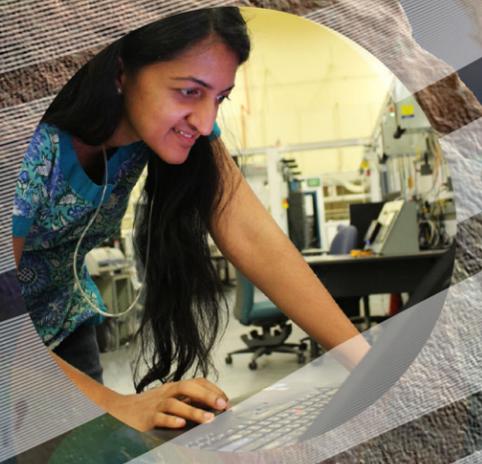
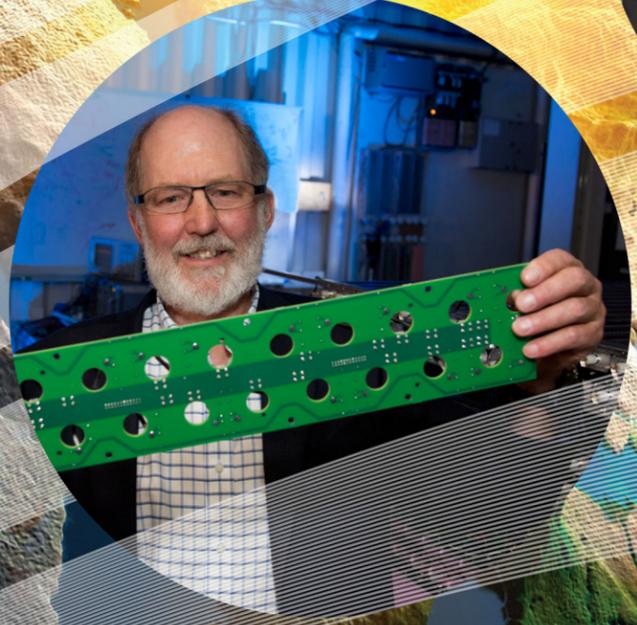


The Evolution of Innovation

Richard P. Feynman Center for Innovation Progress Report



Bi-Annual Report Contributors:

Mariann Johnston
Rebecca Martineau
David Pesiri
Octavio Ramos
Jacqueline Shen

Photography:

Sandra Valdez
Verdesian Life Sciences
LANL Photographers



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We are at the very
BEGINNING
of time for the *human race.*
It is not
unreasonable
that we *grapple* with
PROBLEMS.
But there are
tens of thousands
of *years* in the future.
OUR responsibility
is to **do** what we can,
learn what we can,
----- improve the solutions -----
AND PASS THEM ON

Richard P. Feynman



As scientists and engineers, we seek that elusive “eureka moment,” the sudden insight that leads to the solution of a complex problem. These breakthroughs rely on years of study, the development of skills and analytical thought, mentors, teams, countless hours of research, and often many failures before a solution emerges. Yet these eureka moments—with all the satisfaction and success they signify—are just the beginning.

Innovation is more than invention—it is the path from scientific creativity to deployment of a solution. What makes innovation difficult is its requirement for many different skills and resources beyond inventing. When done well, it adds strength to a research environment because it drives progress across interfaces. Los Alamos is on a journey to enhance our capacity for innovation in national security, working to support an ecosystem where “eureka moments” can be directed towards unmet mission needs. Our capacity for innovation is an important part of the extended deterrence role that Los Alamos plays for the nation. This transition from idea to impact is the heart of this publication.

From its start in 1943, Los Alamos National Laboratory has fostered innumerable “eureka moments,” and many of these led to new technologies that transformed our security or economy. Here we celebrate a few recent examples of our innovation: the development of SOLVE (software that generates 3D pictures of proteins); the creation of Take Off (a compound that makes plants grow faster and stronger); and the Pulsed Field Facility (a Laboratory collaboration that creates the world’s highest magnetic fields). The Richard P. Feynman Center for Innovation was established to provide the systems, skills, and resources that can support the Laboratory’s best ideas. From industry partnerships to sponsored work with federal customers, from patents and copyrights to spinoffs and new economic opportunities in the region, the Laboratory is working to be a leader in innovation for national security science and engineering.

Please join us in celebrating the success of these exemplary “eureka moments” and their path to worldwide impact. We need your help in strengthening our climate of innovation at Los Alamos, to make more success possible. As Richard Feynman noted, “We are at the very beginning...”

A handwritten signature in blue ink, appearing to be 'RP Feynman'.

Richard P. Feynman Innovation Prize Nominations

- 1) Gary Grider
- 2) Materion Brush team
- 3) Chris Morris
- 4) Dipen Sinha (page 5)
- 5) Tom Terwilliger (page 11)
- 6) Pat Unkefer (page 15)

In the past, Technology Transfer Awards recognized individuals who were granted patents or copyrights, received license income, or initiated an agreement with industry, academia, or government agencies. Last year, the Richard P. Feynman Innovation Prize was created to focus on the impacts these transactions have in creating the innovations that change how we live.

The Richard P. Feynman Innovation Prize celebrates the contribution of an individual or team that has successfully brought an idea to the marketplace through a partnership resulting in measurable improvement to our mission performance, positive impact to the U.S. economy (i.e. return on investment), and increased public awareness of the Laboratory's contribution to society.

Nominations were reviewed and ranked by the Innovation Council. The FCI Division Director and Chief Technology Officer selected the 2014 Innovation Prize winner from the highest ranking nominations.

Gary Grider and John Bent



FAST FACTS

Nominated by:

Randal Rheinheimer, HPC-DO

Industry Partner:

EMC Corporation

Who worked on the project?

Gary Grider and John Bent

What is the technology?

The Parallel Log-structured File System (PLFS) is an open-source, extremely scalable data-management middleware library that can be used with everything from small clusters of computers to the largest supercomputer in the world. Ultimately, PLFS could significantly improve computing efficiency.

“Gary Grider has been instrumental, first in developing parallel storage infrastructure for HPC, and now in partnering with companies who are using his concepts to extend parallel storage infrastructure to a customer base spanning every possible market segment.”

