

INSIDER

Newsletter for the Employees of Ames Laboratory ■ Volume 18, Number 10 ■ November 2007



Call Me Alex

Alex King mingles with employees at Lab reception

"I'm absolutely delighted to be here," said Alex King, at a Nov. 12 Ames Laboratory reception in his honor. King will begin serving as the Lab's new director on Jan. 1. "You can't believe how honored I am to have been selected for the job and how pleased I am to be here," he said after acknowledging his respect for the strength of the final pool of candidates for the director position.

In no time at all, King established himself as another fellow co-worker and friend within the Ames Lab community when he requested, "Please, please, please call me Alex. I'll answer to Dr. King or Professor King," he said, "but I really prefer Alex."

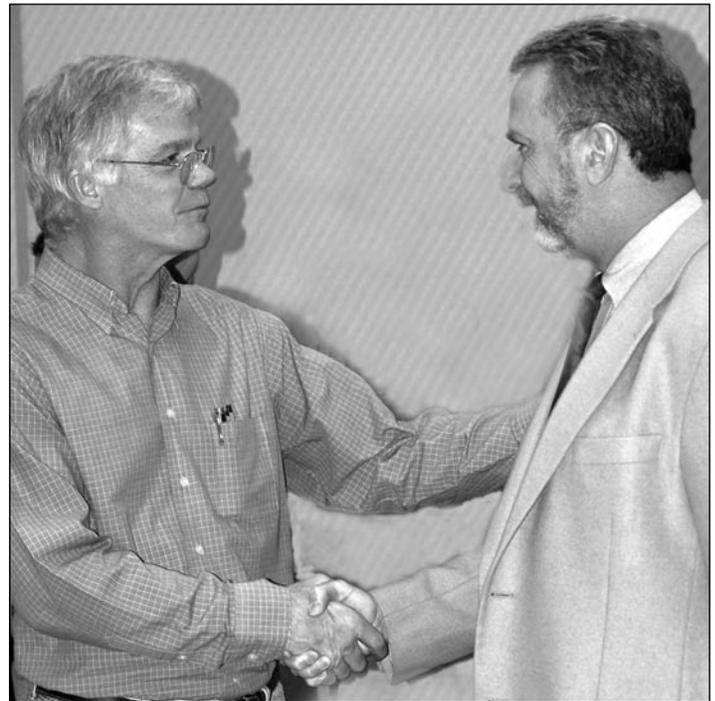
Sharing an anecdote about finding his horoscope (cancer) in the *Iowa State Daily* earlier that morning, King had employees both laughing and cheering him on when he read it aloud.

"Today is an eight. ('I give it a 10,' interjected King.) The job is huge, but don't be afraid. Break it into doable chunks and get started. You have super powers.'"

Moving from humor to a more inspiring note, King said, "This is an incredible lab. It has a tremendous history. The more I've looked into it, the more delighted I've been that I'm coming here. Ames Lab does the kind of things that I read about in textbooks when I was in college. Things you should be able to do this lab has done and continues to do, and it's only made possible by the people here."

Answering a question many employees had wondered about, King said he didn't think there would be any huge need for massive change anywhere in the Lab. "I asked a lot of people in Washington what they thought I needed to do in the Lab, and they kept coming up with one answer: 'Whatever you do, don't mess up the great science they do there.' So, I'll take that as an instruction, and I won't mess that up," he added.

King noted, however, that he would attend to a couple of relatively small things that came out of an interesting experience. "Since the announcement was made that I was going to be your director, I've received well over a hundred congratulatory notes and e-mails, and in some cases I've been congratulated on becoming the director of a NASA facility," he said, which generated knowing laughter from



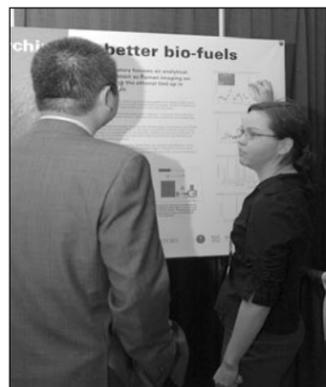
Alex King, soon to be Ames Laboratory's new director, greets Larry Jones, director of the Lab's Materials Preparation Center, during a get-acquainted reception for employees.

employees. (The NASA Ames Research Center is in Moffett Field, Calif.)

