

Cancer treatment gets software boost

More precise radiation therapy reduces stress on surrounding tissues

by Nancy Ambrosiano

Nearly a million cancer patients will undergo radiation therapy this year. And now thanks to a new software application, Acuros®, based on the Laboratory-developed Attila® radiation-modeling software, physicians will be able to focus their beams more precisely on specific tumor sites.

Acuros has been released by Transpire Inc. (<http://www.transpireinc.com>), a Los Alamos spinoff company and exclusive licensee of the Attila software.

"Transpire Inc. is a great spinoff success story for the Laboratory—not only are they selling a very impressive commercial software based on Los Alamos technology, they are further developing that technology to branch out into other markets," said John Mott, acting division leader for the Technology Transfer (TT) Division. "Spinoff companies are another way for Los Alamos to transfer technology into private industry, creating new jobs and boosting the economy."

Transpire scientists adapted the dose calculation software, originally developed at Los Alamos, that predicts radiation behavior in a broad range of applications with unrivaled speed and accuracy. For the radiotherapy dose calculations, Acuros uses an accurate representation of the patient's anatomy, obtained from computed tomography scans or magnetic resonance imaging, to solve directly for the mathematical equations governing subatomic particle behavior. Mapping the particles to the patient allows physicians to reduce damage to tissues and organs that may be near the tumor.

A central challenge for radiotherapy treatment is the delivery of high doses of radiation to the entire tumor site without damaging surrounding organs and tissues. Dozens of dose calculations may be required to develop a single, optimized radiotherapy-treatment plan.

Plans are developed on hospital computers with physicians or physicists anticipating nearly immediate results, so the software's dose calculations need to be fast.

To meet this need for speed, most of today's dose calculation methods employ simplifications that can produce numerous errors. With Acuros providing accurate information without a time lag, physicians are able to properly develop and interactively apply better patient-specific treatment plans, raising success rates and reducing complications.

Acuros will initially support photon beam radiotherapy and brachytherapy (a radioactive seeding method of treatment). Targeted radionuclide therapies and proton therapy will be added later.

Former Los Alamos scientists John McGhee and Todd Wareing, together with Greg Failla of Seattle, launched Radion Technologies in 2002, later changing the name to Transpire Inc., with the intention of marketing Attila. Based in Gig Harbor, Washington, Transpire Inc. addresses industry applications as diverse as radiation shielding, medical imaging, homeland security, and reactor analysis. Transpire was recently awarded a Phase II Small Business Innovation Research grant from the National Cancer Institute for \$750,000. The company will use this money to further develop Acuros.

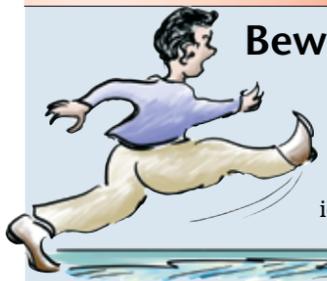
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For Your Safety



Beware of slips and falls

When employees drag water and ice into the office on their feet and clothing, the danger of slipping and falling

increases. It's one of the special safety hazards of winter and inclement weather, but also one that is easily preventable with awareness and foresight. Here are a few tips to help avoid this common winter safety risk.

Be prepared; watch the local weather news. If traveling, check out a national forecast to make sure you have the clothing and proper footwear for the weather at your destination. Knowing what to expect is essential for proper preparation.

To cut down the risk of slipping on wet indoor surfaces

- shorten stride lengths to maintain a center of balance;
- walk with feet pointed slightly outward, creating a stable base;
- make wide turns at corners;
- post signs to warn of wet areas;
- clean up water that drips from clothing and shoes; and
- be careful of wet shoes on a dry floor; they can be just as slippery as dry shoes on a wet floor.

The risk of slipping outdoors in inclement weather can be reduced by

- slowing down to allow time to react to a change in traction;
- wearing slip-resistant shoes, boots, or over-shoes (carry work shoes); and
- wearing sunglasses when outdoors in ice and snow to help see possible hazards.

Remember, proper footwear is important. Wear slip-resistant shoes appropriate for the job. Some have special sole patterns specifically engineered for slippery work areas. Or, use abrasive strips to increase traction.

