

Experimental ‘challenge’

Jeremy Smith says new computational models open opportunities for neutron science

More than a year after completion, the Spallation Neutron Source is steadily ramping up toward its eventual 1.4 megawatts of power. In its experimental hall, workers are busily installing its suite of state-of-the-art analytical instruments.

Researchers are lining up with experiments that will take advantage of the unprecedentedly bright neutron beams.

Smith has an atom-scale theory he eagerly wants to put to the neutron test.

ORNL researcher Jeremy Smith refers to a wealth of “challenges” awaiting the powerful DOE Office of Science neutron source when it arrives at its full power and capability. His own challenge for the SNS:

Verify the first-ever atomic-detail computer simulation of the lattice dynamics of a protein crystal.

All he and his colleagues are waiting for are the neutron-rich beams to propel their studies into a new realm of experimental capabilities.

“We have extended an invitation to the next generation of neutron scattering instruments at the SNS to demonstrate their capabilities,” says Jeremy, who directs ORNL’s Center for Molecular Biophysics.

There is a noticeable tinge of impatience in his voice. Like a number of researchers, he has an atom-scale theory he eagerly wants to put to the neutron test.

For example, the recent computational studies of molecular-scale lattice dynamics—how protein molecules vibrate in relation to each other—may shed light on how proteins in living cells

interact with one another. It is a key question in biological sciences. The SNS and its arsenal of specialized analytical instruments may be able to confirm—or contradict—what the simulations indicate.

“Lattice dynamics calculations have not been possible before, and now we will have a tool—the SNS—that will have the capability to confirm our calculations,” Smith says, humbly adding, “Hopefully, the calculations won’t be too painfully off the mark.”

The study, just published in *Physical Review Letters*, is a collaboration among Jeremy, who also holds a University of Tennessee-ORNL Governor’s Chair at the University of Tennessee, and researchers from

the California Institute of Technology and the National Institute of Chemistry, Ljubljana, Slovenia.

Jeremy says the *PRL* paper predicts existence and forms of these lattice modes.

“In doing so it throws out a challenge to next-generation neutron science to finally make the breakthrough and determine the



UT-ORNL Governor’s Chair researcher Jeremy Smith is ready for the Spallation Neutron Source to confirm—or contradict—his teams’ first-ever atomic-detail computer simulation of protein crystal vibrations.

dispersion relations experimentally,” he says. In other words, having overcome their computational hurdle, the lattice dynamics team is now ready for the SNS to test their work and see if what is predicted is really there.

(See **CHALLENGE**, page 4)



Curtis Boies

James Brennan recalls life on Chestnut Ridge, way before the Spallation Neutron Source, or even the Manhattan Project, came on the scene.

Long before SNS, memories of farm life pleasant for Chestnut Ridge resident

When he was only five or six years old, James Brennan delivered a pail of water to a farm worker near the site where the Spallation Neutron Source’s water tower is now. The worker took a drink, pulled out a pipe, removed his eyeglasses and lit the pipe by focusing light through the glasses.

Brennan remembers being profoundly impressed by that feat.

Long before the Spallation Neutron Source took up residence on Chestnut Ridge, the land was home to James Brennan. Brennan’s family lived on the property before the government seized it in 1942. His father’s old barn stood where the main office complex at SNS is now.

Brennan, 89, visited ORNL in late August and could still recognize many sites, although the changes over 60 years were sometimes drastic. His directions to the visitor’s center mentioned the Conference Center pond. He remembers that pond as a small stream where he used to come for a drink after services at New Bethel Baptist Church.

Brennan was born in Bear Creek Valley in 1918. His father purchased the farm on Chestnut Ridge in 1915. One of Brennan’s favorite memories of life there is when his father got his 1922 Model T Ford truck stuck on a muddy road.

(See **CHESTNUT**, page 5)

ANS's Seaborg Award goes to NSTD's Mirzadeh

The Nuclear S&T Division's Saed Mirzadeh, whose work at ORNL has led to development of new treatments for cancer and other diseases, is the recipient of the American Nuclear Society's 2007 Seaborg Medal Award.

Saed is internationally known for his contributions to the development of radioisotopes, which are routinely used for the diagnosis and treatment of cancer and other diseases. In the United States, more than 10 million procedures using radioisotopes are performed on patients each year.