Randal Rheinheimer, HPC-DO

Materion Brush Team



FAST FACTS

Nominated by:

Mark T. Paffett, MST-6

Industry Partner:

Materion Brush Inc.

Who worked on the project?

James C. Foley, Melissa Abeyta, Bev Aikin, Beverly Neal-Clinton, Robert Gonzales, Steven Gonzales, Loretta Gurule, Martin Griego, Kenneth Martinez, Cheryl Montoya, Renee Pacheco, Cliff Polston, George Valdez, Victor Vargas, and Cynthia Zelic

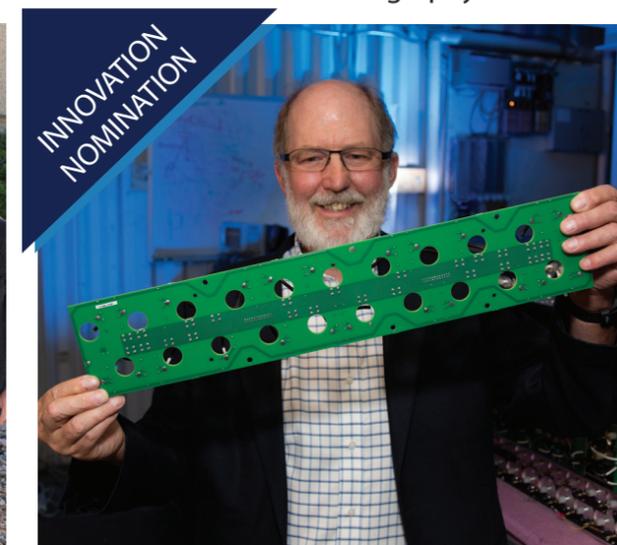
What is the technology?

A Cooperative Research and Development Agreement (CRADA) between Materion Brush Inc. and Los Alamos led to the development of a technology enabling beryllium recycling. The CRADA resulted in a shipment of approximately 22,500 pounds of beryllium for recycle.

“The successful recycling of approximately 22,500 pounds of beryllium was a measurable improvement that met LANL’s mission and values.”

Mark T. Paffett, MST-6

Chris Morris and the Muon Tomography team



FAST FACTS

Nominated by:

Frans Trouw, P-25

Industry Partner:

Decision Sciences International Corporation

Who worked on the project?

Chris Morris and the Muon Tomography team: Zhehui (Jeff) Wang, Jeff Bacon, John Perry, Elena Guardincerri, J. Matt Durham, Joseph Fabritius, Dan Poulson, Shelby Fellows, Joey Elmlblad, and Kenie Plaud-Ramos

What is the technology?

The Muon Tomography team developed a technique that uses the natural flux of muons produced by cosmic ray interactions with the earth’s atmosphere to create three-dimensional images of large objects. Since the technology is completely passive, there are no radiation or safety issues relative to its use.

“As muon tomography is sensitive to the density of the materials being imaged, tools such as muon tomography can help to stop the spread of nuclear material.”

Frans Trouw, P-25



**Richard P. Feynman
Innovation Prize Winner:
Dipen Sinha**
and the SFAI team

FAST FACTS

Nominated by:

Andrew M. Dattelbaum, MPA-11

Industry Partner:

Chevron ETC and GE

Who worked on the project?

Dipen N. Sinha, Anirban Chaudhuri, Cristian Pantea, Blake Sturtevant, Alp Findikoglu and Craig Chavez

What is the technology?

Using swept frequency acoustic interferometry (SFAI), Safire translates sound propagation measurements made at many frequencies into the volumetric flow rate for each component of the fluid, continuously revealing the well's proportion of oil, gas, and water.

“Once Dipen and his team were asked if the advanced acoustic sensors could be used to identify the composition of oil-water-gas in pipes, the project took off.”

Manny Gonzales, Chevron Energy Technology Co.

Dipen N. Sinha is known for his expertise in a wide range of disciplines, including low-temperature physics, ultra-high-speed measurements, infrared detector arrays, organic thin films, biomedical instrumentation, acoustics, and geophysics. In 2005, Scientific American identified his bioweapons detection work as one of the top five inventions in acoustics. A Laboratory Fellow, Sinha has won three R&D 100 Awards, the Los Alamos Distinguished Performance Award, the Distinguished Licensing Award, and two Distinguished Patent Awards.

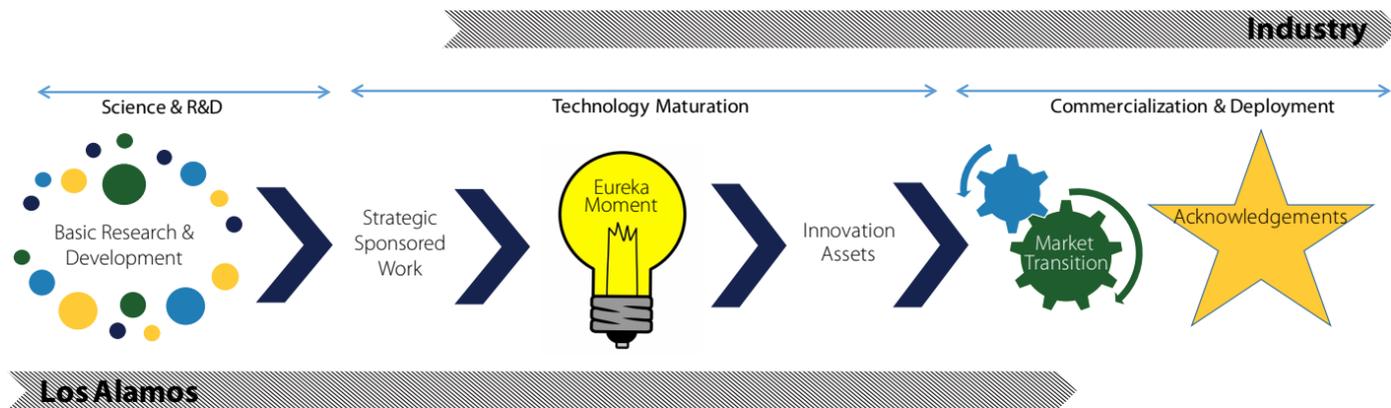
A key example of Sinha's gift for innovation is his development of swept frequency acoustic interferometry (SFAI). SFAI has applications that include energy, environment and health, chemical and pharmaceutical, national security, and waste storage. In 2014, Sinha and his collaborators from Chevron, in partnership with GE, used SFAI technology to develop Safire, the world's most cost-effective topside multiphase flow meter.