In addition, to assist employees with walking more easily in winter conditions, the Worker Safety and Security Team is offering Yak Trax Walkers that slip over regular shoes to help increase traction on packed snow or ice. To place an order, go to hsrasweb.lanl.gov/yaktrax/order.asp online.

Editor's note: The following is an all-employee memo from Doris Heim, associate director of business services, concerning the Laboratory's winter closure.

2007 winter closure

As has been our practice in past years, the Laboratory will have a winter closure this season. The Laboratory will close at the end of business on Friday, December 21, and will reopen on Wednesday, January 2, 2008. Because the Laboratory will be closed on December 24, the closure will be one day longer than usual. Please note, too, that the Laboratory has implemented several changes with regard to the closure.

First, the "vacation grant" time code used by eligible employees with less than 10 years of service credit will be replaced by a 24-hour vacation credit for eligible full-time employees. Eligible part-time employees will receive vacation credit hours in proportion to their schedules (for example, a 50-percent employee will receive 12 hours of vacation credit).

Looking ahead to future winter closures, employees hired before January 1, 2008, who have less than 10 years of service and customarily would accrue vacation at 10 hours a month will begin to accrue vacation at 12 hours a month beginning January 2008, so that they can have an

additional 24 hours of vacation credit a year for future winter closures.

Because exempt employees now will be able to report non-productive time (such as vacation, sick leave, and jury duty) in one-hour increments as of December 17, exempt employees can use the one-hour increments of vacation time, where necessary, to maintain their workweek over the winter closure. Employees who do not have sufficient accrued vacation and prefer not to take leave without pay will be permitted to borrow vacation.

Since the Laboratory will be closed an additional day during this year's closure, employees may wish to consider the following options to use less vacation time:

- Exempt employees on the 9/80 "A" schedule may wish to work on Friday, December 21, so they don't have to use vacation time on December 28. In effect, they would swap Fridays during that pay period, subject to manager approval (with a memo to the group office file).

- Non-exempt employees on the 9/80 "A" schedule may wish to work on Friday, December 21, so they don't have to use vacation time on December 28. This will require a temporary change to the "B" schedule in the Time and Effort System for that pay period, subject to manager approval.

The closure is intended to be as complete as possible. Advance, written exceptions must be approved for employees who need to perform essential services during the closure. Division-level management must approve or disapprove any such paperwork before the closure begins.

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Los Alamos National Laboratory is a multidisciplinary research institution engaged in strategic science on behalf of national security. The Laboratory is operated by a team composed of Bechtel National, the University of California, BWX Technologies and Washington Group International for the Department of Energy's National Nuclear Security Administration.

Los Alamos enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health and global security concerns.



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Halloween at the Bradbury Science Museum



Ashlynn Daughton, a volunteer from Los Alamos High School, shows a group of children the parts of a skeleton at the Bradbury Science Museum during High-Tech Halloween. This year's theme was "Skeletons." High-Tech Halloween is held in conjunction with Los Alamos's Trick or Treat on MainStreet activities organized by downtown merchants and geared for the elementary-school-age student. Photo by Sandra Valdez, Records Management/Media Services and Operations

So... what do you think?

Q: Do you read "LANL in the News" found on the Laboratory's internal home page or "News Clips" available through Links? If so, how often and why? If not, why not?



Debra V. Garcia of the Research Library (STBPO-RL)

I read them every morning with my cup of coffee. I like to be informed, and I particularly like them because they are brief.



Richard Kandarian of Scientific Software Engineering (HPC-1)

Yes, I read them around three or so times a week. However, it all depends on the news. If it's interesting I'll read it more often, where as if it is not, I may not look at it at all.



Kathi Parker of the Technology Transfer (TT) Division

Yes, I do [read the News Clips] every morning because it's part of my job in Tech Transfer. I also read them so I can see that positive stories actually are out there, it's not all negative.

In Memoriam

Charles Fuller

Laboratory retiree Charles Fuller died April 29.

Fuller joined the Laboratory in 1953 in the former Weapons Engineering (W) Division. He also worked in the former Field Testing (J), Accelerator Technology (AT), Dynamic Testing (M), International Technology (IT), and GMX divisions. He retired in 1985 as a staff member in the Design Engineering (WX) Division.