Saed recently developed the chemical processes to provide actinium-225 and its decay daughter bismuth-213 for treatment of a type of leukemia. Actinium-225 is a by-product



Mirzadeh

of uranium-233, which currently is not being used for energy or weapons programs but is of great interest for medical applications. The work directly resulted in advanced clinical trials now under way to treat leukemia at New York's Memorial Sloan-Kettering Cancer Center.

His research also focuses on the use of ORNL's High Flux Isotope Reactor—one of the world's most powerful research nuclear reactors—to produce useful medical and industrial radioisotopes.

The award is named for Glenn T. Seaborg, the Nobel-prize-winning nuclear chemist who co-discovered plutonium and many transuranium isotopes and chaired the U.S. Atomic Energy Commission from 1961 to 1971.

"Through the Nuclear Medicine Program, Saed and HFIR have played important roles in making ORNL the leading or sole U.S. supplier of many of the medical radioisotopes

in use today," ORNL Director Thom Mason says. "Winning the Seaborg Medal is an exceedingly appropriate recognition of his outstanding accomplishments."

He also has worked as a scientist for the National Institutes of Health, a visiting scientist for the Australian Nuclear Science and Technology Organization and an adjunct faculty member at Long Island University.

Saed collaborates extensively with colleagues at other national labs and in industry and academia, including the University of Tennessee. He has supervised a number of postdoctoral fellows, Ph.D. candidates and M.S. students, and mentored numerous undergraduate and graduate students, many of whom have made significant contributions of their own in the field.

Saed will be recognized in November at the ANS Winter Meeting in Washington, D.C.

—Mike Bradley

Lab welcomes latest Wigner Fellows

ORNL welcomed its latest crop of Wigner Fellows at its annual reception on September 25. The two-year postdoctoral fellowships, named for Nobel laureate and first ORNL scientific director Eugene Wigner, have for years attracted top early career researchers to the Laboratory.

Chris Mann received his doctorate in 2006 in applied physics from the University of South Florida. Chris also earned an M.S. and B.S. in physics with astrophysics from the University of Birmingham, U.K. Chris's dissertation won the outstanding dissertation award from the University of South Florida. His honors include the Frank E. Duckwall Optics Graduate Fellowship and the Fred L. & Helen M. Tharp Physics Graduate Fellowship. Chris joins the Image Science & Machine Vision group, Engineering Science & Technology Division, under Ken Tobin. His research plans focus on biomedical imaging and digital holography.



Mann

John Canik received his doctorate in electrical engineering this year from the University of Wisconsin, Madison. He received several awards as a student, including the Samuel F.B. Morse Medal and the David W. Grainger Distinguished Graduate Fellowship, and has nine publications, with two as first author. John joins the Experimental Plasma Physics Group, Fusion Energy Division, under the direction of Don Hillis. His research plans focus on the plasma edge in fusion experiments, modeling the particle and power exhaust from magnetic confinement devices and developing the 3D geometry of these experiments.



Canik

Michael McGuire received his doctorate in physics from Cornell University in 2006. During his academic career he received the Michael A. McGuire Award for Academic Excellence, a Taylor Medal and a Graduate Achievement Award from the University of Mississippi, and a Cornell University Fellowship. Michael's research has focused pri-

marily on the discovery and characterization of new, inorganic, solid-state compounds, with particular emphasis on bulk thermoelectric materials.

Michael is now a member of the Correlated Electron Materials group in the Materials Science & Technology Division, supervised by David Mandrus, where he will continue pursuing his interest in bulk materials for thermoelectric conversion as well as exploratory syntheses targeting new materials with interesting electrical, magnetic and structural properties.

Peter Maksymovych received his doctorate in physical chemistry from the University of Pittsburgh. He earned his B.Sc. in chemistry from the Kiev Taras Shevchenko University in Ukraine. He has received two awards for his work on single molecule chemistry and physics on metal surfaces: the Morton M. Traum Award from the American Vacuum Society in 2006 and the Wayne B. Nottingham Prize from the Physical Electronics Conference in 2007. Peter joins the Materials S&T Division and the Center for Nanophase Materials Science under the supervision of J. F. Wendelken. His research



McGuire



Maksymovych

focuses on the nanoscale phenomena in ultrathin ferroelectric and multiferroic oxide films as well as advanced scanning probe microscopy for functional imaging at the nanoscale.

Paul Snijders, also working at the Materials S&T Division under John Wendelken, joined the Lab this past spring.