To keep up with the ever-increasing demand for oil (over 91.1 million barrels per day in 2014), companies around the world must squeeze every drop out of their oil wells, particularly those that are considered low yielding. Safire is emerging as a key tool to optimize the recovery of oil from all wells because it provides more data, which translates into more oil. With Safire, it is possible to make even the lowest yielding oil wells profitable and productive. Dipen and his colleagues have developed and delivered a tool that has a major impact on energy security and the national economy. In 2014, Safire received an R&D 100 Award.



Richard P. Feynman Center for Innovation

The Richard P. Feynman Center for Innovation acts as a catalyst that converts new ideas into solutions through a series of steps. We facilitate this conversion by aligning Laboratory capabilities with industry's challenges and with our country's need to protect against threats.



Basic Research and Development: Los Alamos uses various venues to conduct basic science research and development, such as the Laboratory Directed Research and Development Program, in which resources are carefully invested to build technical capabilities and explore ways to meet future mission needs.

Strategic Sponsored Work: These collaborations help Los Alamos leverage partnerships with industry, other government organizations, and academia.

Eureka Moment: The point at which scientists develop a solution to a complex problem.

Innovation Assets: Once an idea is formulated, a group of specialists work to protect the intellectual property. Various Laboratory resources, such as CODES and IDEAS (page 7), help ensure this protection.

Market Transition: These efforts facilitate industry access to Los Alamos technology. Such efforts range from establishing strategic partnerships, to the transfer of technology into the commercial marketplace, to collaborating with local small businesses.

Acknowledgement: Organizations recognizing success in the evolution of innovation range from R&D 100 Magazine to the Federal Laboratory Consortium.

Innovation Assets

Creating ideas, whether inventions or works of authorship, is the primary mission of a world-class R&D organization. Disclosed ideas demonstrate and document the growth and expansion of the science, technology, and engineering (STE) capabilities. Disclosures can become patents and published copyrights, leading to technological innovations within the Laboratory. As such, disclosures are assets that Los Alamos uses to capture new strategic sponsored or collaborative work, resulting in increased customer satisfaction, improved mission performance, and enhanced US economic impact.



CODES

Laboratory-developed software and other copyrightable works are disclosed through our CODES system to be evaluated for intellectual property protection requirements. Since the CODES system was implemented in 2011, 684 disclosures have been initiated. Of those, 140 were released as open-source-software code for commercial use and 116 were licensed.



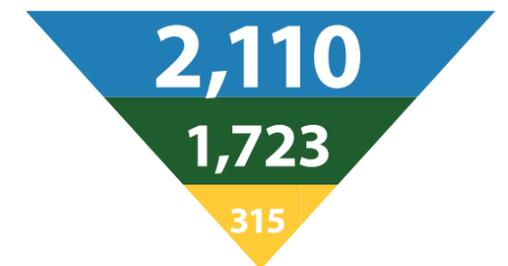
IDEAS

When a laboratory employee believes their new idea is an invention, they submitted it to the IDEA system as an official record. The disclosed idea is then evaluated as a new invention and protected as appropriate. Since 2005, Los Alamos scientists have disclosed 2,110 ideas through the IDEA system. Of those, the Laboratory submitted 1,723 patent applications and ultimately 315 patents were granted.

Transition of copyrightable works to active licenses from 2011-2014



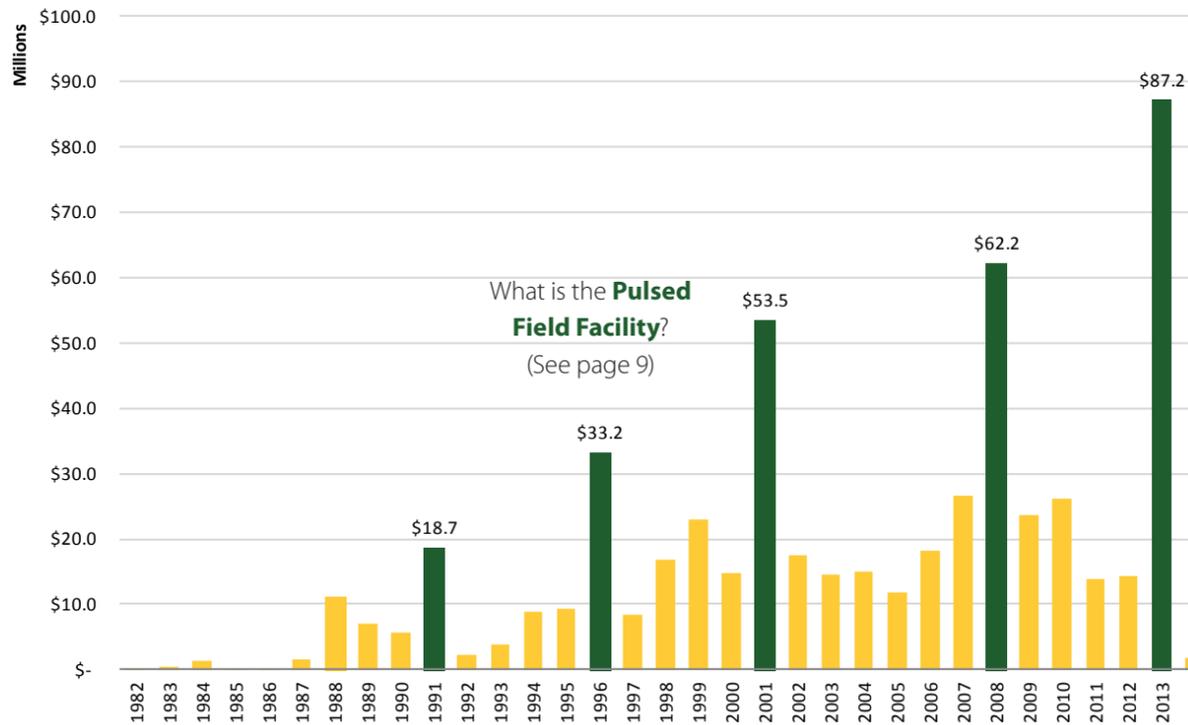
Transition of invention disclosures to granted patents from 2005-2014



