

# TRANSPORTATION

Building Jobs through Transportation **FOCUS** Spring 2005

News and Information from the Rahall Transportation Institute



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## Patent Application for Ceramic Light Approved for RTI, MU Researchers, W.Va Small Manufacturing Company

*Electroceramescent  
Light Bulbs Could  
Bring 30+ Jobs to  
Southern W. Va*

by Errin Jewell

A multi-disciplinary research team whose members include individuals from RTI, Robert C. Byrd Institute for Advanced Flexible Manufacturing (RCBI) and Marshall University Research Corporation (MURC), recently received approval by the United States Patent and Trade Office for a new, electroceramescent light bulb that may lead to 30 manufacturing jobs in Greenbrier County, W.Va.

The light bulbs were created through a public/private partnership developed through RTI, RCBI and MURC after they secured a \$1.6 million research and development grant from the United States Department of Energy. This grant provided the critically needed financial resources for a local manufacturing firm, Meadow River Enterprises, Inc., of Lewisburg, W.Va., and Alfred University of Alfred, N.Y., to access the higher education expertise needed to improve the technology for its ceramic light product and its manufacturing processes.

CONTINUED: PAGE 3



Above: (from left) Dr. Richard Begley, RTI Associate Director; Bob Waters, patent attorney; and Dr. Michael Norton, Marshall University Professor of Chemistry, display their recently approved patent application.





## Plymale's Perspective

### The Director's Report

## Passage of Bill means Bright Future for West Virginia

Recently, Congressman Rahall was instrumental with the passage of a major bill through the U.S. House of Representatives titled, The Transportation Equity Act: A Legacy for Users (HR 3). Allowing for the extension of federal transportation programs, the bill provides funding for the next five years and calls for a \$283.9 billion infrastructure investment.

Just to give you an example of the impact of this funding, it has been estimated by the United States Department of Transportation that for every \$1 billion spent on infrastructure, approximately 47,000 new jobs are created. Imagine the impact this will have on the creation of new jobs throughout West Virginia!

According to Rahall, \$17.5 million of the funding secured through the bill has been granted to RTI to assist in continuing our work as a University Transportation Center. "These projects will improve the safety of our roads, provide new routes to make travel through our state easier, and create many new jobs for our area," Rahall said.

In addition to the funding allotted for RTI, Rahall has been successful in securing \$75 million in federal funding towards projects in Southern West Virginia. This

funding, along with the required 20% state share, breaks down as follows:

- \$30 million for the Beckley Intermodal Gateway
- \$35.2 million for the I-73/I-74 Corridor (also called the King Coal Highway, this roadway goes through Mercer, Mingo and Wayne Counties)
- \$6.2 million for Route 10 in Logan County
- \$9 million for the Coalfields Expressway
- \$5.6 million for the New River Parkway
- \$5.6 million for the Beckley Bypass
- \$1.4 million for the Shawnee Parkway
- \$600,000 for the Beaver/Shady Spring traffic project

This bill, which has taken nearly two years of debate, provides crucial funding for our state.

Prior to the bill's passage, Rahall said, "As we travel the long road towards passing this long over-due bill, I will continue to work to secure as much money as

possible for our state's roads and highways."

With the money now secure, West Virginia's future is looking brighter than ever.

Sincerely,

Robert H. Plymale

*"... it has been estimated by the United States Department of Transportation that for every \$1 billion spent on infrastructure, approximately 47,000 new jobs are created. Imagine the impact this will have on the creation of new jobs throughout West Virginia!"*

*Nick J. Rahall, II*





### CONTINUED: FROM PAGE 1

Don Osborne, president of Meadow River Enterprises, said, “The ceramic sign can be used in a series of products and product applications such as transportation-related information and safety signs, typical advertisement signs and residence address markers and has the potential to produce significant energy cost savings for governmental agencies, businesses owners and the typical homeowner since they can operate on solar power. And we plan on all the manufacturing to be done in West Virginia.”