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Bill Cabage, editor, 865/574-4399 or cabagewh@ornl.gov

Deborah Barnes, associate editor, 865/576-0470 or barnesds@ornl.gov

On the Web: www.ornl.gov/reporter

DOE Inspector General Hotline: 1-800-541-1625

Lab Notes

Mason: Deliver the science

It's time to start cranking out the science.

That was a main element of Lab Director Thom Mason's message in his first Director's Forum on Sept. 24. He reiterated the Lab's plans and prospects in a Friends of ORNL community lecture on October 4.

"We're over the hump in modernization," Thom said at the forum. "Now it's time to execute the science."

Thom also emphasized "striking the right balance" in applying the Lab's world-class facilities toward its scientific output, which entails recruiting top talent, continuing to upgrade Lab facilities and maintaining operational excellence with a strong emphasis on safety.

Major thrusts of the Lab's continuing modernization will be a new laboratory building to replace 4500 complex facilities slated for renovation, the start of construction on the Oak Ridge Science & Technology Park and the central campus cleanup, which could gain momentum in FY 2010.

Thom also commented on the re-emergence of the energy mission, comparing its durability as a national need with the national security mission. "The focus is on science and technology relevant to energy, broadly defined—the economy, climate, national security and the interaction between all three elements," he said.

Along with the Director's Forum and frequent public speaking appearances, Thom is continuing the Director's Message all-staff e-mails and has initiated something novel—a blog. As a feature on the Lab Director's Website, the internal blog provides a forum for Lab staff members to comment on items in his Director's Message or on topics in general.

Even at this early stage, bloggers' suggestions have already been adopted, including adjusting automatic lights during the power crunch and cleaning up trash along Bethel Valley Road.

Possibly of more importance, the blog indicates that ORNL has a director who likes to try new things.

Truckin' for safety

Around this time next year, somebody is going to be driving away in a new pickup truck. UT Battelle and the Atomic Trades & Labor Council are partnering to give away a 2007 Ford F-150 at the end of fiscal year 2008. All bargaining unit employees who do not sustain a recordable injury during FY 2008 will have a chance to win it.

"As with any safety incentive, our primary objective is to increase our awareness of safety in the work place, and remind us to work together to alleviate accidents and injuries," says ATLC Vice President Carl Wright.

"We've made great strides in improving our safety numbers, but the statistics are almost beside the point," says Facilities & Operations Director Herb Debban. "The real benefit is that fewer people are getting hurt in the work place."

UT-Battelle and the ATLC are sharing the cost of the pickup.



The ATLC's Carl Wright (left) and F&O's Herb Debban with the giveaway pickup.

Populus proves popular

Last year's publication of the *Populus* genome, which is regarded as a key step toward developing economically feasible cellulosic ethanol technologies, came with great fanfare. It appears the buzz was justified, judging from the attention it has received from the research community.

The Environmental Sciences Division's Stan Wullschleger has been tracking the *Science* magazine manuscript's citations for the past year. He finds that a large number of researchers are citing the article in their research.

Stan says the article has been cited 69 times in the last 12 months. It was the 12th most cited *Science* manuscript in 2006, which is impressive in that the article did not appear until late September.

It is currently the second highest cited *Science* manuscript published in the last 12 months.

The only other paper

cited more often was on the human-health topic of colo-rectal cancer.

"There were more than 2,000 papers in *Science* last year," Stan says. For biology, this is a bullet."

Creative thinking on display, Nov. 7

The Laboratory Directed Research & Development Office is reprising its successful LDRD Projects Poster Session, following on last year's initial symposium and offering Lab staff members and visitors an opportunity to see and discuss some of ORNL's most creative thinking.

The special session, where researchers will be available to discuss their projects and answer questions, will be from 10 a.m. until noon on Wednesday, November 7, on

Main Street. Posters will be on display November 6-8.

LDRD manager Terry Sjoreen says 70 seed money and LDRD projects are finishing up this year, which sets the stage for a bustling Main Street.