Continuing, King said, "The other thing that's happened in two cases is that I've been congratulated on my move to the University of Iowa. So I think we need to pay a little bit of attention to making it clear what the Ames Lab is, where it is and what it does, and making that a bit more well known to the community. I'll take that on as my task," he promised. "If you guys keep doing the great science, I'll take care of selling it." ■

~ Saren Johnston

Lab Research on Display at Biofuel Conference



Emily Smith, chemist, explains how she screens biofuel plant stocks to identify what plant materials are most suitable for converting to biofuel.

and associate chemist Emily Smith's use of Raman imaging to identify the best feedstock for ethanol. Lin was also a presenter in a breakout session about thermochemical conversion of biobased feedstocks to oils and chemicals. ■

Ames Laboratory's biofuel research was on display at the 2007 Biobased Industry Outlook Conference at the Iowa State Center on Nov. 5-6. The conference, "Growing the Bioeconomy: Science and Policy for Next Generation Biorefining," brought together representatives from all corners of the biofuel industry to discuss creating sustainable systems to provide energy to the growing world.

The Ames Lab display featured Chemical and Biological Sciences program director Victor Lin's research on using mesoporous silica nanoparticles to deliver DNA and chemical triggers to plant cells

DENSO Reps. Visit Lab

Ames Laboratory rolled out the welcome mat on Nov. 12 for representatives from DENSO, a leading supplier of advanced automotive technology, systems and components for the world's major automakers.

Deputy Director Bruce Harmon hosted the group, arranging talks and lab tours for the visitors who were anxious to see Ames Lab technologies that might benefit their company.

"The DENSO representatives were trolling for infant technologies to see if there was something they really liked and might want to support," says senior metallurgist Iver Anderson, who talked with them about metal powders and magnets. In addition to Anderson, the DENSO group heard presentations from and visited with the following scientists: Kai-Ming Ho, photonics; Rana Biswas, photonics; Thomas Koschny, metamaterials; Victor Lin, nanocatalysis; Surya Mallapragada, bioinspired materials; and Joe Shinar, OLEDs and sensors. ■



While touring Kai-Ming Ho's labs, DENSO representatives view microscale level templates that are created to make photonic crystals. (left to right) Bruce Harmon, Hisayoshi Oshima, Tatsuhiko Nonoyama, Hiroaki Fukuda and Yoshiyasu Yamada.

Lab Participates in DOE Day of Science

It was a great chance for students to see the opportunities available at DOE labs," says Cynthia Jenks about the DOE Day of Science, held Oct. 28-29 at the Knoxville Convention Center in Knoxville, Tenn. Jenks, a scientist in the Lab's Materials Chemistry and



Cynthia Jenks discusses a unique method of creating templates at the microscale level to make 3-D multilayered photonic crystals.

Biomolecular Materials program, staffed Ames Laboratory's booth at the annual symposium for high-potential science students and university faculty sponsored by the Department of Energy and Oak Ridge National Laboratory.

With the average age of a DOE worker being 50, the Department is facing a potential crisis in filling positions at its national laboratories as many of its longtime workers near retirement. The Day of Science represents a significant outreach opportunity for the DOE to entice students interested in science careers to investigate the possibilities at its national laboratories.

The Day of Science drew approximately 1,400 students from 125 colleges and universities. A third of the schools represented were historically black colleges and universities.