Dr. Richard Begley, RTI associate director and one of the light bulb researchers said, “What really distinguishes electroceramesscent panels from traditional lighting is that most conventional lamps obtain their light as a byproduct of electricity being converted into heat at a single point-source. By comparison, electroceramesscent lamps generate light through a direct energy-to-light conversion process — a process in which virtually no heat is generated, an evenly lit area is produced and virtually all energy is used efficiently.”

A new company, ECER Technologies, Inc., was also developed to introduce the electroceramesscent technology to the market, Begley said.



*Above: Dr. Richard Begley displays two of the electroceramesscent light panels in a photo that has been distributed worldwide by the Associate Press (photo credit: Randy Snyder).*

According to ECER Technologies’ website, the electroceramesscent lights are “literally sheets of flat treated steel, which emit a unique and highly conspicuous type of illumination when energized. These lamp panels do not utilize filaments, glass tubes, fragile components, or gas in their construction.”

Their non-radiant and multi-light-point properties eliminate glare and light pollution and their longevity saves operational energy as well as energy associated with manufacturing replacement parts. The bulbs also can work underwater, withstand gunshots, drop from high altitudes and have a lifespan of more than 50,000 hours, Begley said.

ECER tested the lights in three West Virginia state parks in 2002, and the military is using the technology in radiosopes and vehicle dashboards, Osborne said.

Research began in 1998. The patent application lists eight persons as co-inventors:

Dr. Richard Begley, RTI associate director; Dr. Michael Norton of Marshall University; six others from Meadow River Enterprises, Inc. and the Alfred University College of Ceramics in Alfred, New York.

According to Ron Schelling, director of MURC, he has received 3 patents for Marshall University researchers but none have produced a royalty at this time. Therefore this may represent the first royalty stream from a patent for the Marshall University Research Corporation.

“Receiving the patent is good for Marshall,” Begley said. “It indicates researchers at the university are hard at work and doing worthwhile experiments, which will move Marshall further toward national prominence.

“It shows the quality of our research. An approved patent is the highest level of scrutiny you can get on a national standing.”



## Moving *Forward* with Ohio River Development

*Guest Column by Rep. Nick J. Rahall, II*




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"The Port of Huntington is a remarkable resource for the tri-state region because the Ohio River connects us to the entire Nation. The insights and enthusiasms, which I witnessed at the recent Maritime Summit...support my long-standing belief that Ohio Basin navigation is now and will long be a critical part of that formula."

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In January, I convened the first Maritime Summit on Ohio River Research and Development. This two day event sponsored by the Rahall Transportation Institute and Marshall University Center for Environmental Geotechnical and Applied Sciences was a direct result of conversations I had with local leaders last year on the importance of using Transportation, Technology and Tourism to enhance regional development and create sustainable and living wage jobs in the Tri-State.

Thanks to the dedicated efforts of Marshall University faculty and staff, informed industry professionals, government leaders and well regarded members of the academic community, this Maritime Summit turned out to be a watershed event. I was deeply gratified to have been joined on the opening night of the Summit by Congressman Ted Strickland of Ohio and Congressman Geoff Davis of Kentucky, my colleagues in the U.S. House of Representatives. In addition, there were 156 participants from nine states and the District of Columbia also attending.

One of the primary goals of the Maritime Summit was to create the forum for promoting and protecting the region's vital contribution to the national transportation system through its river ports, terminals and dedicated workforce. The Port of Huntington is a remarkable resource for the tri-state region because the Ohio River connects us to the entire nation. The insights and enthusiasms, which I witnessed at the recent Maritime Summit in Huntington, support my longstanding belief that Ohio Basin navigation is now and will long be a critical part of that formula.

During the 108<sup>th</sup> Congress, I worked to have Marshall University designated as a National Maritime Enhancement Institute (NMEI) as part of the University Transportation Center program established through RTI. Marshall was so designated, in part for its capabilities of "providing leadership in the solution of national problems," and Marshall joins other leading Universities such as University of California at Berkley, Massachusetts Institute of Technology and US Merchant Marine Academy as NMEIs.

