

Putting Science to Work

ISSUE 3 2007

Newsletter



Alex Fischer and Tom Ballard discuss the future of TTED with one of the new LEED (Leadership in Energy and Environmental Design) ORNL facilities in the background.

BALLARD NAMED TTED INTERIM DIRECTOR

Changes are afoot in the Technology Transfer and Economic Development organization.

Recognizing Achievements
INSERT INSIDE

After serving for five years as TTED director, Alex Fischer has moved to Battelle headquarters in Columbus, Ohio, as vice president for Commercialization. He had been doing double duty, serving in both positions for more than a year.

Tom Ballard, director of Economic Development and Partnerships, has been named interim director while a search is completed for a permanent TTED leader. During this period, Ballard will continue to serve in his former position.

Fischer came to ORNL after serving in senior positions in both the public and private sector. He was chief operating officer of Akins Tombras Public Relations in Knoxville before serving successively as deputy

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BUILDING

ECONOMIC DEVELOPMENT

Building Synergy in a 'Deep Green' Community™

Oak Ridge National Laboratory researchers have been clamoring for years to prove and demonstrate the benefits of employing energy efficiency in residential buildings. Such high-performing, energy-efficient buildings tend to be more durable, comfortable, and desirable, and they use less energy and cost less to operate. They can help the environment and our nation, improving our energy security as well as the everyday lives of Americans.

The typical U.S. family spends \$1,300 a year on home energy bills, and some of that energy is wasted. Heating, ventilating, and air-conditioning units are inefficient, windows leak conditioned air, and appliances devour energy. This is expensive, and it's bad news for the environment – the electricity generated by fossil fuels to power a single home puts more carbon dioxide into the air than two average cars.

New home construction presents an opportunity to incorporate energy-saving features from the start. Across the nation, savvy occupants and builders are demon-

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Near-Zero-Energy home in a Habitat for Humanity community near Oak Ridge.

MESSAGE FROM THE DIRECTOR



Tom Ballard

Succeeding a person like Alex Fischer, even on an interim basis, is a high honor and a daunting challenge. I think I know that better than most folks, because I've known Alex and worked with and for him for about 15 years.

Actually, I first heard the name Alex Fischer before I ever met him. Dave Patterson, one of the early legends in what has become known as technology-based economic development, told me

that he had this young man working for him who was the brightest "kid" he'd ever had met, and I should hire him at the University of Tennessee. (Sorry to all of you who were also mentored by Dave.) I had great respect for Dave, but I also thought he might be exaggerating.

A few months after this conversation, I met Alex for the first time. We began working together to help stand-up a new organization called Technology 2020. Alex was the acting director, and I was one of the founding members of the board of directors. I quickly learned that Alex exemplified the saying "wise beyond his years." At most just 25 or 26 years old at the time, Alex was truly the "bright kid" that Dave described. He was so bright, in fact, that I did exactly what Dave Patterson suggested I do: I tried to lure him to the UT Institute for Public Service. Unfortunately for UT, Alex had a better offer from our mutual friend, Darrell Akins, and it was off to the races for Alex. He served for several years as chief operating officer of the firm that has become known as AkinsCrisp Public Strategies, where he played a key role in the early successes of the Tennessee Valley Corridor Summit series. Next, it was on to Nashville as deputy commissioner of the Tennessee Department of Economic and Community Development, then commissioner and finally deputy governor before moving back to East Tennessee five years ago as director of Technology Transfer and Economic Development for Oak Ridge National Laboratory.

We worked together in every one of his roles, whether it was supporting the annual TVC Summit, launching a multi-organization statewide initiative called "Manufacturing Means Jobs," or joining with Automotive News to start an annual manufacturing conference in the South. So, it was only natural that I approached this still "bright kid" four years ago, told him that I planned to retire from

UT in the next 12 months, and asked for his thoughts on second career opportunities. Never in my wildest imagination did I think it would be at ORNL. Several months later, however, Alex extended an offer to head the economic development side of TTED, and I joined the organization on July 12, 2004.