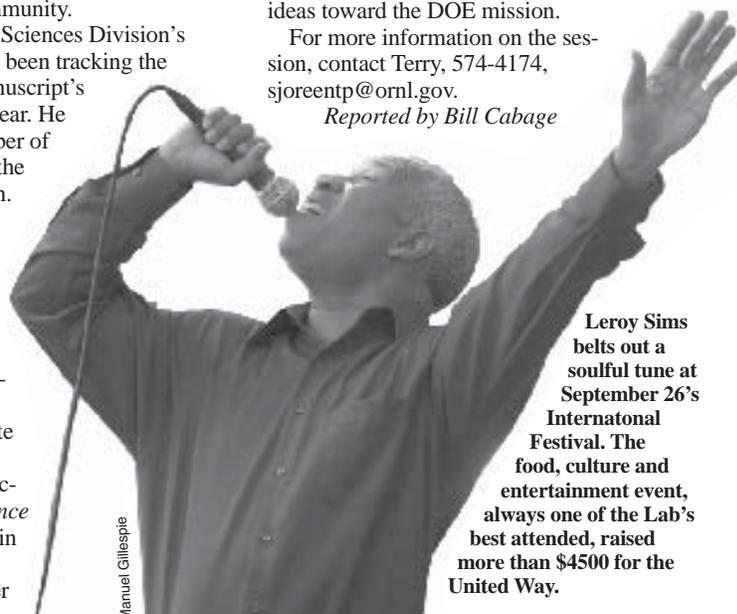
"Our objectives are to showcase the results of individual projects and the overall program, stimulate discussions among researchers and

introduce the LDRD program to those who are not familiar with it," Terry says. "This is an opportunity to explore ideas that are at the forefront of science and technology at the Laboratory.

The LDRD program, which consists of small Seed Money Fund grants and larger Director's R&D Fund projects, provides researchers an avenue to develop innovative ideas toward the DOE mission.

For more information on the session, contact Terry, 574-4174, sjoreentp@ornl.gov.

Reported by Bill Cabage



Leroy Sims belts out a soulful tune at September 26's International Festival. The food, culture and entertainment event, always one of the Lab's best attended, raised more than \$4500 for the United Way.

BioEnergy Science Center gets nearly \$10M jumpstart

ORNL's new BioEnergy Science Center, to be located in the state-funded Joint Institute for Biological Sciences on the west campus, received its first funding of \$9.9 million at the close of fiscal year 2007, putting the center on a fast track to begin its R&D on plant-derived biofuels.

The center is one of three nationwide, part of a \$375 million DOE investment in basic research on biofuels.

The money comes in addition to \$125 million in planned funding over five years for the new center announced in June. The new funding will shorten the timeline for hiring new staff and purchasing equipment and will jump-start research programs planned by the center's partners.

"We are anxious to begin the research."

Partners include the University of Tennessee, ORNL, Georgia Tech, the University of Georgia, the Department of Energy's National Renewable Energy Laboratory, ArborGen, Dartmouth College, Verenum Corp., Mascoma Corp. and The Samuel Roberts Noble Foundation.

Martin Keller, director of the BioEnergy Science Center, says scientists at the facility will work on modification of plant cell walls for easier breakdown into simple sugars that can then be processed into biofuels.

"This award will help us quickly get to the

business of developing ways to economically make transportation fuel from plants such as switchgrass and poplar trees," Martin says. "We are anxious to begin the research."

Researchers also will focus on development of consolidated bioprocessing using a single microorganism or group of organisms to break down plant matter through a one-step conversion method.

The new building is slated for occupation by December with operations fully under way in January 2008.

BioEnergy Science Center partners Mascoma and the University of Tennessee are also developing a state-funded, \$40 million bioethanol pilot plant, which has been sited about 40 miles from ORNL in Monroe County, Tenn.

The plant will be built and operated by Mascoma, with construction scheduled to begin by the end of this year. Plans call for the facility to be operational in 2009.

The Office of Science program in Biological and Environmental Research is in the



The state-funded Joint Institute for Biological Sciences is taking shape on the west campus. It will be the home of the BioEnergy Science Center, one of DOE's three bioenergy centers.

process of establishing three basic science research centers in bioenergy this year. A second center, under the leadership of Lawrence Berkeley National Laboratory, will be located near Berkeley, Calif., while a third center, run by the University of Wisconsin-Madison in partnership with Michigan State University, will be based in Madison, Wisc.

See the BioEnergy Science Center Website at www.bioenergycenter.org.