The purpose of the NMEIs is to create a research-oriented atmosphere that lends itself to providing effective input for addressing maritime issues. There are a number of potential areas of study for the Port of Huntington: integration of information technology to enhance the economic viability of the inland waterway system, infrastructure optimization including methods for evaluating lock and dam operations, and environmental considerations including response mechanisms for spills and other emergencies. As a next step, a meeting was convened on April 8<sup>th</sup> to discuss this new area of opportunity and I am confident that under the guidance of (Ret.) Colonel Dana Robertson, a proven leader in maritime issues for the region, that our efforts in addressing the pressing maritime issues of our region will proceed.



# FRA Awards RTI \$1 Million

by Jennifer Wedge

Congratulations are in order for RTI, which has recently been appropriated an additional \$1 million from the Federal Railroad Administration (FRA). The money was allotted to work on any type of research related to railroad safety. According to Pete Dailey, RTI Research Associate, the funding will further expand Ground Penetration research and High Accuracy GPS Surveying. Additionally, RTI is currently finalizing the work plan of the funding, which includes the deployment of ITS technologies to the rail corridors in West Virginia.

One of the largest university-based research programs of the FRA, this marks the sixth appropriation RTI has received, with total funding to date exceeding \$3.7 million. As a result of the funding, RTI has traveled to different areas to conduct FRA research surveys.



In the past few months, research has been conducted in New Mexico, Missouri and Alabama.

Earlier this month, Pete Dailey, Zhibin Sheng, and Alejandro Sanchez went to New Mexico to work with Burlington Northern Santa Fe (BNSF) railroad, where they

used high-accuracy GPS surveying to measure and monitor the movement of the rail tracks and how they buckle. This marked the first application of high-accuracy GPS in the United States.

While in Kansas City, Mo., the researchers were able to collect data from a derailment investigation, and in the rail yard of NS Railroad Birmingham, Ala., data were used to regrade elevation in a 50-year-old classification yard. The work with NS in Alabama has resulted in a joint publication by Norfolk Southern with RTI researchers, which will be presented at the American Railway Engineering and Maintenance-of-Way Association (AREMA) Conference in Chicago on Sept. 27, 2005.

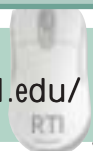
“Thanks to the previous FRA allocations, rail track surveying and surface/subsurface monitoring technologies have been developed and are already employed in Alabama, New Mexico and Missouri by the railroad industry,” Daily said.

## RTI Invited to Present at Volpe Transportation Center

by Jennifer Wedge

Recently, RTI was represented in Cambridge, Massachusetts at The John A. Volpe National Transportation Systems Center. Dr. Richard Begley, RTI Associate Director, Dr. Tony Szwilski, Chair, Division of Environmental Science and Safety Technology, and Pete Dailey, RTI Research Assistant, were invited to the center to present their project accomplishments to experts from the Federal Rail Administration and the Volpe Center. Covering topics such as the geophysical footprints of the rail corridors in West Virginia, Begley demonstrated displaying data from RTI studies using TEDIS. Daily presented information on “High Accuracy GPS Surveying” and how to adapt that technology for use on railroads.

Internationally recognized and known for its transportation and logistics expertise, the Volpe Center helps decision-makers define problems and pursue solutions to lead transportation into the 21<sup>st</sup> Century. Essentially, the center serves as a catalyst for innovation for the transportation industry’s promising future.





## Jewell Selected 2004 RTI Student of the Year

by Ashlee Gibson

Errin Jewell, of Barboursville, W.Va., was selected as the RTI 2004 Outstanding Student of the Year for her excellence in academic achievement as well as her contributions to her university and community.

The award was presented to Jewell and 29 other students at the 14<sup>th</sup> Annual Outstanding Student of the Year award ceremony at the Omni Shoreham Hotel in Washington, D.C. The award is given to one student from each University Transportation Center at the annual Transportation Research Board conference Jan. 8, 2005.

Jewell began working for RTI after completing a bachelor's degree at Marshall University as a student instructor for a K-12 summer outreach program. She instructed middle and high school students about the six technologies needed to design and construct vehicles and created online lesson plans and activities that teachers may access from RTI's Transportation Outreach on the Web (TOW) website.

After obtaining her Master of Arts in Journalism, Errin was hired as the Public Affairs specialist at RTI. She designed the formats for most of the RTI technology

transfer promotional materials that are still in use today. In addition, she also developed and helped to produce a 12 minute promotional video about the RTILEGO robotic outreach program.