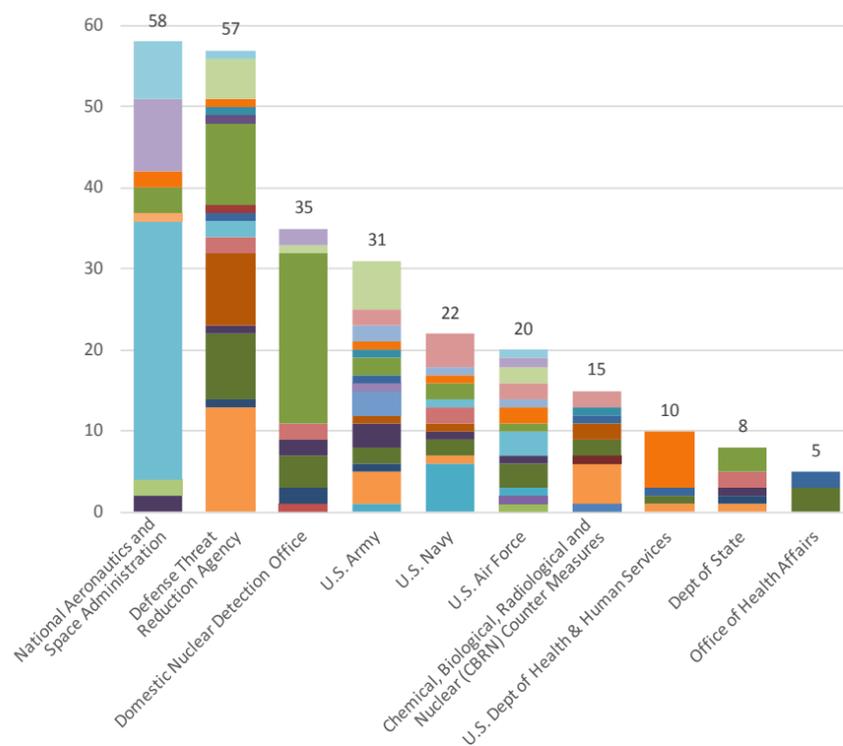
Innovation to Go allows Los Alamos to collect and organize scientific capabilities of Laboratory staff through the use of penta charts. A penta chart is a concise one-page description of a specific topic created by an individual or team at Los Alamos. These charts promote Laboratory scientific capabilities to sponsors and collaborators to encourage work on new projects.

Strategic Sponsored Work

Non-Federal Entities Work-for-Others Over Time

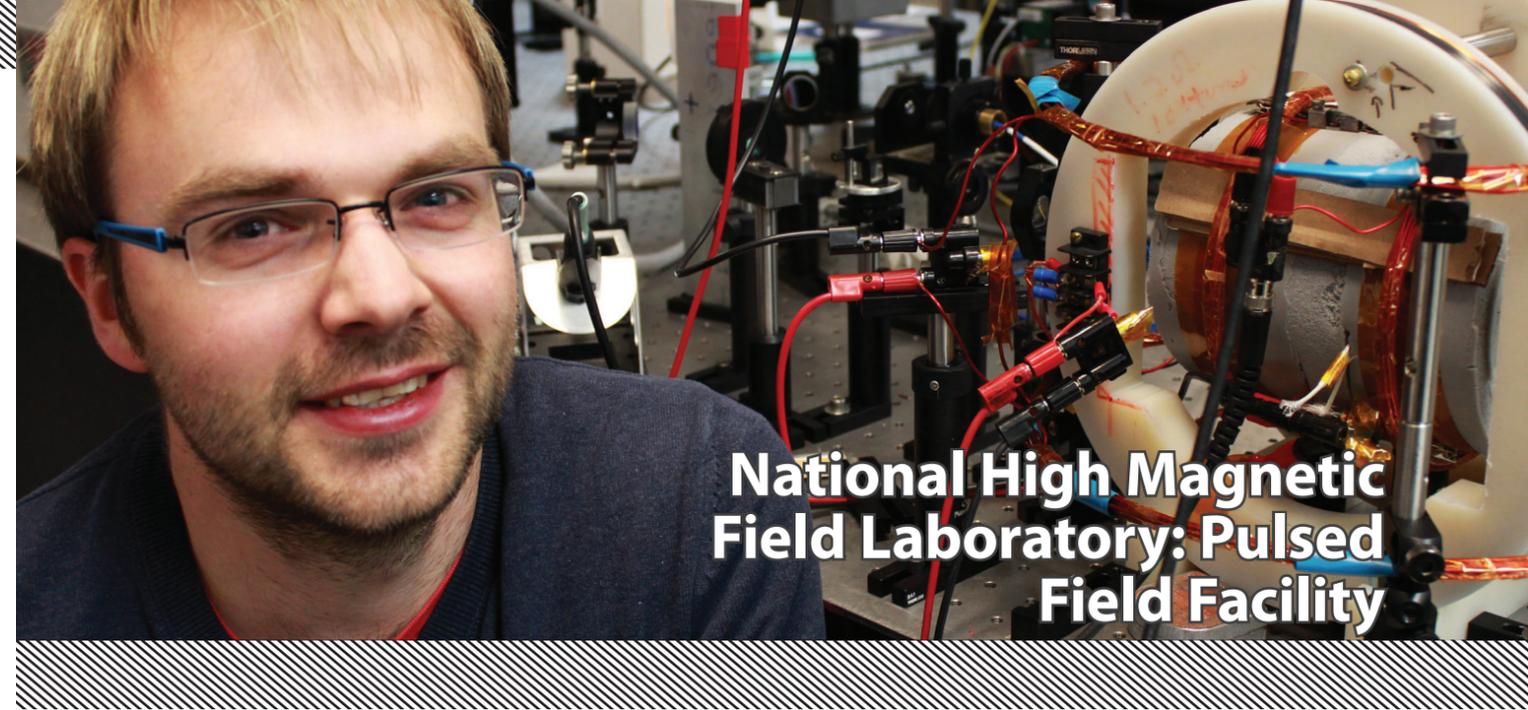


Federal Agency Work-for-Others Agreements from 2010 to 2013



The Laboratory works with federal agencies, universities, and other research organizations to solve the most challenging problems facing our nation. Research and development funding from a variety of sponsors enables Los Alamos scientists to deliver new solutions to complex problems in space, defense, nuclear detection, and health.