I came to ORNL because of Alex Fischer, that "bright kid" whose advice I have always sought and mostly followed. He said I could have some fun. He was right; I did have fun. Succeeding him as interim director is a daunting task, but I'm honored for the opportunity. I have come to truly appreciate just how important ORNL is to our local community, our state, the region, and the nation. I'm energized every day by the number of people who seek opportunities to collaborate with us and by those within ORNL who seek our help in finding external organizations with which they can partner.



Alex Fischer

- What could be more exciting than working at a place that has the world's greatest scientific tools in nanotechnology, is building the world's fastest unclassified computer, and just won one of the three U. S. Department of Energy \$125 million Bioenergy centers?

- What could be more important than helping our research directorates and their researchers enhance their work by identifying prospects that will lead to executing licenses and Work for Others and Cooperative Research and Development agreements?

- What could be more rewarding than helping facilitate true "win-win" situations where ORNL is enhanced at the same time that the competitiveness of communities and companies is improved?

Our challenge is to maintain the passion that Alex had for ORNL and the momentum that he achieved in TTED. The "bright kid" was right. When you have a passion for something, you really can have fun, too.

"I came to ORNL because of Alex Fischer, that 'bright kid' whose advice I have always sought and mostly followed."

NEW FACES IN TTED

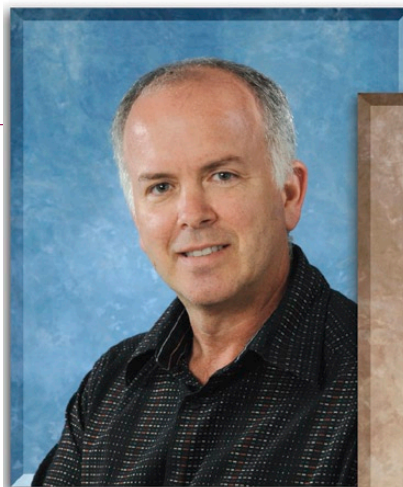
Filigenzi, Gergel on the Job for TTED

Two new ORNL staff members have joined the ORNL staff in support of the Technology Transfer and Economic Development program – Marc Filigenzi, intellectual property attorney, and Edna Gergel, patent agent.

Filigenzi was hired by the ORNL Legal Directorate in May. His duties include assisting with the management of the UT-Battelle patent portfolio and of the law firms that are prosecuting UT-Battelle patent applications. He also helps review contracts and agreements entered into by the laboratory. Filigenzi's previous job was corporate counsel for Alticor, where he prepared and prosecuted patent applications, managed much of Alticor's patent portfolio and outside patent counsel, and assisted in drafting and negotiating intellectual property licenses. His litigation experience included assisting Alticor in defending against claims of patent infringement and in asserting patent infringement claims against third parties.

Filigenzi worked previously as a research scientist at the Spokane Research Laboratory, where his duties included the development of numerical modeling techniques used to predict instabilities in deep underground mines and of virtual reality tools used for mine safety training. He holds a Bachelor of Mechanical Engineering degree and a Juris Doctor degree, both from Gonzaga University.

Gergel was hired by TTED in April. Her duties include prosecuting patent applications, with specific focus in the fields of biotechnology and chemistry. She also



Marc Filigenzi and Edna Gergel

oversees various law firms that are prosecuting patent applications for UT-Battelle and works closely with inventors to obtain patent protection for their inventions.