She is currently enrolled in a post-graduate grant writing course.



Above: All of the Outstanding Student of the Year honorees, Jewell is in the second row, seventh from the left.

## Haynes Joins RTI Staff as Web Technician

by Ashlee Gibson

Christopher Haynes recently joined RTI as a Web Design Technician, after receiving a Bachelor of Arts from Marshall University in 2002.

His duties include updating and maintaining RTI's website, creating graphics and other materials for several web-based projects.

Before joining RTI, he worked at Marshall University's Center for Business and Economic Research (CBER) as a web technician, graphic designer and editor-at-large.

Haynes also previously worked as an assistant editor at a gaming website named Happy Puppy.

At RTI, he is currently working on a transit training webpage on the RTI website that links to the DOPT website.

He and his wife, Lynn, live with their two mixed-breed dogs, Benjamin and Pete.





## RTI Co-Hosts Fifth Image Mabase & Survey Integration with GIS Seminar by Jennifer Wedge

To educate transportation professionals on GIS software systems, the Rahall Transportation Institute, along with Marshall Community & Technical College and Marshall University College of Science co-sponsored a one-day seminar February 15, 2005. Titled "Image Mabase and Survey Integration with GIS," the seminar focused on instructing participants on the integration of multiple types of aerial and satellite imagery into image processing and GIS software systems focusing on transportation systems.

Held in the Remote Sensing GIS and Computer Simulation Laboratory of Marshall University's Science Building, the seminar targeted field bio and geo scientists, engineers, surveyors, field and data mapping technicians, and environmental specialists. The workshop provided hands-on techniques to incorporate surveys over types of data such as: imagery and digital elevation models; imagery and social demographic data; and browser image web 3-D models available from government and non-government agencies.

"This is the fifth GIS workshop held since the summer of 2003, clearly demonstrating that a need exists for this type of training for transportation professionals. Marshall University veteran faculty and trained GIS Technicians have masterfully developed this course, and RTI as well as the W.Va. workforce are indeed fortunate to have this expertise," said RTI Program Coordinator Barbara Roberts.

A total of 18 individuals attended the seminar, which was taught by the following instructors: Ralph Oberly, Ph.D., Marshall University Professor of Physics; James Brumfield, Ph.D., Marshall University Professor of Physical Science; Sean Litteral, M.S., RTI Research Associate; Juan de Dios Barrios, M.S., RTI Research Associate; and Sanghong Yoo, M.S., RTI Research Associate.



*A student uses the GIS software while participating in the recent seminar*

## Railroad & Highway Traffic Safety Courses held at Blackwater Falls by Jennifer Wedge

The West Virginia Division of Transportation (WVDOT) recently partnered with RTI to present the Railroad and Highway Traffic Safety and Operations Seminar at Blackwater Falls State Park. John Ball, P.E., RTI research associate, and Ray Lewis, P.E., Traffic Engineer with the West Virginia Division of Highways, served as the main instructors/moderators, presenting information on the principles of railroad and highway operations in addition to grade crossing safety. Jim Buckley of CSX and Mark Woosley of Norfolk Southern served as guest speakers for the seminar and an Operation Lifesaver presentation was provided by Kester Ross of W.Va. Public Service.

Directed specifically at WVDOT workers, the three-day seminar was offered Jan. 26-28, 2005, and again Jan. 31 – Feb. 2, 2005. According to RTI research assistant LeAndria Reed, the seminar not only provided highway and state DOT personnel the opportunity to earn Technical Education Credits (TEC), but while becoming more aware of railroad operations. Emphasizing the key aspects of design, construction and maintenance of highway and railroad industries, the seminar provided participants with insight into the safety and security of both railroad and highway personnel and deals with issues such as safety at railroad crossings.

"In addition to West Virginia, RTI has presented this seminar in Ohio, Tennessee and Montana. The two-day course enables participants to update skills and exchange ideas with peers for future collaborations," Ball said.