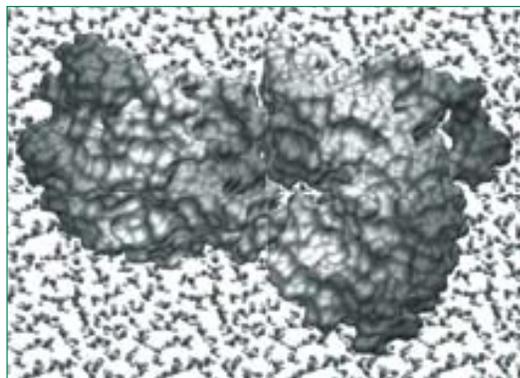
—Larisa Brass

Challenge

Continued from page 1

Lattice dynamics occur when the repeating units of a crystal vibrate relative to each other. These "phonon dispersion relations" relate the frequencies to the wavelengths of the oscillations. Phonon dispersion relations can, in principle, provide information on how proteins interact with each other that could be useful for understanding protein-protein interactions in the living cell. Until now, researchers have lacked the computing power to allow atomic-detail lattice dynamical calculations.

"The calculations, which were on ribonuclease crystals, are in good agreement with all existing experimental measurements," Jeremy says. "However the most informative experimental technique for measuring crystal vibrations is inelastic neutron scattering, but trials with previously existing neutron facilities failed to provide useful information for protein crystals, due possibly to neutron flux and instrumental limitations combined with the difficulty of working with large and complex molecules."



The new and advanced neutron analysis tools at the Spallation Neutron Source can test equally cutting-edge computational simulations aimed at understanding how proteins interact with each other, as visualized above.

With SNS instruments expected to be in some cases hundreds of times improved over currently existing facilities, Jeremy thinks those breakthroughs are within reach.

An added bonus to a confirmation of the

computational models would be a more widespread validation of computational simulation techniques, many of which are difficult to confirm experimentally. The SNS will give computational scientists confidence that their methods are on the right track.

Even while it is still in its shake-down phase, the SNS has three instruments promisingly on-line and is hosting its first visiting scientists. The brand-new facility has already set a world record for beam strength that is still far below its eventual peak power. Although the instrument Jeremy believes is best suited for his own experiment won't be available until 2010, he says other instruments will provide useful data.

In the meantime, Jeremy joins a neutron science community that can hardly stand the wait.—B.C.

Chestnut

Continued from page 1

James' father gave his mother, who had never driven a car, a crash course in driving while he pulled it out of the mud with a team of mules. She successfully drove to a field near their house but didn't know how to stop.

Brennan remembers standing on the porch with his brother watching his father run around trying to instruct his mother on how to stop the car while

keeping a team of mules under control. James doesn't remember the conclusion exactly, but somehow his father got the truck stopped.

His parents planned to spend their lives on the Chestnut Ridge farm, but events intervened.

In December 1941 the Brennans moved to a

64-acre farm near Scarbrough to get electricity but still owned the property on Chestnut Ridge. He says his parents planned to stay there for the rest of their lives, but by fall 1942 events beyond their control dictated otherwise. The family finished moving out near Christmas that year. James had already left for World War II.

During the war, Brennan worked in telephone communications, laying and maintaining telephone wires. He served in the Pacific

Theater early in the war—including Guadalcanal and Bougainville—and later in Europe, including the latter part of the Battle of the Bulge and a memorable trip to Paris.

"The French government gave us \$17. I still don't understand the reason why exactly, but we accepted the \$17 anyway. That's what we went to Paris on," Brennan says.

He remembers the beautiful buildings he saw, but his strongest memory is of the Parisian subway system. He and his Army buddies got on the subway not altogether realizing that the stops would be announced in French, that none of them understood French and that they could not see where they were going.

When he returned from the war, Brennan worked at the water treatment plant at Y-12 for a few years. He later did contract work at several sites on the Oak Ridge reservation, including the High Flux Isotope Reactor.

Brennan enjoys researching the history of this area and has many old photographs, news articles and documents that chronicle life here before atomic energy. He has the original land grant for 100 acres near Chestnut Ridge that the state of Tennessee issued to Thomas

Hagler on July 12, 1831. He also owns an old dinner bell that they used to ring to call workers in the field to lunch.

Although many things have changed since Brennan lived there, even before the SNS came to Chestnut Ridge science was wowing observers.



Farm days far behind him, James Brennan, 89, lives in Knoxville's Fountain City.

When the farm laborer focused photons to light his pipe, perhaps he foreshadowed how the SNS would focus protons onto a target to produce neutrons. The SNS's processes are much more complicated, but the wonder both produce is the same.—*Charlie Smith*

Despite hardships, pre-war ridge and valley were productive

James Brennan remembers farm life on Chestnut Ridge as typically hard but pleasant. Because the area was remote and roads were poor, farm families and communities had to be fairly self-sufficient.