The colors in the graph on the left represent the various Los Alamos groups working with a federal sponsor.



National High Magnetic Field Laboratory: Pulsed Field Facility

FAST FACTS

What is the Pulsed Field Facility?

This facility provides pulsed magnetic field technology and instrumentation for research into materials science. Pulsed magnets allow researchers to reach higher magnetic fields than are possible with direct-current magnets.

How is this facility unique?

This facility has the world's only research program with scientific results in nondestructive magnetic fields up to and exceeding 100 tesla.

Who sponsors this facility?

Primary support comes from the National Science Foundation, Division of Materials Research, along with additional support from the State of Florida and the Department of Energy.

Imagine using the world's highest magnetic fields to perform scientific research. Picture developing related technologies to advance high-field magnet science for the future. These are each made possible with the Pulsed Field Facility. This Los Alamos facility, in conjunction with facilities located at Florida State University and the University of Florida, make up the National High Magnetic Field Laboratory—the largest and most powerful magnet laboratory complex in the world.

The heart of the Los Alamos Pulsed Field Facility is the world-record-setting 100-tesla magnet system. This incredible magnet is powered by a 1.43-billion-watt generator system that can deliver a pulse of electrical energy of 170 million Joules—the equivalent of setting off approximately 85 sticks of dynamite.

One particular area of discovery science at this facility is fundamental electronic structure determination. Hundreds of new materials, ranging from superconductors to organic-based magnets, arrive at this facility to allow scientists to unlock the fundamental physics behind their functionality.

In one such project, Joe Brosseau and Jerry Malone of the Transportation Technology Center, Inc. in Pueblo, Colorado, spent time at the facility working with Los Alamos scientist Dwight Rickel on research and development for the American railroad industry. Using a high reluctance gap configuration, the collaborators worked to model ways of optimizing a new type of coil in hopes of improving railroad safety technology.

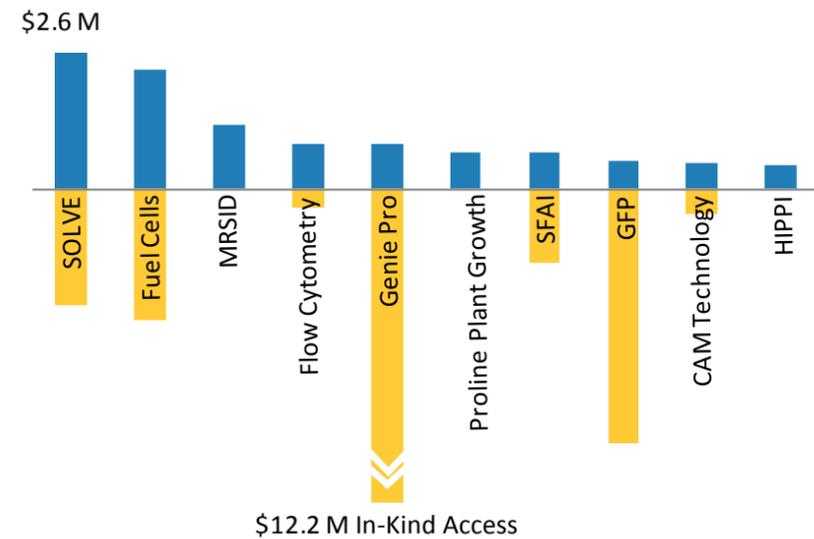
“Interesting problems often go unsolved until a machine is built that can take the smoking-gun data. Some of these measurements are now possible for users of the Pulsed Field Facility.”