## Busbee Receives 'Educator of the Year' Award from NOHVCC

by Errin Jewell

Dr. Raymond Busbee received the "Educator of the Year Award for 2004" from the National Off-Highway Vehicle Conservation Council (NOHVCC) at the organization's 15<sup>th</sup> national conference in Ontario, Calif., March 15-20, 2005.

Busbee has been instrumental in working with RTI, NOHVCC and Marshall University to create a series of courses in off-highway vehicle recreation. Approval for the courses, which may be taken individually or together to constitute an undergraduate or graduate minor, was officially signed at the 2004 national conference.

These courses are designed to provide students and professional employees of planning and land management agencies with course work in all aspects of off-highway vehicle recreation, planning and construction of OHV trails and facilities, and operation and management of such facilities.

The goal of the conference was to continue the NOHVCC mission to create a communications forum through which OHV enthusiasts, and their organizations and supporters can share information and experiences,



participate in educational opportunities, and become partners in creating a positive image of the sport.

Federal and state land managers, off-highway vehicle recreation groups and educators gathered at the national conference to discuss the future of motorized access to public and private lands.

Additional sponsors included

the Federal Highway Administration and the National Association of OHV Program Managers.

The NOHVCC is a publicly supported, educational foundation organized for the sole purpose of promoting safe, responsible, family oriented off-highway recreational experiences. It is a forum for organizations and supporters of OHV recreation, including OHV manufacturers, related businesses, affiliated foundations, OHV dealers, clubs and enthusiasts, to become partners in creating a positive future for the sport.

## Staff, Students Featured in Marshall University Commercial

by Errin Jewell

As part of Marshall University's Campaign for National Prominence, four RTI employees were recently featured in a television commercial.

Richard Begley, associate director; LeAndria Reed, research assistant; Stephanie Hardman, graduate research assistant; and Alejandro Sanchez, research assistant, were featured in the 30 second commercial for Marshall University.

Dr. H. Keith Spears, MU Vice President for Communications and Marketing, said the RTI students and staff were included in the commercial because "we wanted to demonstrate the applied research and work that goes on in engineering.

"Students seeking an academic program and state leaders who help fund universities need to understand the

'hands-on' opportunities at Marshall. The Rahall Transportation Institute is a direct connection for the students who need an education and West Virginia government and businesses that need transportation research with results. Having RTI research professionals in the video really made a positive statement for us."

In addition to highlighting engineering research that takes place at Marshall, the segment may also bring awareness to the university's new engineering program, which allows students majoring in engineering to complete the final two years of their engineering programs without having to transfer to other institutions. Marshall is currently working through the campus and statewide approval process associated with offering its own undergraduate engineering degree program in the near future. The commercial runs on tri-state area local stations and cable channels.



### AppaLEGOCity Featured as Virtual Vacation Spot on WOWK-TV 13 *West Virginia Travel* Segment

by Ashlee Gibson

RTI's AppaLEGOCity was recently showcased on the March 2 segment of *West Virginia Travel* on WOWK-TV 13.

AppaLEGOCity is located in the information technology laboratory at RTI headquarters. This small, robotic city has two web cameras that provide live views of a simulated LEGO city with an oval track, two monorails, a traffic gate and an autonomous, line-following vehicle. Linda Hamilton, pre K-12 outreach instructor, coordinates AppaLEGOCity.

Middle school students learn the concept of teleoperation through this system, which is usually integrated into an Intelligent Transportation Systems LEGO Robotics workshop at RTI headquarters or through site visits to elementary schools by RTI staff. AppaLEGOCity can be operated through the web and viewed with a live web camera after viewers download Red Rover Operating System software from the RTI site.

"Using LEGOs gets students excited about real-life mathematics. They consider it fun rather than educational," Hamilton said. For more information on the Intelligent Transportation Systems using LEGO Robotics at RTI, check out Hamilton's web site at <http://www.marshall.edu/lego>.



Above: A cameraman from WOWK 13 gets footage of AppaLEGOCity.

### Off Highway Vehicle Recreation Course Available Online

by Ashlee Gibson

The first of a four course series in off-highway vehicle recreation will be offered online at Marshall University in the summer of 2005. This course, PLS 450E/550E, Introduction to Off-Highway Vehicle Recreation, is a 12-week course that will begin May 16, 2005.