But the land was productive, and the Brennans combined farming with a small business to live comfortably.

"Dad had a rolling store, a wagon he pulled with a team of gray mules," he says. "There were no stores around. He sold the basic goods—sugar, coffee and salt."

Brennan's father bought the Chestnut Ridge farm in 1915 and was able to pay it off in just 10 years. He says his father liked the Chestnut Ridge tract mainly because as a farmer he knew the value of water, and the land was unusually endowed with three springs.

"It was productive farm land. We had three tenant families and a sawmill that provided work for a lot of people," he recalls.

The Brennans raised cattle and crops,

marketing their produce in nearby towns.

Brennan enlisted in the Army almost immediately after Pearl Harbor. By the next Christmas, the remaining family was

uprooting for the Manhattan Project.

"I don't know how my father was able to get rid of what he had in such a short time," he says of the move.—*B.C.*



The Brennan family's rolling store was drawn by a team of mules, similar to this scene in the Lab's historical collection.

October is Energy Awareness Month

FMD marks the month with 'Change a Light, Change the World'

October is Energy Awareness Month. The Facilities Management Division is highlighting the Energy Star Change a Light, Change the World Campaign, a national call to action to encourage individuals to help change the world, one light—one energy-saving step—at a time.

"We are asking ORNL associates to identify one or more incandescent bulbs in your work area that can be replaced with an Energy Star-qualified compact fluorescent light bulb. The bulbs use 75 percent less energy than incandescent bulbs and last up to 10 times longer," says Greg Palko of ORNL's Energy Management Team.

Greg points out that besides saving the Lab money in energy costs, the bulbs, by reducing power demand, help reduce the greenhouse gas emissions that contribute to global climate change.

East Tennessee residents received a harbinger of the potential future during August and September when daily high temperatures soared into the 90s and stayed there. The heat generated peak power demands during one of the driest summers in recent memory.

Lab Director Thom Mason called on staff members to pitch in with the resulting power conservation effort by turning off unnecessary lights and drawing blinds to keep sunlight from heating up offices. F&O Director Herb Debban estimates that ORNL cut its power demand by about a megawatt during the heat wave.

Herb also credits improvement made in the 4500 complex, such as installing variable speed fan motors on fume hoods, with cutting up to \$2 million off the Lab's light bill.

The Environmental Protection Agency cited ORNL's work with the Green Buildings Council's LEED program, facility upgrades and recycling efforts with a WasteWise Gold Achievement—Green Buildings award, which will be presented at its November conference, titled, Building Community and Business Partnerships.—B.C. 

Why I prize my hybrid

by CAROLYN KRAUSE, editor, *ORNL Review*

Our blue Toyota Prius is more than a clean, green vehicle. It's a nifty collection of cool technologies on wheels. For example, this car talks to you. Just say "cooler" to the steering wheel microphone on a hot day and a female computer voice replies calmly, "Lowering temperature." Suddenly the fan switches on at the highest level.

It's a conversation piece. People ask us to talk about our hybrid gasoline-electric car. "What is your gas mileage?" they ask. The answer: On our summer trips on interstate highways, our car gets 52 to 55 miles per gallon. Around Oak Ridge and in winter, we get 45 to 49 mpg. According to Environmental Protection Agency estimates, the Prius averages 46 mpg in combined city and highway driving and has nearly 70 percent fewer smog-forming emissions than the typical new vehicle. Its carbon dioxide emissions are also lower than those from the average car.

People ask us other questions. "Do you have to plug the car in at night to recharge the battery?" No.

The car's nickel metal hydride bat-

teries are recharged directly by the gasoline engine acting as a generator or by regenerative braking, in which kinetic energy is recovered when the car slows or coasts downhill.

"Don't you worry that the battery will fail catastrophically?" No. We haven't heard that any Prius batteries have failed yet. The battery is under warranty for 100,000 miles. Any failure would likely hit only one of the battery's cells. The dealer can replace the failed cell to keep the modular battery operating at full capacity.

We like the Prius so much we carpool often.

Herb, an atomic physicist in the Physics Division, and I do not have "his" and "her" cars. We like the Prius so much we carpool often. He drives me to work and I drive him home.

Our hybrid, which we bought in 2004, has traveled almost 50,000 miles trouble free. With its navigation system, our car has taken us to Charleston, Savannah, Atlanta, Pittsburgh, Philadelphia and Ocean City, N.J. Because the car is more spacious than it appears from the outside, we traveled in comfort.