Paula Goddard, Oxford University

Licensing

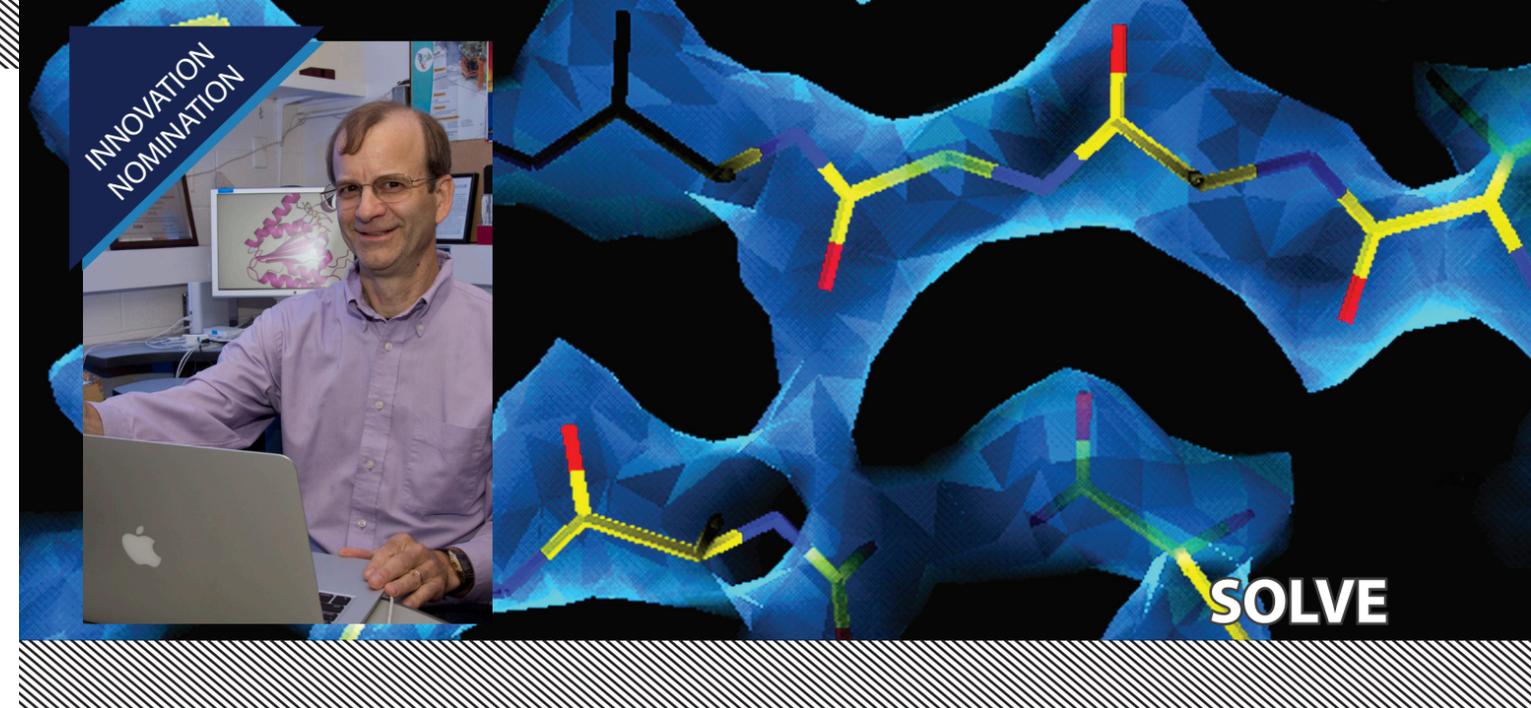
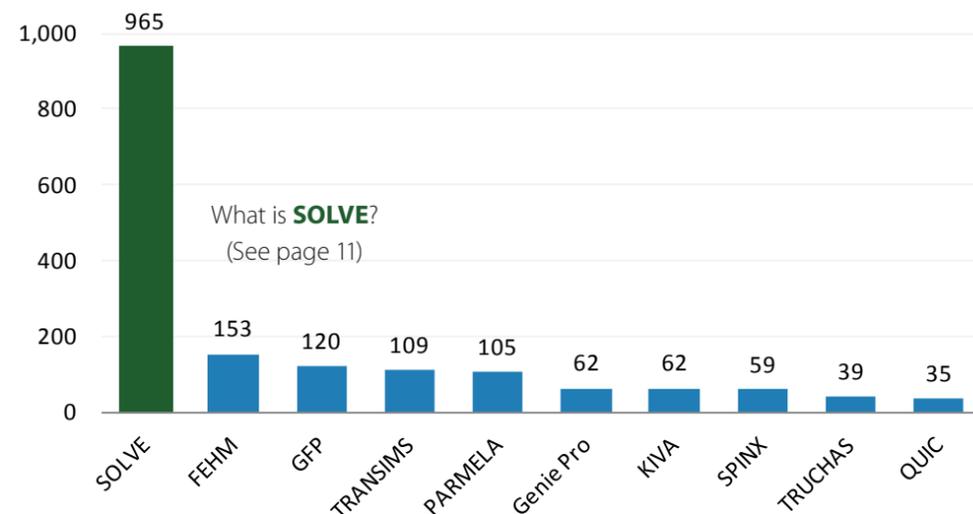
Laboratory inventions and software with commercial potential have a better chance of making a transition to the market when an industrial partner undertakes future development and marketing expenses. We offer two types of licensing: *strategic licensing* aligns the commercialization effort with the programmatic mission of the Laboratory, while *Express Licensing* provides business access to Laboratory inventions and copyrighted material to determine if there is a market.

Licensing Revenue from 1989 to 2012



Los Alamos has provided academic, nonprofit, and government researchers access to many of our best technologies in support of the Laboratory's mission to further scientific research and development that strengthens US economic competitiveness. Since 1989, over \$24M of in-kind access (in yellow) have been contributed by Los Alamos.

Number of Licenses from 1989 to 2012



FAST FACTS

Who developed and commercialized it?

Tom Terwilliger, Joel Berendzen, and Li-Wei Hung worked on both SOLVE and RESOLVE.

What does it do?

SOLVE analyzes how x-rays diffract off crystals in a protein molecule and then draws a 3D picture of the protein.

How does SOLVE rank in terms of software licensing at Los Alamos?

With 965 licenses, SOLVE is the most licensed Los Alamos technology.

Because 3D images can provide important information about the structure and function of proteins, they have indispensable applications in biotechnology and health care. Realizing this importance, Tom Terwilliger and his team developed a unique computer software application for this purpose. Known as SOLVE, this software is the first expert system that produces 3D images of protein structures by automatically solving for the missing information in x-ray crystallography. SOLVE's speed—faster than any other available method—and ease of operation enable the rapid analysis needed to determine the shapes of protein molecules.

SOLVE is already in use at more than 60 industry and academic laboratories worldwide, such as DuPont, Harvard, Yale, MIT, and Stanford. The integration of technologies within SOLVE help achieve scientists' vision of a deeper understanding of life.

Uses of SOLVE include supporting the design of new, improved drugs; engineering enzymes with new catalytic properties useful in rapidly breaking down toxic waste and synthesizing chemicals; and engineering robust, heat-tolerant enzymes useful in manufacturing chemicals.

An extension of SOLVE, called RESOLVE, can improve electron density maps generated by SOLVE. The latest evolution in this technology, PHENIX, is a software suite that expanded the capabilities of SOLVE/RESOLVE and can be licensed through the PHENIX Consortium at Lawrence Berkeley National Laboratory.

“Most of the structures that I have worked on are novel, never-before-characterized proteins or enzymes. I believe the most powerful program suite for *de novo* protein structure determination is SOLVE and RESOLVE.”

Dr. Timothy J. Rydel, Monsanto

Economic Development

The Laboratory is a catalyst for diverse economic development and the Feynman Center for Innovation works to support a region in which the communities of Northern New Mexico are key partners in growing a vital economy. Programs like the Venture Acceleration Fund and the New Mexico Small Business Assistance Program help small businesses and entrepreneurs successfully deploy Laboratory technology and expertise to improve their product or business. Through these programs, the Laboratory supports companies in every stage of development through access to technology, technical assistance, or investment, and helps strengthen the high-tech ecosystem in New Mexico.

ENTREPRENEURIAL LEAVE OF ABSENCE (ELOA) AND LICENSING

ELOA and Licensing in New Mexico helps commercialize Los Alamos technology by launching new ventures or helping expand existing companies.