Fuller is survived by his wife, Barbara; daughters Marjorie and Janet; and son James.

Don C. Rader

Laboratory retiree Don C. Rader died May 23. He was 73.

He joined the Laboratory in 1978 as an electrical technician in the former Medium Energy Physics (MP) Division. He retired from the Laboratory in 1993.

He is survived by wife, Joanne; son Jack; daughters Carol, Julie, and Carol; sister Shirley Smith; and numerous grandchildren, great grandchildren, nieces, and nephews.

Jane Rasmussen

Jane Rasmussen died August 26. She was 82.

Rasmussen joined the Laboratory in 1956 as a computer assembly technician in the Theoretical (T) Division. In 1990, she retired from the Laboratory as a computer technician in the Computing (C) Division.

Rasmussen is survived by her husband, Roger Rasmussen of Los Alamos; son Gregory of Michigan; daughter Beth of Virginia; two grandchildren; and three great grandchildren.

PEOPLE



Los Alamos scientist named MacArthur Fellow



My Hang Huynh

Laboratory scientist **My Hang Huynh** is one of 24 recipients of a 2007 MacArthur Fellow award from the John D. and Catherine T. MacArthur Foundation.

MacArthur Fellowships offer the opportunity for Fellows to accelerate their current activities or take their work in new directions, according to a news release from the foundation. The unusual level of independence

afforded to Fellows underscores the spirit of freedom intrinsic to creative endeavors. MacArthur Fellows also receive a \$500,000 grant over five years from the foundation.

Huynh, a chemist in High Explosive Science and Technology (DE-1), earlier this year received an E.O. Lawrence Award from the Department of Energy for her research and discovery of Green Primary Explosives to replace mercury and lead primary explosives, which have caused detrimental effects on the environment and humans for nearly 400 years. Her interdisciplinary research has led to the formation of a new series of high-nitrogen transition metal complexes, which are perfect precursors for preparing metallic nanofoams. She joined the Laboratory in 2000.

Green Primary Explosives also won a 2006 R&D 100 Magazine award, which honors significant commercial promise in products, materials, or processes developed by the international research and development community.



October service anniversaries

40 years

Thomas Lopez, ISR-6

35 years

Charles Fite, ISR-3
Thomas Hill, X-3-PC
Lorenzo Martinez, ERSS-RS
David Salazar, EWMO-RLW
Kurt Schoenberg, ADEPS
Carlo Trujillo, ASM-MM

30 years

Paula Cisneros, C-NR
Sandra Lopez, IRM-RMMSO
James Painter, X-1-MV
Dixie Paternoster, HR-SVSTR
Gregory Pollak, X-1-HEDPL
Manjit Sahota, T-3
Roberta Simpson, PMT-4
David Watkins, MPA-DO

25 years

Robert Alcon, DE-9
Kenneth Butterfield, N-2
Jeffrey Dunning, IST-IS12
Sally Eres, SEC-PSS6
Gregory Helland, ERSS-RS
Mike Kolb, CPO-OFF
Thomas Moxley Jr., MQ-3
Gregg Obbink, ISR-4
Albert Stadelmaier, WS-WA
Phillip Stroud, D-3

20 years

Sheila Brown, LC-DO
Anthony Garcia, ASM-MM
Joel Kress, T-12
William Kubic, AET-2
Mark Miller, W-4
John Musgrave, C-NR
Geraldine Purdy, MPA-MC
William Sailor, ISR-4

Dean Sanzo, D-5

Laurie Tomlinson, PMT-5

15 years

Roger Crandell, CTN-5
Carl Gilbert, X-DO
Diana Kottmann, C-NR
Nanette Mayfield, CFO-CCR
Michael Prime, WT-2
George Rodriguez, MPA-CINT
Coleman Smith, PMT-4