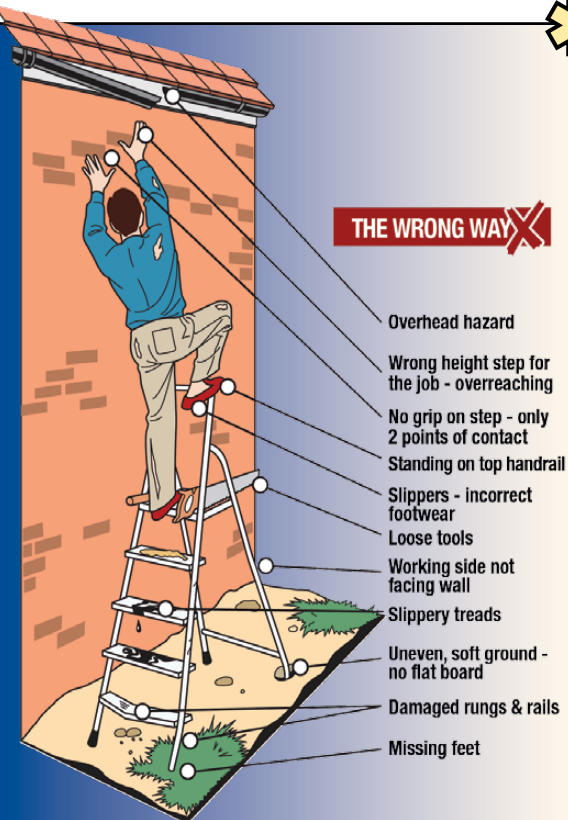
Prior to joining the ORNL staff, Gergel worked for Hoffmann & Baron, LLP, a mid-sized intellectual property law firm on Long Island, N.Y. Her duties included drafting and prosecuting foreign and domestic patent applications in the fields of biotechnology, chemistry, food science, and nutraceuticals; conducting patentability opinions; assisting in due diligence investigations; and performing prior art searches. She has a Ph.D. in molecular biology and biochemistry from the State University of New York at Stony Brook and is the author of numerous scientific publications. Prior to her graduate studies, Gergel was a research technician at Boston's Dana Farber Cancer Institute, where she worked in immunology – specifically in the area of HIV – and conducted research in the field of opioids and opiates.



SAFETY REMINDER

The advent of autumn brings lots of outdoor chores, many of which involve ladders. The American Academy of Orthopaedic Surgeons offers some safety precautions to reduce the chance of ladder-related accidents.

- Check the ladder for loose screws, hinges, or rungs. Clean off any mud or liquids that might have accumulated on it.
- Set up the ladder on a firm, level surface. Always engage its locks or braces before climbing. If working outside, make sure the ladder – when extended – will not hit electrical wires, tree limbs, or other obstructions.
- Remember the one-to-four rule: The bottom of the ladder should be one foot away from the wall for every four feet that the ladder rises. If you are going to climb onto a roof, the ladder should extend at least three feet higher than the rooftop. The upper and lower sections of an extension ladder should overlap for stability.
- Ask someone to hold the ladder as you climb. Stay in the center as you ascend, and hold the side rails with both hands. Only one person should climb it at a time.
- Position the ladder as close to the work as possible. Over-reaching or leaning too far to one side can make you fall.
- Move materials with caution when on the ladder. It is easy to be thrown off balance and fall.



Building Synergy (cont.)

strating that energy-smart building choices can help homeowners save on energy bills while also giving homebuilders a competitive advantage.

In a small Habitat for Humanity community near Oak Ridge, five single-family homes have been built in a pioneering effort to demonstrate the benefits of whole-house systems engineering and energy-efficient technologies. These small houses, built one by one, showcase the achievement of dramatic reductions in energy consumption and approach the goal of “net zero energy use.” (A net-zero-energy building is one that produces at least as much energy from solar panels as it consumes over a year.) ORNL has teamed with Habitat for Humanity, the Department of Energy’s Building America Program, the Tennessee Valley Authority, and other partners to design, build, and conduct performance monitoring and analyses of the near-zero-energy houses. These houses are equipped with integrated heating, cooling, and appliance technologies to maximize energy savings; the latest home boasts a net energy cost of less than \$0.50 per day.

A little farther away, on the eastern edge of the Cumberland Plateau, something magnificent is stirring – something that may become a blueprint for how the world thinks about environmentally focused community living and environmental stewardship.

Walden Reserve, a heavily wooded 6,000-acre mountainside development 60 miles west of Knoxville, will soon become the world’s first “Deep Green” Community. Founded on 12 principles of environmental stewardship, the community will serve as a magnet to the scientific community, homeowners, and others interested in conserving resources and improving our environment.