We like starting the car by pushing a button instead of turning a key. We enjoy "keyless entry" in which the beeping door unlocks in response to the key signal from a nearby pocket or purse. We like the car's great pickup at any speed while passing another car or entering the interstate.

We treasured the \$2,000 tax deduction for buying the car.



ORNL Review editor Carolyn Krause is happy with her fuel-sipping hybrid.



Club ORNL: Roundball, holidays

November 30. UT Men's Basketball vs. Louisiana Lafayette

Arrangements for this event are still being finalized. Please check the November Reporter for updates. The Vols are gonna be great.

December 16: Clayton Christmas Concert. A 3 p.m. matinee performance of the Knoxville Symphony Orchestra's Clayton Christmas Concert is being planned for ORNL employees and retirees. Club ORNL is making available 300 seats for the concert, at a special rate of \$15 per adult (regular price is \$21) and \$10 per child or student (regular cost is \$13.50). A child or student is defined as 2 years old through college students. Tickets can be purchased beginning 10/8/07 by contacting the KSO box office by phone and asking for the Club ORNL price. The KSO box office will handle the seating, payment, and mailing of tickets. No specific seats have been reserved, so make your reservations soon to get the best seats available. KSO staff will also be selling tickets in the ORNL cafeteria, and a quartet will provide music for your enjoyment, on November 30 from 11 a.m. to 1 p.m. For more information, contact Leigha Stewart at lstewart@ornl.gov or 241-9485.

Interested in the most up-to-date Club ORNL News? Check out the club's Web page online via the ORNL home page. To gain access to the ORNL home page, one must first register in XCAMS by going to http://www.ornl.gov/adm/clubornl_signup.shtml. After receiving your XCAMS account and Club ORNL membership, retirees can then go directly to <https://www.ornl.gov/adm/clubornl>. Ross Toedte, 574-1912, toedterj@ornl.gov, is the retiree point of contact.



Diffraction researcher Gerry Bunick dies

Former ORNL researcher Gerry Bunick died Sept. 19 in Oak Ridge after a long battle with cancer. He was 60.

Bunick's main area of study was molecular structure by diffraction methods using X rays or neutrons with crystalline specimens. His work helped establish how the packaging of DNA and proteins occurs.

His protein crystal experiments flew on the space shuttle and on the MIR space station for studies on the effects of microgravity.

He is survived by his wife of 34 years, Dr. Elaine M. Bunick; his son, Dr. Christopher G. Bunick and wife, Lilia Urquiza, of Nashville, Tenn.; and his daughter, Dr. Elissa Bunick-Fleming and husband, Dr. Scott D. Fleming, of Birmingham, Ala.

Rhoda Frank Grell, geneticist, dies

Former Biology Division researcher Rhoda Frank Grell died of complications from Alzheimer's Disease on Sept. 14 in California. The Grell family lived in Oak Ridge from 1958 until 1985, during which time she and her husband, Ed, both worked

in the Biology Division.

She was a noted *Drosophila* geneticist and the first researcher to propose distributed pairing as the mechanism for chromosome pairing during meiosis.

Grell edited two scholarly books, authored chapters in another four such works, and published 61 scholarly articles and abstracts, most in leading journals, including *Chromosoma*, *Genetics*, *Nature* and the *Proceedings of the National Academy of Sciences*.

Service Anniversaries

October 2007

40 years: Dan Reed Glandon, Fabrication; Wilbert D. Minter, Asset Mgt & Small Business Programs; Lester M. Petrie Jr., Nuclear Science & Technology

35 years: Nancy M. Larson, Nuclear Science & Technology; William H. Rose, Facilities Management

30 years: James Allen Mullens and Dennis Wayne Heatherly, Nuclear Science & Technology; Terry L. Heatherly, Information Technology Services; Cindy Ross Lundy and Donald G. Sharp, Communications & External Relations Dir.; Lynn A. Boatner, Materials Science and Technology; Dewey M. Williford and Arnold J. Beal, Campus Support & Instru-