Jenks shared information with visitors to the Lab's display about several of our research efforts, including photonic crystals, metamaterials, quasicrystals, lead-free solder, nanosphere catalysts for biodiesel production, and Raman screening for better biofuel crops. "Many of the students had biorelated interests, and several wanted to know about Ames Laboratory internships," she says. "I talked for the entire time. It was a terrific experience." ■

~ Saren Johnston

Lab Scientists Named AAAS Fellows

Three Ames Laboratory scientists have been named fellows by the American Association for the Advancement of Science:



David Lynch, senior physicist, for using synchrotron radiation sources to elucidate materials and for helping to chart the future of synchrotron facilities in the United States.

Gordon Miller, senior scientist, for achievement in combining theory with experiment to understand chemical bonding and electronic structure in complex, metal-rich solids.



Marit Nilsen-Hamilton, associate, for contributions to the fields of biochemistry, cell biology and mathematical biology.

Lynch, Miller and Nilsen-Hamilton are among 471 AAAS members named fellows this year because of their scientifically or socially distinguished efforts to advance science or its applications. New fellows will receive their awards at the Fellows Forum during the 2008 AAAS Annual Meeting in Boston in February. ■

New Employees

Joshua Adams, system support specialist II (Diane DenAdel)
Cindy Eckhart, program assistant I (Peggy Best)
Rousko Hristov, postdoctoral fellow (Viatches Dobrovitski)
Le Viet Hung, postdoctoral fellow (Masha Sosonkina)
Rhonda Jones, accountant III (John Clough)
Tae Geun Kim, visiting scientist (Bruce Harmon)
Kathy Lloyd, custodian I (Cathy Long)
Rudi Luyendijk, program manager I (David Baldwin)
Catalin Martin, postdoctoral fellow (Ruslan Prozorov)
Jennifer Rapp, postdoctoral fellow (Marek Pruski)
Chia-Wen Wu, postdoctoral fellow (Victor Lin)
Sujing Xie, postdoctoral fellow (Karl Gschneidner)
Yibo Zhou, postdoctoral fellow (Keith Woo)

Promotions

Mark Klein from system support specialist III to system support specialist IV
Charles Zaruba from system support specialist II to system support specialist III
Shihuai Zhou from assistant scientist I to assistant scientist III

Rockwell Collins and Dow Corning Continue Science Bowl Support

On Nov. 2, Deputy Director Bruce Harmon accepted donations from Rockwell Collins and the Dow Corning Foundation for the Ames Laboratory/Iowa State University Science Bowl program. Harmon gave brief remarks thanking each group for their ongoing commitment to Science Bowl.

Rockwell Collins

"We have been raising money for the Science Bowl since 1999. One company saw the value in what we were doing right away and began contributing from the start. That company was Rockwell Collins," said Harmon. "Since 1999, Rockwell Collins has contributed \$11,000 to support Science Bowl. Today we want to once again thank Rockwell Collins for helping us educate the next generation of scientists and engineers. Rockwell Collins contributed another \$2,000 in 2007 for Science Bowl, and we want to express our thanks to Nan Mattai, senior vice president, Engineering and Technology, for Rockwell Collins." ■



Dow Corning Foundation

"In 2005, our Science Bowl coordinator Steve Karsjen gave a presentation to this group on Science Bowl," said Harmon. "Following that presentation, James White, director for new business development, Engineered Elastomers Business Unit, Dow Corning stepped forward to say that the Dow Corning Foundation might be able to contribute funds for Science Bowl. Dow Corning did indeed come through with a five-year commitment for \$1,000 per year for Science Bowl beginning in 2005. This marks the third year of Dow's five-year commitment, and we want to express our thanks to James White for advocating for this commitment on our behalf." ■



~ Steve Karsjen

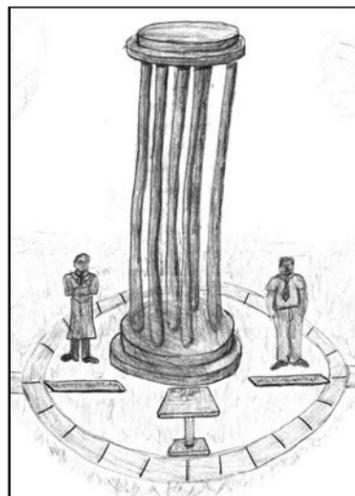
ISU Students Design Memorials to "Ames Project"