Tom Bray, president and CEO of Walden Reserve, LLC, will tell you that even after a successful career as a wealth investment manager, he felt that his footprint on this earth remained elusive. “When I first thought about this idea, I had the opportunity to speak to Dr. Jack Sheaffer, author of the Clean Water Act. When I told him the idea for a “deep green” community he said, ‘Are you serious? This has never been done before. Every scientist will want to be involved. If you are serious about doing this right, it will be the most important accomplishment of your lifetime.’ Now that really got to me,” Bray said.

The Kansas City-based developers of Walden Reserve are creating a community where “best available technology” can be brought to bear on every facet of community living, from “green” power generation to innovative wastewater treatment to ultra efficient housing – all without sacrificing the property’s natural beauty. This unique program will provide ORNL and its industry partners the opportunity to field test, in a 7-mile-long “green laboratory,” cutting-edge, environmentally focused technology in a real-world commercial marketplace. This will help ensure that Walden Reserve can maintain its pledge to implement the best technology available in its environmentally focused community.

12 Principles of Environmental Stewardship

1. Energy Supply Independence - Generate its own energy through a variety of strategies to become the world’s first “Zero Energy Neighborhood™.”

2. Zero Discharge Water Treatment - Manage and treat all of its wastewater to keep local streams and water sources in their pristine condition.

3. Sustainable Building Material Use - Constructed using stone, lumber, water, and mulch from the 6,000-acre property.

4. Energy Efficient Building - All structures will employ the latest available energy-efficient technology, including structural insulated panels (SIPs), low-energy glass, and energy-transfer ventilation systems.

5. Storm Water Retention and Recycling - Multifaceted landscaping will serve both an aesthetic and a highly functional purpose in the collection and absorption of rainfall on the property.

6. Sustainable Water Supply - Irrigation and rain water will be collected from many source points and used to recharge the local aquifer.

7. Micro-Climate Management - Through selected plantings and landscaping techniques, ground fog will be managed to make property more accessible for more hours each day.

8. 75 Percent Green Space - A 30 percent building envelope and the set aside of 50 percent of the property ensure a minimum overall green space of 75 percent of the property.

9. Carbon Sequestering - Miles of virgin forests and meadows produce oxygen while removing carbon dioxide from the atmosphere.

10. Greenways - Forest-friendly walking trails will extend the Cumberland Trail connection between two state parks and offer a healthier lifestyle for residents.

11. Fire-wise Development - Forests will be maintained in their natural state at low-fire-risk levels.

12. Audubon Certified Golf Course - An eco-friendly course that meets required standards for protecting water quality, conserving natural resources, and providing wildlife habitats.

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The partnership also will enable collaboration in seeking federal R&D funding to further extend the impact of new technology to the ultimate goal of commercialization, manufacturing, and implementation for a cleaner world.

The build-out is planned in six phases of more than 7,000 homes and commercial properties over 25 years. Phase I, to include some 1,200 homes, will begin this fall with infrastructure development and the construction of the property's first Zero Energy Home. This home will represent a collaborative effort between ORNL, Whirlpool, and other industry partners to establish critical benchmarks for energy efficiency levels to be implemented in all subsequent construction on the property.

Typically, one plus one plus one leads to familiar ground. In the case of Walden Reserve, synergy is being leveraged among partnerships on a greater scale to design, plan, and build the world's "greenest of green" community development. This dynamic partnership challenges even the most ambitious green developer to the next level of environmental responsibility. Walden Reserve and its corporate and scientific partners are dedicated to preserving our natural resources and creating a community reflecting that dedication.

Today ORNL participates in many programs with builders and suppliers in an effort to bring new energy-efficient technologies and construction supplies to market. Lab researchers have worked with industry to develop and demonstrate energy-saving benefits of infrared-blocking pigments used to make dark-colored metal, concrete tile, and asphalt shingle roofing that is highly solar reflective, reducing the need for air conditioning. ORNL also has worked with industry to develop low-cost, more energy-efficient second- and third-generation foam insulation materials. The laboratory has developed software tools to assess the potential for moisture-related damage in construction materials; provide energy efficiency ratings for entire buildings; audit homes for weatherization as part of DOE's low-income Weatherization Assistance Program; and perform analysis supporting the design of more efficient heat pumps. In addition, ORNL has helped guide development of standards related to insulation, to materials that make up a building's "envelope," and to moisture design.

