Efforts to seek continuing funding for the development and study of advanced sensors and sensor materials at Alabama A&M University got a major boost recently when a leading government scientist touted the program as very progressive with many applications for defense and space technology.

“The research is very good and it is covering areas of interest to NASA and the Department of Defense,” says Dr. Donald Frazier, chief scientist for physical chemistry at the NASA-Marshall Space Flight Center, in Huntsville. “This program should be continued. It is definitely a good program; the people are...continued on page 4

A biodiesel technology project at Alabama A&M University is serving as one of the cornerstones in the state’s search for ideas on alternative forms of energy. A state panel charged with helping to recommend an alternative energy policy to the Alabama Legislature met with AAMU students, researchers, and area government and business officials during a forum on campus recently. One of the top agenda items was to highlight the University's effort in biodiesel fuel production.

The legislative subcommittee on biofuels and alternative energy, chaired by state Sen. Parker Griffith, MD, D-Huntsville, saw and praised the “Biodiesel Classroom on Wheels,” which is a joint innovation of Alabama A&M University and...continued on page 5
Officials from the Department of Defense Missile Defense Agency (MDA) recently conducted a two-day tour of scientific and research facilities at Alabama A&M University, during which they were briefed on the University’s research and development capabilities. The two-man MDA team included Mr. Lee Rosenberg, director of the Office of Small Business Programs (OSBP), and Dr. Pravat K. Choudhury, program manager for Mentor Protégé and the program on Historically Black Colleges and Universities/Minority Institutions (HBCU/MI).

The MDA develops, tests and prepares missile defense systems for deployment. The OSBP provides guidance and technical assistance to advance the growth and development of small businesses and HBCU/MIs in becoming competitive contractors.

Mr. Rosenberg said the visit was intended to give his team a face-to-face opportunity to meet with researchers and review the University’s capabilities in physics and engineering, and explore potential areas in which the two entities could establish other contracting opportunities. “We welcome the opportunity to assist the small business community in pursuing MDA procurement opportunities,” he said.

The University currently has a $300,000 contract with MDA to conduct a study on laser beams. The project, called “Laser Beam Coherent Combining Using Multiplexed Volume Holographic Optical Elements and Phase Conjugation,” is to investigate the use of phase conjugation techniques and test a volume of optical elements that would coherently combine laser beams. The principal investigator of the study is Dr. Nickolai Kukhtarev, research professor of Physics. At a briefing on November 29, the MDA officials saw presentations by research faculty and graduate students on various projects in the Department of Physics, led by Dr. Mohan Aggarwal, chair of the department. The briefing followed tours of laboratories in which studies are being conducted on “Czochralski” Crystal Growth, Melt Growth, Solution Growth, Scanning Electron Microscopy,
X-ray Diffraction, and Optical/Lasers.

“The briefing was very informative and enlightening,” said Rosenberg, following the presentations. “I had no idea about the level of capability at this institution. We see a lot of potential at this school where we could develop some ventures.”

Rosenberg, whose office was recently located from Washington, D.C. to the Redstone Arsenal in Huntsville, said “my doors” are open at any time if the University finds and identifies areas in which “we can do business.”

Dr. Aggarwal said impressing this caliber of people with AAMU and our work removes the perception that very little might be happening at AAMU. “The fact that the office of SBA has moved to Huntsville is an excellent opportunity that should improve our chances for further funding,” he said.

The following day, the two officials toured the AAMU Research Institute and held discussions with the staff.
The study of advanced sensors at AAMU is a three-year, $1M project funded by the National Science Foundation (NSF) under the Research in Science and Engineering (HBCU-RISE) program. Dr. Frazier chairs the External Advisory Committee (EAC) of RISE. The EAC advises research investigators on the technical aspects of the study. It includes scientists and experts from various universities and research institutes around the nation.

“We are glad that the advisory committee is pleased with the work of the RISE program,” says Dr. Mohan D. Aggarwal, principal investigator of the project and chair of the Department of Physics, following a meeting of the EAC to assess the progress of the project. There are various technologies involved in this project, Dr. Aggarwal said. “We are developing sensors ranging from radiation to biological, temperature and chemical sensors, and students pursuing Master’s and Ph.D. degrees.”

The project, which started in 2005, includes scientists and researchers from the AAMU Physics Department, NASA-Marshall Space Flight Center, and 11 students. Three of those students will receive Ph.D. degrees at the end of this year, according to Dr. Aggarwal.

“We will be encouraging the people responsible for this program (NSF) to renew the funding when we submit our report,” Dr. Frazier said. “It is definitely a good program. This research has applications for exploration, especially for NASA. Any time we need sensors in high temperatures, for example, this would be important for sensing of chemicals in the atmosphere. Life control systems would be important.” He said NASA is seeking technology with application for many areas including research on a lunar surface. “These are areas that NASA could have interest in, and the work here falls in those areas,” Dr. Frazier said.

