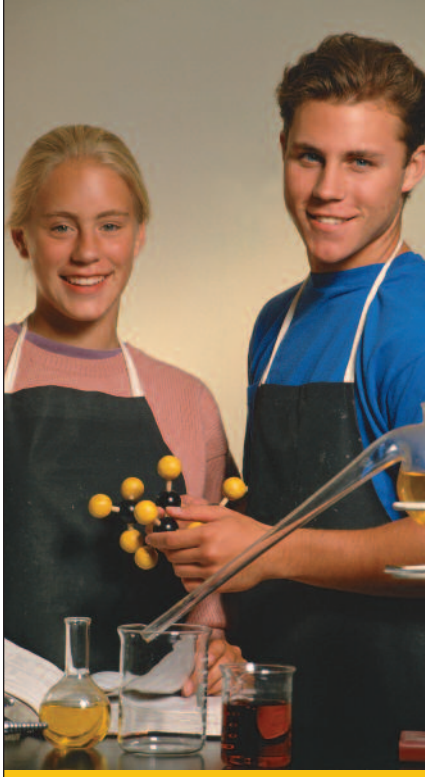
Tesfaye Belay	*Bluefield State College*	$5,000
Xin Li	*West Virginia University*	$4,500
Huong Nguyen	*Marshall University*	$4,500
F. Robin O'Keefe	*Marshall University*	$5,000
William Price	*Marshall University*	$5,000
Guofen Yu	*WVU Institute of Technology*	$5,000
Guo-Zhang Zhu	*Marshall University*	$4,500

Governor's Schools for Math and Science Grants

Andrew Blackwood	*National Youth Science Foundation*	$114,950
Keith Garbutt	*West Virginia University*	$115,000

Research Challenge Grants

Rakesh Gupta	*West Virginia University*	$100,001
Trevor Harris	*West Virginia University*	$212,233
Richard Niles	*Marshall University*	$289,200
Michael Norton	*Marshall University*	$314,999
Aaron Timperman	*West Virginia University*	$290,000



GRANTS AWARDED

Fiscal Year 2008

Instrumentation Grants

David Aylmer	*Alderson-Broaddus College*	$20,000
Joseph Allen	*Concord University*	$20,000
David O'Dell	*Glenville State College*	$19,800
Sherie Edenborn	*West Virginia Wesleyan College*	$19,721
Albert Popson	*West Virginia Wesleyan College*	$19,958

Innovation Grants

Hasan El-Rifai	*WVU Institute of Technology*	$34,974
Kim Bjorgo-Thorne	*West Virginia Wesleyan College*	$39,754

International Innovation Grant

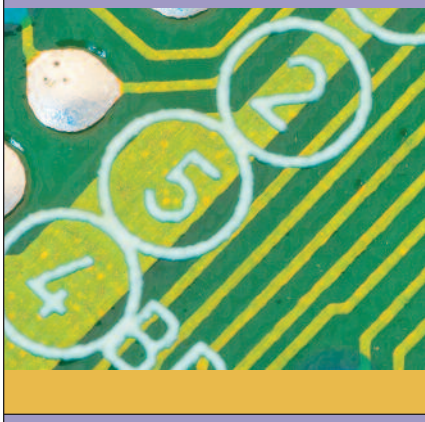
Eric Blough	*Marshall University*	$39,945

SURE Stipends

John Maher	*Marshall University*	$69,000
Melinda Kreisberg	*West Liberty State College*	$34,000
Keith Garbutt	*West Virginia University*	$75,000
Stephen Brown	*WVU Institute of Technology*	$25,000
Jeanne Sullivan	*West Virginia Wesleyan College*	$16,600

Mini-Grants for Proposal Preparation

Brian Antonsen	*Marshall University*	$4,500
Tesfaye Belay	*Bluefield State College*	$5,000
Rana Jisr	*WVU Institute of Technology*	$4,500
Laura McCunn	*Marshall University*	$4,500
Xiaoping Sun	*University of Charleston*	$4,500
Wendy Trzyna	*Marshall University*	$4,500
Jason Wells	*West Virginia School of Osteopathic Medicine*	$4,500
Kimberly Williams	*West Virginia University*	$5,000



Research Challenge Grants

Maura McLaughlin	*West Virginia University*	$490,730
Eric Blough/ Philippe Georgel	*Marshall University*	$500,000
Julio Davalos	*West Virginia University*	$500,000
Arun Ross	*West Virginia University*	$470,885
Ever Barbero	*West Virginia University*	$499,840