New Staff Members

Charles Frederick Guyett, Information Technology Services
Kevin Wayne Humphries, Laboratory Protection
Billy Linwood Lee Jr., Michael David Cooke and Ronald Dewitt
King, Nuclear & Radiological Protection
David Ronald Pugmire, Markus Eisenbach, Rebecca Jean Hartman-Baker and Galen Mark Shipman, Center for Computational Sciences
Curtis Burton Hughes, Craft Resources
Thomas Joseph Naughton III, Computer Science & Mathematics
Tamara Ann Spakes, Health Services
Mustafa Hussain Syed, Biosciences
Cassandra Yvonne Anthony, External Companies
Edmon Begoli, Computational Sciences & Engineering
Vasile Ovidiu Garlea and Jack Kyle Johnson, NScD Neutron Scattering Science
Kristin Harris Heald, Contracts
Emmett Dale Hickman and William Dennis Murphy, NScD Research Reactors
Thomas Michael Martens, Office of Counterintelligence
Melanie Jean Moses, Materials Science & Technology
Vladimir Victorovich Peplov, NScD Research Accelerator
Christina Ann Raftery, Office of Chief Information Officer
Fabian Darryl Trujillo, NScD Neutron Facilities Development
Staci N.J. Williams, Communications & External Relations

mentation; Brian Patrick Spalding, Environmental Sciences; Jerry L. Gray, Nuclear & Radiological Protection; Jackie Price Nelson, Logistical Services; Ronald L. Taylor, Fabrication

25 years: Jeanette W. Early, Logistical Services; Dan T. Fehling, Fusion Energy; Patricia M. Presley and Lorie J. Hickey, Business & Information Services Dir.; Marc Livingstone Simpson, Engineering Science & Technology

20 years: Gwen A. Green, Fusion Energy; Gary R. Coffey, Utilities; Linda L. Farr, NScD Research Accelerator; Odie Costanzo, Logistical Services; Robert A. Tannert, Jr., and Gregory Carl Hinkel, Information Technology Services; Dane Brashear and Karen Yvonne Kaldenbach, Nuclear Science & Technology; Brian Alan Tatum, Physics; Paul Newsome Leiby, Environmental Sciences; Rick C. Griffin, Facilities Development



OAK RIDGE NATIONAL LABORATORY

Reporter

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 Powell, TN

ORNL People

Peter Cummings, principal scientist at the Center for Nanophase Materials Sciences and John R. Hall Professor of Chemical Engineering at Vanderbilt University, has been selected to receive the 2007 AIChE Nanoscale Science and Engineering Forum Award. The award recognizes outstanding contributions to the advancement of nanoscale science and engineering in the field of chemical engineering. Peter will deliver a nanoscale science and engineering award lecture during the AIChE Annual Meeting next month.

Nature Nanotechnology recently featured research using slices of rat brain and a carbon nanofiber array to simulate electrical activity in the brain. The work was a collaboration among researchers at Columbia University and the NanoScience Center's **Tim McKnight**, **Nance Ericson**, **Anatoli Melechko** and **Mike Simpson**.

Don Palmer has received the 2007 Honorary Fellow Award from the International Association for the Properties of Water and

Steam. The award was given in recognition of Don's outstanding contributions in the field of thermodynamic and transport properties of aqueous solutions of interest in the water-steam cycle, information that has been used in plant chemistry.

The Chemical Sciences Division's **Radu Custelcean** has won the 2008 Margaret C. Etter Early Career Award. This award recognizes outstanding achievement and exceptional potential in crystallographic research demonstrated by a scientist at an early independent career stage. The award is named for Margaret C. Etter (1943-1992), a major contributor to the field of organic solid-state chemistry. As a winner of this award, he will present a lecture at the American Crystallographic Association Annual Meeting.

Energy Secretary Samuel Bodman cited ORNL's work at last month's National Historically Black Colleges and Universities Week Conference in Washington. ORNL received an award from the White House Initiative on HBCUs for its support of administration educational programs. Bodman also recognized the mentor-protégé agreement between Morehouse College and ORNL and cited Lab Director **Thom Mason** and HBCU coordinator **Will Minter**, who led the way for this

first for the Office of Science. Deputy Director for Science & Technology **Jim Roberto** participated in the conference opening session. **Dr. Houssain Kettani**, a professor at Jackson State University, and **Lionet Lovett**, a Jackson State student, spoke in a session about their work in ORNL's summer faculty research program.



A bestripped Facilities & Operations Deputy Director **Jimmy Stone** "makes bail" after friends contributed \$2,700 to the East Tennessee Alzheimer's Association. Overall, UT-Battelle raised nearly \$15,000 for the cause. Jimmy was also vice chair of this year's United Way campaign.