Freshmen propose fictional memorials for Little Ankeny site

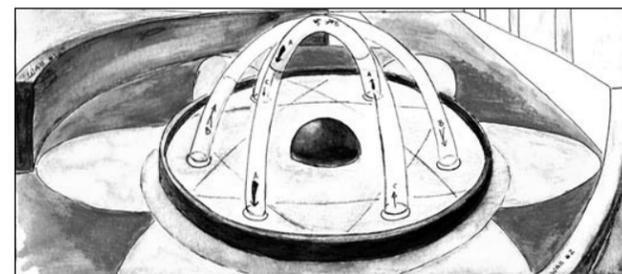
This fall when Iowa State University art professor John Cunnally first asked his freshmen Design Studies class if anyone knew about the university's contribution to the Manhattan Project, no one raised a hand. But if Cunnally asked the question again today, all 225 students' hands would be in the air. The students recently studied the history of the "Ames Project" and designed imaginary memorials recognizing Frank Spedding's and Harley Wilhelm's uranium-purification discoveries.

"The proposed memorials ranged from complex informative designs, representing the connection between Stagg Field at the University of Chicago and Ames, to simple designs such as a replica of a single uranium crucible surrounded by benches, creating a place to reflect on the information on display," says Cunnally.

According to Cunnally, about a third of the designs focused on the science of the uranium-purification process and featured replicas of reduction crucibles or large molecular sculptures of the chemical ingredients used in the purification process. Another third focused on the implications of the technology, while the remaining third of the students focused on Spedding and Wilhelm themselves or on Little Ankeny and proposed statues of the scientists and small-scale replicas of the Little Ankeny building.

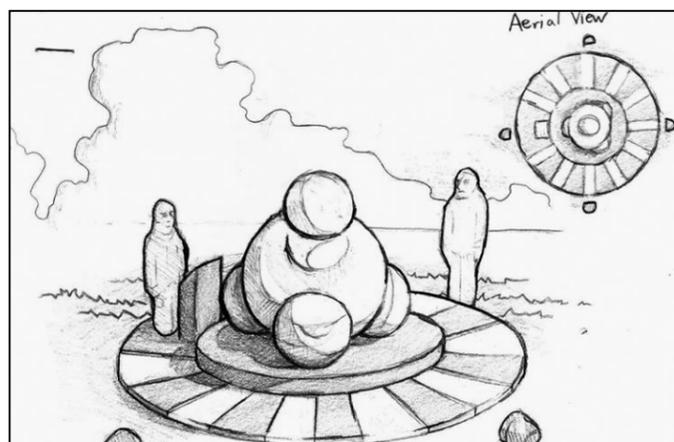


Jasmine Brown's proposed memorial features a large replica of crucibles used in the uranium reduction process. Brown, a pre-architecture major, also includes life-size statues of Harvey Wilhelm and Frank Spedding.



Ryan Potter, a pre-architecture major, titles his proposed memorial "Atoms Flow" and plans to inscribe the walls surrounding the central statue with information about the uranium-purification process.

Students began their memorial design assignment by studying the Ames Project. They reviewed the historical information on the Ames Lab Web site, read biographies of Spedding and an interview with Harry Svec, and viewed photos of Little Ankeny and cartoons about the Ames Project that appeared in the ISU Daily. And the students studied famous memorials of other



Jonathan Lacina's design centers on a large sculpture of a molecule of tetrafluoride, one ingredient in the uranium-purification process. Lacina, an art and design major, proposes the following inscription: "This stainless steel tetrafluoride molecule stands as a memorial to the accomplishment of all those who created purified uranium at the Little Ankeny building."

important historical events such as the Vietnam Veteran's memorial. Cunnally also asked students to visit the Little Ankeny site near Hamilton Hall on campus and view the area available for a memorial.