Metrics reflect results from 1997-2011, based on a cumulative survey of 45 clients.



Jobs Created or Retained, and Salaries

270

\$11.0M



Revenue

N/A



New Funding and Financing Attracted

\$36.0M



Total \$ Return on Investment

\$47.0M

LOS ALAMOS NATIONAL SECURITY LLC VENTURE ACCELERATION FUND (LANS VAF)

LANS VAF has supported companies in every stage of development, ranging from proof-of-concept, prototyping, and product engineering to customer acquisition and market validation.

Metrics reflect results from 2006-2012.

68

\$5.3M

\$17.4M

\$25.3M

\$48.0M

NEW MEXICO SMALL BUSINESS ASSISTANCE (NMSBA) PROGRAM

The NMSBA program has more than 13 years of success leveraging world-class science and technology from Los Alamos and Sandia national laboratories to assist in New Mexico small businesses.

Metrics reflect both laboratories' cumulative results from 2000-2012. Los Alamos' participation began in 2007.

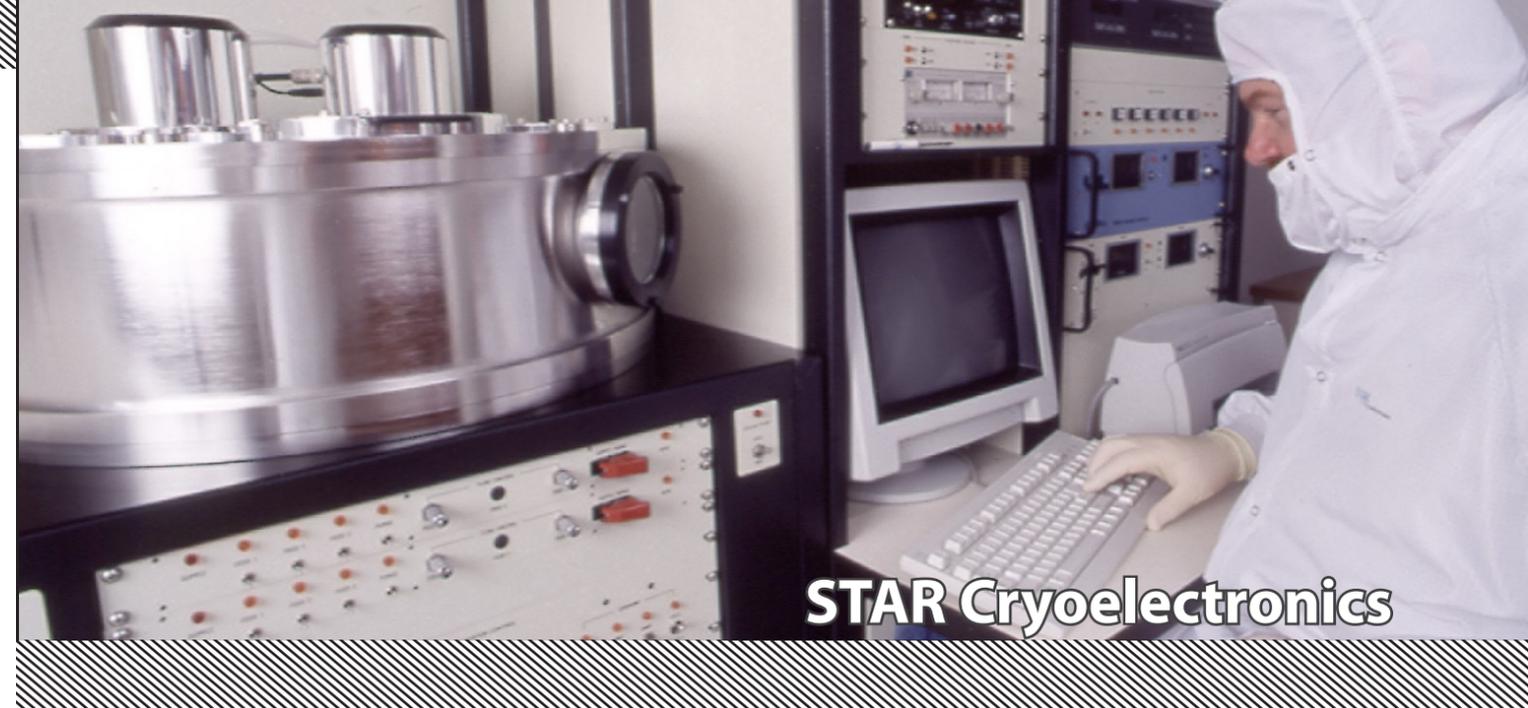
3,510

\$114.3M

\$172.5M

\$59.6M

\$346.4M



STAR Cryoelectronics

FAST FACTS

Who founded this company?

Dr. Robin Cantor, formerly of the Laboratory and Conductus, Inc., founded STAR Cryoelectronics.

What makes this company unique?

It is the only company in the United States that produces both SQUID sensors and cryogenic detectors, along with related equipment.

How has the company worked with Los Alamos?

STAR Cryoelectronics was awarded a Venture Acceleration Fund grant in 2007 and participated in the New Mexico Small Business Assistance program with Los Alamos in 2012 and 2013.

Formed in 1999 and based in Santa Fe, STAR Cryoelectronics is 15 years old and continuing to grow. The company focuses on developing and manufacturing SQUID sensors based on low- and high-temperature superconductor technologies. A variety of SQUID sensors and packaging options are available for applications that range from medical imaging and nondestructive testing of materials, to geophysical exploration and basic research.

STAR Cryoelectronics designs and manufactures the most sensitive detector of magnetic fields available. The company has invested \$3M in building clean-room facilities to develop and manufacture their products locally. They recently purchased an additional 2,000-square-foot facility adjacent to their existing facility as a result of their rapid growth.

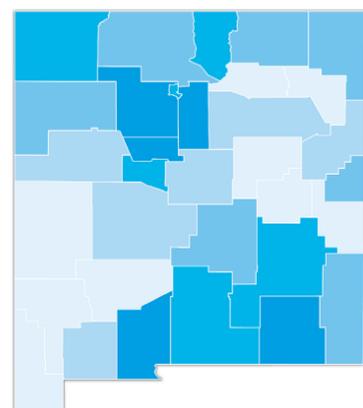
The president and founder of STAR Cryoelectronics, Dr. Robin Cantor, has more than 30 years of experience in developing, manufacturing, and marketing magnetic sensor products based on thin-film superconductors and related control electronics. As a former Laboratory technical staff member, Cantor continues to foster collaborations with the Laboratory.