10 years

Ioana Anghel, WS-TWPS
Stacy Battle, X-DO
Bruce Bingham, ES-DE
Miriam Blake, STBPO-RL
Tom Bucholz, MSS-EFO
Melvin Burnett, ES-SE
Allan Chaloupka, TA21
John Chamberlin, WS-WA
Shaoping Chu, EES-2
John Costanza, CTN-1
Anthony Davis, ISR-2
Peter Ebey, AET-3
Susan Espinoza, MQ-2
Delilah Garcia-Marquez, HR-SYS
Doran Greening, EES-11
Arlen Heger, WT-DO
Gloria Lujan, QA-IQ
Andrei Matlashov, P-21
Randall McClaskey, PMT-4
Gerald Merkey, ES-SE
Allon Percus, CCS-3
Brian Rooney, N-2
Thomas Sandoval, DE-6
Christopher Smith, IST-DO
Timothy Weeks, WT-4
Richard Ziegenbein, WT-9

5 years

Lisa Abeyta, SAFE-S3

Elshan Akhadov, MPA-CINT

Karen Alaniz, HR-SCIENG
David Allen, N-2
Phillip Ashcraft, CTN-2
Frances Aull, IHS-OS
Tony Ballard, ASM-SUB
Charles Beck II, C-NR
Clarence Boyer, FME-TRP
Damon Burnett, AET-1
Harvey Decker, ENV-RCRA
Joseph Fitzpatrick, X-2-N1
Deborah Garcia, SEC-PSS6
Randy Griego, IAT-2
Michael Grothaus, IAT-2
Stephen Hackenberry, SAFE-S3
Thomas Halligan, MSS-WFM
Melinda Henrie, B-7
Shannon Hopwood, MQ-2
Roland Knapp, CAO-OFF
Tim Leckbee, CMRR-DO
Joshua Long, LANSCE-NS
Dennis Lopez, C-NR
Ann Lungstrom, IAT-1
Bianca Martinez, ASM-PM
John McNeel, ADESHQ
Brian Medina, QA-IQ
Gabriel Montano, MPA-CINT
Gyu Park, INST-OFF
Bruce Peterson, CTN-4
Maria Rael-Williams, CTN-2
Emanuel Salazar, SAFE-S3
Chris Samora, IST-IS12
Richard Sato, SEC-PPS1
Leanne Silva, CFO-2
Bradley Simmons, IST-IS11
Clair Sullivan, N-2
Brenna Taylor, CTN-5
Robert Trujillo, QA-IQ
John Tseng, ADSMS
Vincent Valdez, ASM-PM
Petr Volegov, P-21
Richard Weinberg, MST-6



Go to <http://int.lanl.gov/news/links/> online.

United Way



A million thanks for giving

Laboratory employees took the Lab's "million reasons to give" theme to heart in this year's United Way giving campaign. Thanks to Lab employees' generosity and coupled with a dollar-for-dollar match from Los Alamos National Security, LLC, United Way agency providers in Northern New Mexico and Santa Fe will have more than \$1 million to fund much-needed social service programs in the region.

At press time, more than \$600,000 in pledges and donations and from special events has been raised in Los Alamos' 2008 United Way giving campaign, which ended last week. Employees still can pledge or donate to the campaign. See unitedway.lanl.gov for more information about the giving campaign.



Top photo: Judi-Anne Romero, Lisa Adkins, and Holly Lopeman, left to right, all of the Chief Financial Officer Division, work the cake-walk table at the Lab's United Way Fall Fiesta. The event raised several thousand dollars for this year's giving campaign.

Bottom photo: Motivational speaker and Olympic gold medalist Dana Hee, standing, talks about courage, achieving goals, and overcoming adversity at the High Tea on the Hill to raise awareness about the community and Laboratory United Way giving campaigns.

Photos by Richard Robinson, LeRoy N. Sanchez, and Sandra Valdez, all of Records Management/Media Services and Operations

Top photo: Associate Director for Threat Reduction Doug Beason signs a check following the Beatles Multimedia Trivia Contest for the Laboratory's United Way giving campaign. Looking on is Debbi Wersonick of the Community Programs Office.

Second from top: Cindy Staples of the Office of Counterintelligence thumbs through a book at the Books Are Fun book fair. The book fair was part of the kick off of the Laboratory's 2008 United Way campaign.

Second from bottom: Mison Pagett, left, hands Michael Haertling some goodies during a bake sale sponsored by the Applied Physics Division. Pagett and Haertling are both of Applied Physics.

Bottom photo: Gillian Sutton of radio station KRSN AM interviews United Way of Northern New Mexico Executive Director Donna Schroeder at the United Way Fall Fiesta.