Next, the students set to work creating their proposed memorials using two main criteria: memorials had to harmonize with the campus either through form or materials, and memorials had to be informative and include images or text that educated viewers about the Ames Project. Since the proposal was for an imaginary memorial, no restrictions were made on projected cost or planned materials for the design.

Students submitted sketches of their proposed memorials along with short explanations of their design choices. The memorial designs were on display in the Design Center earlier this fall.

"One doesn't typically display freshmen design projects, but last year the students created such striking and thoughtful memorial plans," says Cunnally. "So, this year I put the proposals on display and let the community know."

Sam Houk, senior chemist, visited the display out of general interest as an Ames Lab scientist and out of personal interest. Houk's major professors in graduate school, Velmer Fassel and Harry Svec, were both involved in the Ames Project.

"The proposed memorials were very interesting, and they represented all different aspects of the uranium purification project," says Houk. "I was surprised to see that most of the statues of Spedding represented him as a colossal physical figure, like the Arnold Schwarzenegger of the Manhattan Project." ■

~ Breehan Gerleman Lucchesi

It Was a Very Good Year

Four SULI students' papers published

Magdalena Furczon has an additional feather in her cap thanks to her 2006 summer internship in Ames Laboratory's Science Undergraduate Laboratory Internship, or SULI, program. Furczon's paper, "Kinetics of Dissociation of Molecular Oxygen from a Superoxorhodium Complex and Reactivity of a Macrocyclic Rhodium (II) Ion" will be published in a 2008 issue of *Inorganic Chemistry*.



Andreja Bakac (center) helps SULI student Magdalena Furczon make a point about her poster on display on the final day of the 2006 SULI program.

Furczon was a student of Andreja Bakac, senior chemist in the Lab's Chemical and Biological Sciences program, for 10 weeks in 2006. She shares authorship of the paper with Bakac and assistant scientist Oleg Pestovsky, who is in Bakac's group. Bakac says Furczon was an excellent student to mentor.

"Magdalena took her internship very seriously and approached her work with great enthusiasm," Bakac says. "Her contribution to this paper is something of which she can be very proud."

Furczon is the second SULI student Bakac has mentored, and is the second of her students to have a paper accepted by a journal. Bakac's 2005 intern, Andrew Shuff, had his paper published in a 2006 issue of *Organometallics*.

Three other 2006 SULI students also saw their research recognized in 2007. Denae Clampitt's paper, "Characterization of Multidrug Efflux Regulator AcrR from *Escherichia coli*," was published in the July issue of *Biochemical and Biophysical Research Communications*. Clampitt's mentor was Edward Yu, Ames Lab associate and assistant professor in the Iowa State University Physics and Astronomy Department.

DeAnna Jones' paper, "Cobalt Ferrite Nanocrystals: Out-Performing Magnetotactic Bacteria," was also recently published in the October 2007 issue of *ACS Nano*. Jones' mentor was Surya Mallapragada, director of the Lab's Materials Chemistry and Biomolecular Materials program and professor the ISU Chemical and Biological Engineering Department.

And Charles Pye's paper titled, "Novel Coarsening of Pb Nanostructures on Si(111) 7X7," was published in the 2007 issue of the



DeAnna Jones at work in her laboratory.

Department of Energy's *Journal of Undergraduate Research*. Pye was also invited by DOE's Office of Science to present his research in the poster session at the American Association for the Advancement of Science convention in February 2007. Pye's mentor was Michael Tringides, a physicist in Ames Lab's Condensed Matter Physics program and an ISU professor in physics and astronomy.

"The commitment we receive from all our mentors is what really makes our



Charles Pye at his computer.

program successful," says Steve Karsjen, SULI coordinator. "And getting papers published in peer-reviewed and other journals is the icing on the cake, so to speak, when it comes to recognition of that effort. We congratulate all our SULI students and their mentors for their various accomplishments."

Next year will mark Ames Lab's fourth year of participation in the SULI program, which will kick off on May 27 and run through Aug. 1. Up to 15 new students are expected to participate in SULI in 2008.