Interim Director (cont.)

commissioner of the Tennessee Department of Economic and Community Development, then as ECD commissioner, and finally as deputy governor of the State of Tennessee.

He will join former ORNL Director Jeff Wadsworth – who was recently named executive vice president for Lab Operations at Battelle – and will coordinate technology transfer activities for all Battelle-managed labs.

Ballard came to ORNL three years ago after retiring from the University of Tennessee after 35 years. His last position was vice president for Public and Governmental Relations, but Ballard headed UT's nationally recognized Institute for Public Service for 20 years. The institute had a staff of more than 100 consultants serving manufacturers and governmental agencies across Tennessee.

Ballard serves on the board of directors of a number of local and regional not-for-profit organizations, including the Blount County Chamber of Commerce; East Tennessee Economic Council (immediate past chair); East Tennessee State University's Innovation Park; Knoxville Area Chamber Partnership; National Transportation Research Center, Inc.; Oak Ridge Economic Partnership (treasurer); Tennessee Chamber of Commerce and Industry; Tennessee Valley Corridor, Inc. (past chair); and Tennessee Valley Corridor Foundation (chair). He also serves on the Advisory Board for UT's Center for Industrial Services and is a member of the Southern Technology Council.

He is a graduate of UT's College of Communications and was the 2001 recipient of the College's Hileman Outstanding Alumni Award. He also was named the second-ever "Tennessee Valley Corridor Champion" in 2005.



Overlooking Walden Reserve nestled in the Cumberland Mountains of East Tennessee.

TTED | TECHNOLOGY
EVENTS

Linking Science to Policy: NCSL Visit



Attendees at the recent NCSL ACE visit.

Technology Transfer and Economic Development recently hosted the annual meeting of the National Conference of State Legislatures' (NCSL) Advisory Council on Energy (ACE). Council members included senators, state representatives and delegates, analysts, and local government officials, as well as private industry representatives.

Some 30 participants heard from ORNL scientists

involved in energy-efficiency areas ranging from transportation to building technologies and biofuels. Opening-session presenters included Jeff Wadsworth, outgoing ORNL director; Jack Brellenthin, senior manager of Environmental Policy, Tennessee Valley Authority; and Nancy Finley, chief of Resource Management and Science, Great Smoky Mountains National Park.

Second-day presenters included ORNL staff members Reinhold Mann, associate lab director for Biological and Environmental Sciences, and Bob Hawsey, director of Energy Efficiency and Renewable Energy Programs. The group toured the Building Technologies User Facility, Spallation Neutron Source, and Free-Air CO₂ Enrichment experiment.

The third day focused on transportation, with presentations by Ben Ritchey, acting CEO of the National Transportation Research Center (NTRC) Inc.; Ray Boeman, director of ORNL's Transportation Programs; and Brian Davison, ORNL chief scientist for Systems Biology, plus a tour of the NTRC User Facility.

TTED hosted the meeting, along with ORNL's Protocol Office, as part of its effort to build relationships with technology-focused organizations around the country. NCSL's goal was to help state legislatures find ways to address the nation's energy problems by giving legislators and staff insights into ORNL's leading-edge research.

Attendees had the opportunity to review industry trends, ask questions, and receive feedback on air quality, climate change, transportation fuels development, and energy efficiency. Many participants expressed appreciation for hard data they gathered to support future policy decisions. One said he was "shocked to death" at the information provided, while another casually stated, "ORNL has the expertise."

IMPACTS | IN
ECONOMIC
DEVELOPMENT

Southern Growth Policies Board Is Key ORNL Partner

The success of TTED in advancing its "Lab of the South" initiative relies on partnerships at the local, regional, and multi-state levels. No relationship across the South is more important to TTED than the one that exists with the Southern Growth Policies Board (SGPB) and its Southern Technology Council (STC).