Dr. Raymond Busbee, Professor of Recreation and Park Resources, will teach the course. All eligible students are welcome, but must be admitted to Marshall University before enrollment. Registration begins April 4, 2005.

This series of courses was developed through the collaborative efforts of the Recreation and Park Resources program at Marshall University, RTI and the National Off-Highway Vehicle Conservation Council.

Complete registration and enrollment information is available at <http://www.marshall.edu/muonline>. For further information, contact Dr. Busbee at 304-696-2922 or [busbee@marshall.edu](mailto:busbee@marshall.edu).

### Summer Engineering Camp Opens Career Options for Students

by Ashlee Gibson

High school students from the tri-state region who are entering their junior year are invited to apply for the "Exploring Engineering: Academy of Excellence 2005" June 19-24 at Marshall University.

The Academy is designed to encourage high school students to explore career options in engineering by participating in hands-on engineering activities, touring engineering-related facilities and interacting with engineering professionals.

RTI, Society of American Military Engineers Huntington Post, Marshall University's College of Information Technology and Engineering, other organizations and individual engineers sponsor the event.

Students are selected based on academic transcripts and letters of recommendation, and they must be enrolled in a college preparatory curriculum. Applications are available online at [www.marshall.edu/eeae](http://www.marshall.edu/eeae). For more information, contact the EEAE Committee at [eeae@marshall.edu](mailto:eeae@marshall.edu) or (304) 746-2041 or (304) 696-5453.





## RTI Teams with Organizations, Brings Transportation Safety Programs to Local Students

by Errin Jewell

*Left: Ball gives an OL presentation at Enslow Middle School.*

*Right: Baker informed visitors at the OL booth during the TIPS health fair.*

Thanks to several opportunities made possible through RTI, local students are learning about the importance of being safe around various modes of transportation.

On Friday, Feb. 11, John Ball, research associate, and LeAndria Reed, research assistant, participated in Enslow Middle School's Student Health Fair by giving an Operation Lifesaver, Inc. (OL) presentation. Students at the school learned facts about safety at railroad and highway crossings as well as the dangers of trespassing on railroad property.

More than 12 organizations and service agencies addressed health and safety issues that are particularly relevant to middle school students.

Ball and Reed, who have been representatives for OL since 2002, provided the students with rail safety informa-

tion, which included a video presentation.

Their presentation took place in conjunction with a presentation by the United States Coast Guard. Auxiliary members discussed water safety with students and showed them photographs of local accidents that occurred when individuals trespassed on docks, barges and other river equipment.

Other participants addressed topics including: averting teens from using tobacco, preventing skin cancer, maintaining internet safety, walking and running for health, learning about nutrition and screen-

ing for dental health problems; staying in school and handling bullying.

Ball, Reed and Kimberley Baker, RTI contract specialist and OL board member, also hosted a booth at the first



*Above: Members of the USCG Auxilliary warn students at Enslow Middle School about the dangers of trespassing on barges.*



Transportation Injury Prevention and Safety (TIPS) Youth Safety Fair Feb. 26.

TIPS is a collaborative effort between RTI and the St. Mary's Medical Center Foundation. The purpose of TIPS is to provide transportation safety education and injury prevention programs to schoolaged children. TIPS instructors focus on preventing injury among students who are operating motorized and non-motorized recreation equipment, such as all-terrain vehicles, motorbikes, bicycles and motorized scooters, as well as vehicle safety including the dangers of drugs and alcohol.

Approximately 300 students visited booths hosted by 26 vendors during the event, which took place at the Veteran's Memorial Field House.

Dr. Raymond Busbee, professor of Exercise Science, Sport and Recreation at Marshall University, and Christy Franklin, director of St. Mary's Regional Neuroscience Center, coordinate the TIPS program.