Other members on the EAC with Dr. Frazier are: Dr. Amar Bhalla, professor of Material Science at the University of Texas at San Antonio; Dr. Gail Brown, chief scientist at the Air Force Wright Patterson Materials Laboratory; Dr. Larry Dalton, George B. Kauffman professor of Chemistry and Electrical Engineering at the University of Washington; Dr. Gregory Nordin, professor of Physics at Brigham Young University; Dr. Paul Ruffin, senior research scientist, U.S. Army Missile and Aviation Command; Dr. N.B. Singh, manager of Materials Science Technology at Northrop Grumman Corporation; and Dr. Ashok Singhal, president, CFD Research Corporation.

University officials, including the Vice President for Institutional Research, Planning and Sponsored Programs, Dr. Teresa Merriweather Orok, and the Dean of the School of Arts and Science, Dr. Matthew Edwards, thanked the EAC for its commitment and dedication to the AAMU project. “We appreciate your expertise in ensuring that this project is on track and what we produce here is of the highest quality,” Dr Orok told the committee members. “We are very proud of the work our faculty is doing under the leadership of Dr. Aggarwal. We are producing and graduating very capable students because of the training they are getting from these professors.”

Other researchers and investigators involved in the development and study of sensors and materials at AAMU are: Dr. Matthew Edwards, Radiation Sensors; Dr. Anup Sharma, Biological and Chemical Sensors; Dr. B.R. Reddy, Temperature Sensors; Dr. Ashok Batra, Chemical Sensors; and Dr. Benjamin Penn, NASA/MSFC technical expert on the project.
Biodiesel

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The Alabama Department of Agriculture and Industries. The equipment, the vision of AAMU research assistant professor Dr. Ernst Cebert, promises a future that routinely turns used vegetable oil into automotive fuel.

Working with state Agriculture Commissioner Ron Sparks and Jeff Breeden of BiodieselLogic, Dr. Cebert, Deputy Agriculture Commissioner Glen Zorn and State Farmer’s Market Manager Nick Zorn helped arrange for the classroom to tour local fairs, legislative conferences and other energy related community events across Alabama since late summer. The aim is to raise awareness about the possibility of biodiesel fuel, which involves converting oils - including waste oil from restaurants or home kitchens - into diesel fuel with just a little methanol and salt added, Dr. Cebert said.

“This is a great moment for us on campus,” he said. “The key thing is this can use any used oil, and how it is put together is useful for the whole community.”

Cebert said he hopes that AAMU soon will be able to power its trucks, tractors and buses with biodiesel to convert the university into an environmentally friendly green campus, but conceded that more funding is needed to make that dream a reality.

Speaking at the forum, Dr. Griffith told the students at AAMU that they can be proud of the work going on at the university. He urged them to insist on using biofuel technology as they move into adulthood and become parents. Dr. Griffith said freeing the United States from dependence on foreign oil would reduce the need to send troops around the world to protect America’s economic interests.

He said the subcommittee’s challenge will be to coordinate a number of ideas, including incentives and technical questions about what is alternative fuel, toward an energy policy that increases production and demand in Alabama.

“Ultimately it will come down to incentives, for producers and research and development,” Dr. Griffith said.

Dr. Cebert, a member of two legislative subcommittees: Biofuels and Alternative Energy, and Research and Development, will be present when state lawmakers are expected to unveil their energy proposals in January for consideration during next year’s legislative session.

IRPSP workshop to focus on Finding Grant Opportunities and Electronic Submissions

The Office of Sponsored Programs will host a workshop on Finding Grant Opportunities and Electronic Submissions. The workshop is scheduled to be held Tuesday, January 15, 2008 in the LRC’s multimedia lab from 8 a.m. - noon, and continuing from 1pm – 5pm.

At this workshop, prospective and current Principle Investigators (PI’s) will be provided useful information related to identifying external sources of funding in addition to electronically submitting applications to the funding agencies. This workshop will provide key guidance that will effectively increase the extramural research funding received by AAMU. Electronic submission methods that will be reviewed include Grants.gov, NSF’s Fastlane, and NASA’s enSpire systems.

Please see page 7 for calendar of workshops.
Alabama A&M University students are continuing to collect top positions at major national and international competitions. At the recent annual scientific paper competition of the national Institute of Food Technologists (IFT) in Chicago, AAMU students from the Department of Food and Animal Sciences beat out their rivals from schools like Cornell, Rutgers and Purdue to capture three of the top four awards.

Judith Boateng, now a post-doctoral student, won first place with her poster on “Protective effects of rice bran on chemically induced colon tumorigenesis may be attributed to synergistic/addictive properties of its bioactive components.” Taking third place was Louis Shackelford, a Ph.D. student who presented a poster on “Non-digestible carbohydrate and a natural and synthetic anti-inflammatory agent on Azoxymethane-induced aberrant crypt foci in Fisher 344 male rats.” Fourth place went to Venugopal Reddy Panala, now a Ph.D. graduate, whose poster was on “Rice bran and rice bran oil suppressed the formation of Azoxymethane induced aberrant crypt foci in Fisher 344 rats.”