Southern Growth is a non-partisan public policy think tank based in Research Triangle Park, N.C. Formed by the region's governors in 1971, SGPB develops and advances visionary economic development policies by providing a forum for partnership and dialog among a diverse cross-section of the region's governors, legislators, business and academic leaders, and the economic- and community-development sectors. It is truly a unique public-private partnership devoted to strengthening the South's economy and creating the highest possible quality of life.

Thirteen Southern states – Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Virginia, and West Virginia – and the Commonwealth of Puerto Rico comprise SGPB.

TTED had linked with Southern Growth in the past, but the relationship really blossomed in April 2005 when the STC, the organization's technology subset, held its quarterly meeting at ORNL. Much of the meeting's focus centered on the lab's emerging nano capabilities – the



(TTED TECHNOLOGY EVENTS continued from page 6)

first of the U. S. Department of Energy's nanoscience centers and the Spallation Neutron Source. In fact, Jim Roberto, ORNL's deputy director for Science and Technology, challenged Southern Growth to do more to ensure that the "nano revolution" did not miss the South economically.

The challenge produced a major ORNL-funded, SGPB-compiled report, "Connecting the Dots," which contained an inventory of the South's nano assets and compared them to those of the rest of the nation. TTED and SGPB continue to pursue the nano opportunities, including a possible workforce development initiative involving several community colleges, creation of a Southern Nano Alliance, hosting of a Southern Nano Summit, and assistance in promoting the "Nano Nexus 2007" event.

Meanwhile, as noted elsewhere in this issue, SGPB has played a major role with ORNL in standing-up a Southern Bioenergy Research Alliance. Its STC endorsed the formation of the Automotive Research Alliance involving ORNL, the Tennessee Valley Authority, and seven universities in five states.

Activities like those represented in the "Lab of the South" initiative require good partners who have the reputation for collaboration and the ability to convene potential partners. SGPB and its STC play that role very effectively for ORNL.

TTED's Tom Ballard speaks about workforce development challenges during the opening session of the annual meeting of the Southern Growth Policies Board in June in St. Louis.

ORNL Hosts SBRA Planning Retreat

About 50 researchers, industry representatives and others interested in Bioenergy attended the inaugural planning retreat for the Southern Bioenergy Research Alliance (SBRA) in late July at ORNL.

The two-day event included representatives from more than a dozen universities as well as several regional and national corporations involved in Bioenergy. Organizers were ORNL's Biological and Environmental Sciences directorate, Southern Growth Policies Board, and TTED.

The meeting had been planned prior to the June announcement that an ORNL-led consortium had been selected as one of three groups winning a \$125 million U. S. Department of Energy BioEnergy Science Center. The same groups organized another workshop in September 2006 in Atlanta to discuss the then-pending ORNL proposal as well as other opportunities to help address America's energy challenges.

The Atlanta group championed the follow-up meeting, and many of the July participants also attended the 2006 workshop.

Jim Clinton, executive director of the SGPB, facilitated the SBRA workshop that started with a keynote address by John Pierce, vice president for DuPont's Bio-Based Technology. Following his presentation, SGPB's

Charity Pennock reviewed the opportunities identified at the 2006 Atlanta event, and ORNL's Brian Davison provided an overview of the ORNL-led BioEnergy Science Center.

Other presentations included an overview of the University of Tennessee-Oklahoma State University SunGrant Initiative by UT's Tim Rials and one by Denny Hunter, vice president for Technology at Weyerhaeuser Company.