## Pre-K-12 Outreach Expands, Includes High Tech Corridors Schools

by Ashlee Gibson

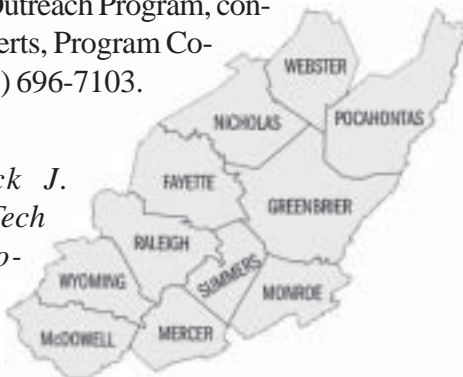
Several schools within the Nick J. Rahall High Tech Corridors program area, an 11-county region located along I-64 from Beckley to Lewisburg, W.Va, have become part of RTI's Adopt-a-School program.

Fifth graders at Crichton Elementary are progressing through several basic LEGO construction exercises. After the class was introduced to the Robotics program, members have participated in multi-day exercises that involve a cities and transportation theme. Students are first introduced to LEGO robotics through computer exercises, icon identification usage, parts nomenclature and information technology such as computer control and communication processing to the robotic unit.

The first year's project exercises include traffic systems, information technology in the city, evolution of personal transportation and evolution of public transportation. Math topics include measuring, timing, averaging, graphing and calculating; history, geography and social studies skill sets are also inclusive. There are also preliminary plans to conduct a multi-day introductory robotics program during the summer.

Additional programs are in the works for Rupert Elementary and Lewisburg Elementary. To participate in RTI's Pre-K-12 Outreach Program, contact Barbara Roberts, Program Coordinator, at (304) 696-7103.

Left: The Nick J. Rahall, II High Tech Corridors program includes eleven counties.



## Faculty & Student Spotlight: Michael Norton and Ava Dykes

by Ashlee Gibson

Name: Michael L. Norton

Education: Ph.D. in Solid State Chemistry from Arizona State University

Title: Professor in Chemistry

Birthplace: Gulfport, MS

Contributions to RTI: Dr. Norton is a co-inventor of the solid state electrocermecent lamp. He also worked in the development of characterization methods and developing methods extending the environmental stability of the lamps.

E-mail: Norton@marshall.edu



Name: Ava Caudill Dykes

Education: BS, MS in Chemistry, Marshall University. She is currently a doctoral candidate from MUSOM Physiology Department

Birthplace: Ashland, KY

Contributions to RTI: She assisted researchers on the solid state electroceramescent lamp project during the initial research stages.



Faculty and Student Spotlights will highlight a faculty or staff member and student in each issue of Transportation Focus. If you like to be considered for the next newsletter, contact Errin Jewell at (304) 696-7165 or jewell4@marshall.edu.





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Read *Transportation Focus* online at [www.marshall.edu/ati/news/newsletter.htmlx](http://www.marshall.edu/ati/news/newsletter.htmlx)

## Upcoming Events

### Conferences

#### August 3-4, 2005

5th Annual Technical Forum, Geohazards in Transportation in the Appalachian Region. Charleston, W.Va.

### Pre-K-12 Outreach

Summer 2005 LEGO Robotics Activities at Cabell County Libraries, W.Va.

<b>June 13</b>	10 a.m. Main Library 1:30 p.m. Salt Rock
<b>June 17</b>	1:30 p.m. Milton
<b>June 20</b>	10:30 a.m. Barboursville 1:30 p.m. Salt Rock
<b>June 21</b>	1:30 p.m. Gyandotte
<b>June 23</b>	1:30 p.m. Cox Landing
<b>June 24</b>	1:30 p.m. Gallaher
<b>June 14-17</b>	TBA 4-H Camp
<b>June 21-24</b>	Huntington 4-H Camp
<b>June 28-30</b>	Huntington 4-H Camp (Duplo)

#### July 11-15

9:30 a.m., Aquabots Summer Camp, James Morrow Library. Huntington, Pre-K-3

#### July 18-22

9:30 a.m., Aquabots Summer Camp, James Morrow Library. Huntington, 4th-6th Grade

#### July 25-29

9 a.m., Aquabots Summer Camp, James Morrow Library. Huntington, 7-12th Grade

### Technology Transfer Activities

#### May 3-4, 2005

PASS Driver Certification Course. Charleston, W.Va.

#### June 9, 2005

PASS Americans with Disabilities (ADA) Course. Clarksburg, W.Va.

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Spring 2005