According to Karsjen, the program's goal is to bring undergraduates from colleges and universities nationwide that don't have strong research missions to Ames Lab and ISU for real-world research experiences. Funding for SULI comes from the DOE Office of Science.

Since inception in 2005, the SULI program has hosted 31 summer interns who have come from 26 colleges and universities nationwide. ■

~ Steve Karsjen



Denae Clampitt works on her research project.



Andrew Shuff gives a presentation about the research he did in Andreja Bakac's lab.

IP and the DOE

Seminar highlights DOE's view on intellectual property

"Intellectual property drives the marketplace and the stock market," said Brian Lally, DOE intellectual property law counsel, at an IP seminar for Ames Lab employees on Nov. 6. "In 2005, IP represented 85 percent of the market value compared to only 15 percent in 1975."

What is intellectual property and why has it become so hugely important? IP covers a broad spectrum of property rights relating to inventions, works of art and other creative expressions. It includes patents, trade secrets, trademarks, industrial design and geographic origin designations (i.e. Champagne) and copyright.

According to Lally, IP is vital because there is economic incentive for innovation, and IP encourages investment in research and development. It advocates public disclosure of new advances and rewards that disclosure with the right to exclude others from "cashing in" on it for a set period of time. IP has quite literally become one of the driving forces behind the U.S. economy.

Lally stressed the need for researchers to protect their intellectual property by urging them to take some basic precautions. When an inventor recognizes that he or she may have made an invention, they should contact the Ames Lab patent liaison, Todd Zdorkowski, as soon as possible, but always:



Brian Lally emphasizes the importance of intellectual property to the U.S. economy during an IP seminar for Lab employees.

- before any written description has been submitted to a publication or conference.
- before a description appears in a report, press release or any written report that will be available to the general public.
- before any public demonstration of the invention.
- before any regular use of the invention except for testing and development.
- before any public disclosure, such as in a talk, poster or slide show, when the audience is not restricted to people from DOE or DOE contractors.

A researcher applying for DOE funding to help support the development of a specific technology or methodology might find it advantageous to understand how the DOE evaluates its intellectual property. First and foremost, the DOE is interested in work that has high programmatic interest, such as homeland security and biorenewables. The Department also looks for work that represents a significant advancement in the discipline – even when there may not be immediate commercial potential. And, the DOE looks favorably on work that has a shot at long-term commercial potential.

Deb Covey, associate director of Sponsored Research Administration, reminds Ames Lab scientific staff that our contract with DOE requires them to report their inventions to the Lab's Office of Intellectual Property by contacting Todd Zdorkowski, 294-5640 or zdorkowski@ameslab.gov.

For more information on intellectual property or to view Lally's PowerPoint presentation, go to: <http://www.internal.ameslab.gov/oipp/intprop.htm>. ■

~ Saren Johnston

Lab Staff Step into Top Walker Honors

Norma Sandvick, accounting clerk, and Ellen Price, account specialist, were among the top 50 walkers in the Every Step for I-S-You walking challenge. Sandvick logged 549,218 steps, or about 230 miles, and Price logged 422,086 steps during the Oct. 3 - 31 challenge period.

"The I-S-You challenge was a lot of fun, since I enjoy walking anyway and have used a pedometer for several years. I'm not sure my knees will ever be the same, though!" says Sandvick.

Every Step for I-S-You is an Iowa State University workplace wellness program to encourage physical activity. The program was coordinated by Wellness Works, an undergraduate student group that works to promote worksite wellness on campus. Teams from around the university logged their daily step counts on a Web site, which monitored both average team and individual standings.