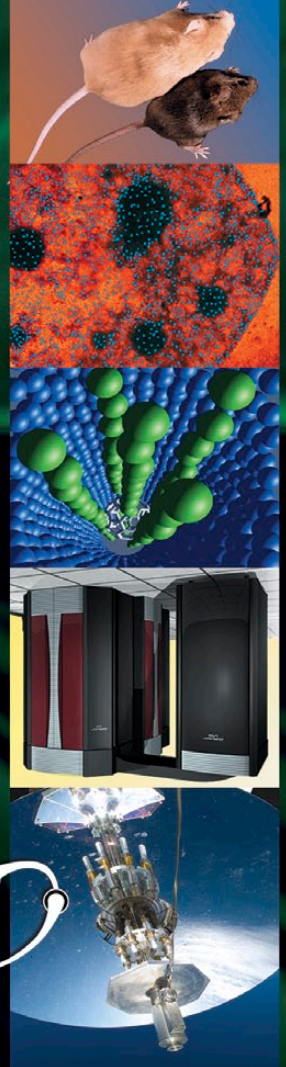
Breakout sessions throughout the two days produced a set of follow-up activities which the group plans to pursue.

Higher education institutions participating included Auburn, Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi State, Texas A&M, UT, Virginia Tech, Washington (St. Louis), and West Virginia. Other representatives came from ConocoPhillips; FuelCellSouth; Mid-Atlantic Technology, Research and Innovation Center; and Noble Foundation.



Keynote speaker John Pierce of DuPont's Bio-Based Technology examines sample.





TECHNOLOGY TRANSFER AND ECONOMIC DEVELOPMENT

UPCOMING EVENTS

- September 26-27 Tennessee Valley Venture Forum, Knoxville Convention Center. For more information: www.tvventure.org/
- October 18-19 SSTI Annual Conference, Baltimore. For more information: www.ssti.org/conference07.htm
- October 24-25 Southeast Solar Summit, Oak Ridge National Laboratory Conference Center, Oak Ridge. For more information: www.ornl.gov/sci/solarsummit/
- October 24-25 Tennessee Industrial Development Council Fall Conference, Franklin. For more information: www.tidc-edcdev.org/
- November 7-8 2007 Manufacturing Solutions Conference, Nashville. For more information: www.cis.tennessee.edu/conference/
- November 19 Tennessee Valley Corridor Southeast Partnership Event, Greenville, S.C. For more information: www.tenvalleycorridor.org/summits/other.htm

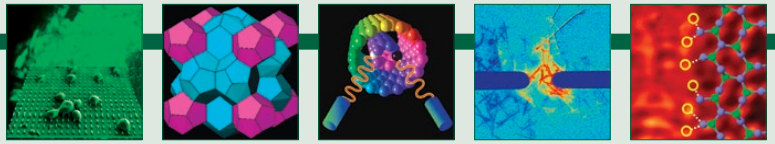


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 Toll-free number: 866-221-2527



Recognizing Achievements

AWARDS AND REWARDS

TTED Presents Key Contributor, Patent Awards

The Technology Transfer and Economic Development organization held its annual Key Contributor and Patent Awards Ceremony on June 14. This event is specifically designed to acknowledge and thank the many individuals who contribute to the success of the Technology Transfer mission of UT-Battelle each year. The two groups comprising the honorees at the event are "Key Contributors" and named Inventors on patents that were issued during the previous fiscal year.



Jim Roberto, right, assoc. lab. director, presented a patent award for "New Ir-Based Alloys for Ultra-High Temperature Applications" to (L to R) Easo George, Chain-Tsuan Liu, and Everett E. Bloom.



Key Contributor winners Dami Rich, center, and Kim Wilson, along with former TTED Director Alex Fischer.

Key Contributors typically are nominated by a Principal Investigator or a member of the Technology Transfer staff for their significant contributions to achievements such as technology licenses, Work for Others, or Cooperative Research and Development Agreements (CRADAs). This year's honorees included "behind-the-scenes" technical support on a license and CRADA with Navigational Sciences (Milijko Bobrek, and Paul Ewing); a license with Santa Cruz Biotechnology (Steve Kennel); a license with Hinds Instruments (Chris Rouleau); and support for development of a Mass Spectrometry "Surface Sampling Probe" by Vilmos Kertesz.

Also in this category, Dami Rich was recognized for his significant contributions to marketing efforts for UT-Battelle at this year's "BIO" show. Fern Stooksbury received an award for the development of a new on-line registration program for the LandScan global population density dataset, and Kim Wilson was recognized for her achievements in protecting ORNL proprietary materials through implementation of a record number of Material Transfer Agreements.