Of the 16 finalists selected nationwide for the competition, six were AAMU students, according to Dr. Martha Verghese, associate professor of Food Science. She said the students were very committed and did everything required of them in readiness for the competition.

"The students were very committed and did everything required of them in readiness for the competition.”

Dr. Verghese

"It all has to do with their own abilities and the preparation our faculty gave them,” she said. "My mantra to all my students is practice, practice, practice, and this is a key component of our student success.”

Other schools that took part in the IFT competition were: the University of Georgia, the University of Tennessee, the University of Wisconsin and the University of Ohio. AAMU students have won in the top five places in the last two years, including first, third, fourth and fifth places in 2006.

Top winners at the recent National Institute of Food Technologists science paper competition in Chicago show off their awards. They are, from left, Venugopal Reddy Panala, fourth place; Dr. Martha Verghese, team advisor; Louis Shackelford, third place; and Judith Boateng, first place.

Materials

...continued from page 1

materials, our activities should be based on cooperation with many international and domestic organizations.”

The MRS, with members from across the globe, promotes communication for the advancement of interdisciplinary materials research to improve the quality of life, according to the MRS Website. At the society’s fall meeting in Boston from November 26-30, which Dr. Ila also attended, participants attended 42 technical symposiums and presented almost 4,600 oral and poster presentations on current trends in interdisciplinary materials research.
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<thead>
<tr>
<th>Workshops</th>
<th>Description</th>
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<tr>
<td>Electronic Submission</td>
<td>All federal agencies are currently using or will begin using Grants.Gov to find and apply for federal grants. This workshop will provide a comprehensive review of the electronic submission processes for grants.gov, FastLane, and others.</td>
<td>Session II: Jan. 15, 2008</td>
<td>Session II: 8 a.m.-noon</td>
<td>LRC</td>
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<td>Finding Grant Opportunities</td>
<td>Locating funding opportunities is easier today with several searchable databases available to researchers. The Office of IRP and Sponsored Programs is using these databases to perform custom searches, and set up funding alerts. The use of these databases will be covered in this hands-on workshop.</td>
<td>Session II: Jan. 15, 2008</td>
<td>Session II: 1-5 p.m.</td>
<td>TBD</td>
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<tr>
<td>Developing and Describing Program Evaluation in Your Proposal</td>
<td>Federal agencies now require some form of program evaluation, which requires coordination between the agency, the university and the PI. Participants in this workshop will receive tips on designing the evaluation processes in the pre- and post-award phases of grants.</td>
<td>Spring 2008</td>
<td>TBD</td>
<td>TBD</td>
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<tr>
<td>Q&amp;A with PIs</td>
<td>AAMU faculty have a vast knowledge of grants development and post-award management. Come to this informative Q&amp;A session and engage with some of the most experienced Principal Investigators in the country.</td>
<td>Session II: Mar. 11, 2008</td>
<td>11 a.m. - 1 p.m.</td>
<td>TBD</td>
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<tr>
<td>STTR/SBIR Conference</td>
<td>The Alabama A&amp;M University Research Institute will host an STTR/SBIR Small Business Conference on January 28-29, 2008 on the campus of Alabama A&amp;M University. The conference will provide you with valuable information and a chance to meet one-on-one with government, university, and industry representatives.</td>
<td>Jan. 28-29, 2008</td>
<td>8 a.m. - 5 p.m.</td>
<td>AAMU Knight Center</td>
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<td>Alternative Energy Summit</td>
<td>The U.S. continues to depend on foreign oil sources for a portion of its energy needs. World wide demand for crude oil increases significantly every year, while known worldwide reserves of petroleum are expected to be depleted by the year 2050. Fossil fuel, as the primary means of energy for the U.S., will not meet future needs of the nation. Energy self-reliance can only be obtained by means of renewable fuels, mainly alternative energy sources (i.e., bio-diesel). Alabama A&amp;M University is poised to be a leader in the field of alternative fuel research and development. This two-day conference will bring together federal, state, local, public and private agencies to discuss the direction of alternative fuel R&amp;D.</td>
<td>March 2008</td>
<td>TBD</td>
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<tr>
<td>HBCU Technology Transfer Conference</td>
<td>The development of a vision, mission and business model for Historically Black Colleges and Universities’ participation in technology transfer is paramount. Join us at AAMU as we discuss how HBCUs and small colleges can protect and profit from the research efforts of the university and faculty.</td>
<td>April 2008</td>
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<td>April 2008</td>
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Five students majoring in animal science at Alabama A&M University recently participated in the three-day 2007 Southern Regional Dairy Challenge in Baton Rouge, La. When the results were posted, AAMU students had garnered three gold and two silver awards.

“Our students did exceptionally well and we are very proud to be part of a team that successfully represented the state of Alabama in the event,” said Dr. Gamal Abd-Rahim, assistant professor in the Department of Food and Animal Sciences, who served as coach and advisor to the AAMU team.

Representing the prize-winning AAMU team were Karl Wesley Henry, Jr., sophomore; Detrick Black, junior; Patrick Dooley, junior; Matricia Horton, senior; and Brandi Roebuck, junior.

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