Several teams of Ames Lab employees participated in the I-S-You challenge. Administrative specialist, Rebecca Shivers, purchasing clerk Konnie Willie-Kennicker and mailroom clerk Vicki Sieve made up the Hapless Wanderers team, and Sandvick and administrative specialists Peggy Best and Maggie Haaland formed the Walk this Way team. Staff from Public Affairs, Steve Karsjen, Saren Johnston and Deb Samuelson, and Diane DenAdel, manager of Information Systems, were members of the Ames Lapsters team. ■



Heim Bids Farewell... Again

Don Heim is ready to enjoy the huge farewell buffet prepared by members of the Lab's Accounting staff. The former head of Accounting came out of retirement in June 2006 to help during the lengthy and involved switch to the new Deltek accounting system. For his dedication, Heim received a gold Rolex from John Clough, head of Accounting. Oh, all right, so it wasn't a real Rolex. But as Clough says, "I figure any longtime employee should have a gold watch, even if it's a fake one!"

Halloween Scenes

TASF employees show off creative costumes



Cynthia Feller and Deb Samuelson show that cats and mice can get along fine.



Audrey Hohanshelt is behind the mask of this hairy Halloween creature.



Bill Sears, who spends his days battling e-mail spam as a computer security specialist, poses as the food version of his workplace enemy.



Mike Porter as the infamous chair-throwing basketball coach Bobby Knight.



A creepy-crawly Halloween dessert prepared by Nichole Kentner.



Nichole Kentner as Beaker, the hapless laboratory assistant character on "The Muppets Show." Kenter is the winner of the 2007 Traveling Tombstone award for her creative costume.

Hundreds Take Shot at Avoiding Flu



Hundreds of Ames Lab and ISU staff members got their flu shots in 205 TASF in November. The flu shot clinic is administered by the Lab's Occupational Medicine office.

Ames Lab and IPRT Raise Nearly \$14,000 for United Way

Ames Lab and IPRT staff donated \$13,622 so far to United Way during the 2007 Iowa State University United Way Campaign. Thank you to all who contributed.

You have one more chance to help Ames Lab and IPRT reach our \$14,000 goal by bidding on the United Way items at the Holiday Auction.

Come One, Come All to the Holiday Auction Dec. 6

The 2007 Ames Lab/IPRT Holiday Auction will be Thursday, Dec. 6, from 1:30-3:30 p.m. in the Spedding Hall auditorium. Ames Lab and IPRT staff, students, retirees, and friends are invited to enjoy the holiday celebration and take part in the exciting silent and live auctions.

Proceeds from the auction will go the Ames Police Benevolent Association's Shop with a Cop program. Shop with a Cop helps disadvantaged youth in Story County buy holiday gifts for their families. This year's Shop with a Cop event will take place Dec. 15, when local police officers and their special young guests will head off to Kmart via CyRide for a morning of shopping, eating, gift wrapping and fun. Since its inception, Shop with a Cop has helped more than 1,000 children and their families enjoy a happier holiday season.

Since 2000, our annual Holiday Auction has raised over \$10,000 for various local charities.

Still Seeking Science Bowl Volunteers

The Science Bowl still needs volunteers to help fill the roles of moderator, judge, timekeeper and scorekeeper for the competition on Saturday, Jan. 26. All volunteers will receive an official Science Bowl T-shirt and free lunch in the Union Drive Dining Center on the day of the event.

"Volunteers are extremely important to the success of Science Bowl," says Steve Karsjen, Science Bowl coordinator. "So anyone who can spare some time on Jan. 26, please join us and help support science and math education in Iowa."

Contact Breehan Gerleman Lucchesi, breehan@ameslab.gov or 294-9750, to volunteer.

INSIDER

Volume 18 / Number 10 / November 2007

Ames Lab Insider is published 11 times a year for the employees of the Ames Laboratory by the Office of Public Affairs and Information. Ames Laboratory is operated by Iowa State University (ISU) for the U.S. Department of Energy (DOE) under Contract DE-AC02-07CH11358.

Address comments to:

Editor, **INSIDER**
111 TASF
Ames, IA 50011-3020
515/294-9557
FAX 515/294-3226

Address correction requested
P-208-9

Editor Breehan Gerleman Lucchesi
Layout Tiffany Woods



Printed on
Recycled Paper