Other Key Contributor awards traditionally are presented to the Oak Ridge National Laboratory technical teams who win **Federal Laboratory Consortium (FLC)** awards each year. This

Jim Roberto, second from right, with the National FLC award-winning team for Hybrid Solar Lighting. L to R: Christina Ward, Curt Maxey, John Jordan, and Jeff Muhs. Other team members were Melissa Lapsa, Randall Lind, David Beshears, Art Clemons, Duncan Earl, Wes Wysor, and the late Larry Dickens.



Copyright winners for "LandScan 2004 High-Resolution Global Population Data Set" are Phillip R. Coleman, left, and Edward A. Bright; not pictured is Amy L. King.



year, ORNL received a national award for "Hybrid Solar Lighting." Regional FLC awards were presented to the laboratory recognizing the work of four teams: "SeizAlert," "Heat Resistant Alloys," "LandScan," and "MEMS-based Uncooled Infrared Imaging."

In the area of issued **patents** and registered **copyrights**, 45 individuals received one or more awards as inventors or authors on 34 patents and four registered copyrights. Patent awards are given to named inventors during the year following the issuance of the patent.

A final award category for the annual event is the recognition of **Battelle Distinguished Inventors**, for ORNL inventors who have achieved a lifetime goal of 14 patents. This year, Mark A. Janney and Michael L. Simpson – both of the Materials Science and Technology Division – were recognized for this significant achievement. Plaques honoring Janney and Simpson will be added to those representing the distinguished group of inventors already on display in the lobby of ORNL Building 4500 North.

ORNL Wins Six More R&D 100 Awards

Researchers at ORNL have won six R&D 100 Awards, given by R&D Magazine to the year's most technologically significant products. ORNL leads DOE labs with 134, second overall in all-time awards. Technologies and developers are:

Piranha – Mark Elmore, Brian Klump, Robert Patton, Thomas Potok, Joel Reed, and Jim Treadwell of Computational Science & Engineering. Uses intelligent agent technology and large cluster computer to quickly and accurately analyze large volumes of text data.

Pharos Neutron Detector System – Richard Riedel, Neutron Scattering Science; Ronald Cooper, Neutron Facilities Development; and Lloyd Clonts, Engineering Science & Technology. Small low-power neutron detection system for identifying nuclear materials at airports and harbors.

Cast Nickel Aluminide for Improved Productivity of Steel Heat-Treating Furnaces – Duraloy Technologies; Mittal Steel USA; Anthony Martocci (consultant); Vinod Sikka and Michael Santella, ORNL Materials Science & Technology; and Jeffrey McNabb, ORNL Fabrication. Unique combination of high-temperature strength and oxidation resistance for use in heat-treating furnaces.

High-Performance LMO-enabled, High Temperature Superconducting Wires – SuperPower Inc.; Parans Paranthaman and Tolga Aytug, ORNL Chemical Sciences; and Amit Goyal, ORNL Materials Science & Technology. High-current, second-generation superconducting wire with strength, flexibility, throughput, and low cost for power-grid applications.

Large Area Imager for Standoff Detection – Lawrence Livermore National Laboratory; Space Sciences Laboratory, Cal-Berkeley; Lorenzo Fabris and Thomas Karnowski, ORNL Engineering Science & Technology; and Klaus-Peter Zioc, ORNL Nuclear Science & Technology. Search instrument capable of finding radiation sources within 100-meter swath while traveling at 25 mph.

Armstrong Process CP Ti and Ti Alloy Powder and Products – International Titanium Powder; Craig Blue, Jim Kiggans, Stephen Nunn, and Phil Sklad, ORNL Materials Science & Technology; ORNL postdoctoral fellows William Peter and John Rivard; Art Clemons, ORNL National Security; BAE Systems; AMETEK; National Energy Technology Laboratory; and Red Devil Brakes. Method of producing titanium powder that significantly reduces costs.



Pictured with Casey Porto, Technology Transfer director, left, is Distinguished Inventor Mark A. Janney; shown in portrait is Distinguished Inventor Michael L. Simpson.