STEM Fellows

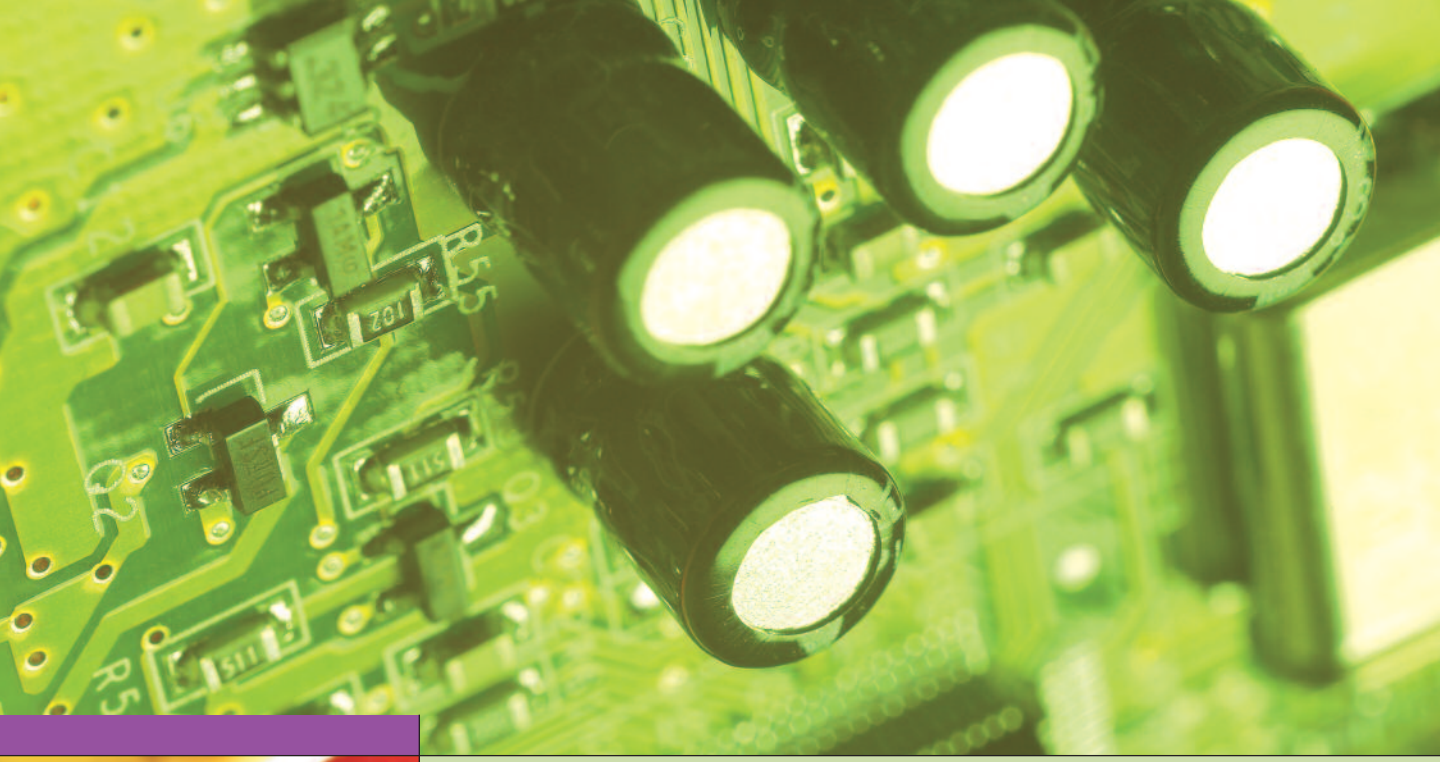
Peter Gannett	*West Virginia University*	$337,950
Sarah Denman	*Marshall University*	$232,776

Governor's Schools for Math and Science Grants

Andrew Blackwood	*National Youth Science Foundation*	$114,950
Keith Garbutt	*West Virginia University*	$115,000

Underrepresented Research Scholars Program

Marshall University	$66,560
West Virginia University	$ 1,000
West Virginia State University	$11,475



FINANCIAL STATEMENTS

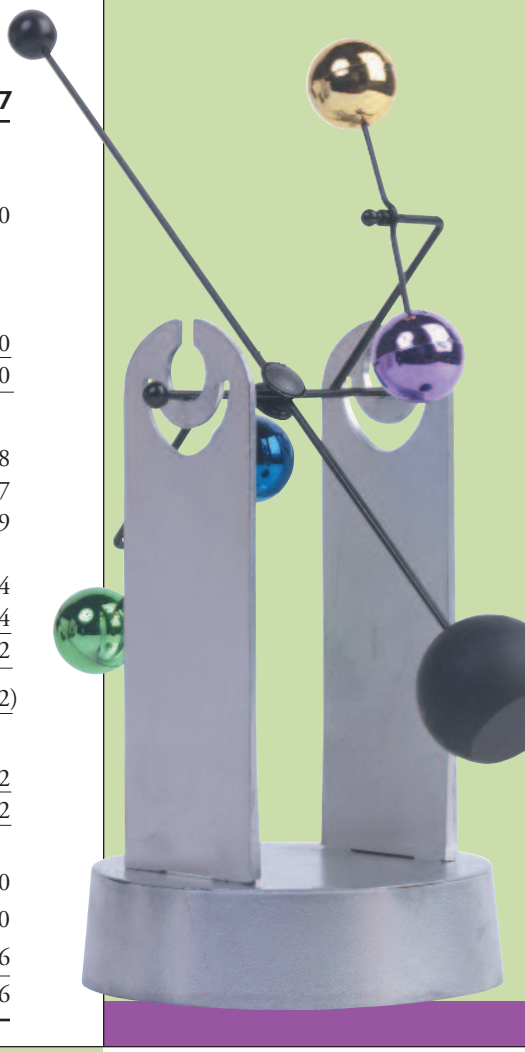
The following analysis of the Division of Science and Research financial statements provides an overview of its financial activities for the years ended June 30, 2008, and June 30, 2007.

Summarized Financial Information (unaudited)
Assets, Liabilities, and Net Assets

June 30,	2008	2007
ASSETS		
Cash and cash equivalents	$ 3,371,232	$ 3,548,317
Accounts receivable, net	-	1,366
Investment in plant, net	17,276	21,656
Total Assets	$ 3,388,508	$ 3,571,339
LIABILITIES		
Accounts payable	$ 10,846	$ 27,704
Amounts due to institutions	762,754	694,155
Accrued liabilities	15,500	9,765
Compensated absences, current	33,981	29,861
Compensated absences, non current	19,240	32,888
Accrued liabilities OPEB	5,767	-
Total Liabilities	$ 848,088	$ 794,373
NET ASSETS		
Invested in capital assets, net of related debt	15,276	21,656
Unrestricted	2,525,144	2,755,310
Total Net Assets	2,540,420	$ 2,776,966
Total Liabilities and Net Assets	$ 3,388,508	$ 3,571,339

Summarized Financial Information (unaudited)
Revenues, Expenses and Changes in Net Assets

June 30,	2008	2007
OPERATING REVENUE		
Contracts and grants		
Federal	$ 3,833,972	$ 1,800,190
State	13,762	-
Local	-	-
Private	-	-
Miscellaneous-registration fees	10,648	10,950
Total Operating Revenue	$ 3,858,382	$ 1,811,140
OPERATING EXPENSES		
Salaries and wages	$ 391,426	$ 332,798
Benefits	91,800	84,977
Supplies and other services	307,679	191,879
Utilities	-	-
Research sub awards	7,746,414	5,928,354
Depreciation	7,978	7,834
Total Operating Expenses	$ 8,545,297	$ 6,545,842
OPERATING INCOME (LOSS)	$ (4,686,915)	$ (4,734,702)
NON OPERATING REVENUE (EXPENSES)		
State appropriations	$ 4,450,369	$ 4,752,522
Net Non Operating Revenue	$ 4,450,369	$ 4,752,522
INCOME BEFORE OTHER REVENUE, EXPENSES, GAINS OR LOSSES	(236,546)	17,820
INCREASE (DECREASE) IN NET ASSETS	(236,546)	17,820
NET ASSETS-BEGINNING OF YEAR	2,776,966	2,759,146
NET ASSETS-END OF YEAR	$ 2,540,420	$ 2,776,966



RESEARCH CHALLENGE FUND EXPENSES AND OBLIGATIONS

	FY07*	FY08*	FY09**	FY10
Research Challenge Grants	1,757,301	1,379,683	3,255,925	1,401,000
STEM Fellows	572,278	494,924	746,135	500,000
SURE Program	200,091	198,800	289,535	219,600
Governor's Schools for Math and Science	225,604	230,454	344,471	230,000
Energy	1,545	146,118	227,337	250,000
Research Group Initiation	288,348	54,294		
Marshall University Cost Share	354,252	595,643	642,337	250,000
West Virginia University Cost Share	201,955	540,048	711,609	500,000
West Virginia State University Cost Share	5,108	35,821	34,071	200,000
Supplemental Cost Share	591,839			
Administration	266,339	336,079	381,367	400,000
Opportunity Fund	26,866	23,902	72,464	50,000
Underrepresented Research Scholars Program		31,949	86,976	80,000
Technical Assistance	149,849	132,893	171,101	144,000
TOTAL EXPENSE/OBLIGATION	$4,641,375	$4,200,608	$6,963,326	$4,224,600
Unobligated Balance	3,857,410	3,739,655	776,329	551,729
Current Year Lottery Income	$4,399,864	$4,082,853	$4,000,000	$4,000,000

* *Actual expenses and revenue*
** *FY 09 commitment + prior year carryforward*
indicates NSF RII Cost Share

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