For example, Cantor has worked with Los Alamos scientists on the search for the elusive electric dipole moment of a neutron. Cantor has also supplied equipment for the low-field MRI project conducted by the Applied Modern Physics Group. The scientists working on this project are developing brain-imaging systems.

"If we were not here, most of our customers would need to buy product from abroad.

Moreover, if someone is looking for something we do not have, we can oftentimes make the product to their specifications."

Dr. Robin Cantor, STAR Cryoelectronics



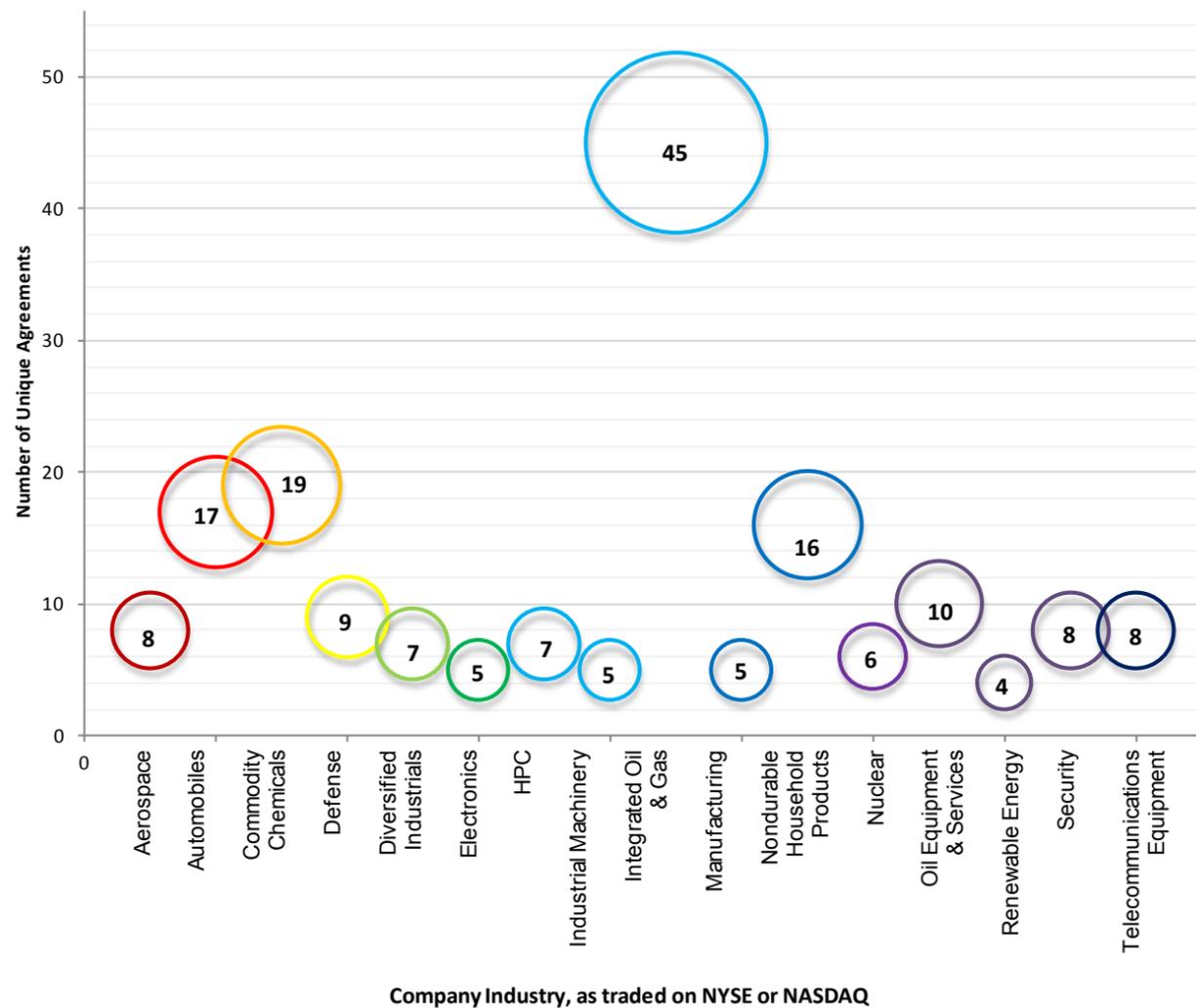
2,320 companies helped throughout New Mexico

- 2,195 New Mexico small businesses have utilized Los Alamos and Sandia technical assistance in all 33 counties
- 61 New Mexico companies have licensed Los Alamos technology
- 39 entrepreneurs have received LANS Venture Acceleration Fund awards
- 45 Laboratory employees have taken Entrepreneurial Leave of Absence to support 25 companies in New Mexico and 5 out of state

Partnerships

Los Alamos strives to implement new business models for long-term success. Developing a network of regional and national partners helps the Laboratory meet our national security mission and support US economic competitiveness. The optimal means to achieve this is through strategic partnerships with industry. FCI helps the Laboratory leverage partnerships with top-tier industry partners in oil and gas, manufacturing, materials, and variety of other industries. FCI has engaged in establishing initiatives that help match the research and development capabilities at Los Alamos with industry's most challenging problems in search of solutions that will become the innovations of the future.

Cooperative Research and Development Agreements from 1989 to 2013



Verdesian Life Sciences

FAST FACTS

What is Take Off?

Take Off is a seed treatment featuring a proprietary mixture of amino and organic acids.

Who discovered it?

Pat Unkefer, retired Los Alamos National Laboratory scientist, Thomas J. Knight, and Rodolfo Martinez.

What does it do?

The treatment increases a plant's efficiency in using nitrogen. Such an increase also enhances the plant's use of other nutrients.

Plants use their roots to absorb various mineral nutrients, such as nitrogen, phosphorous, and potassium. Soil does not always have enough of these nutrients, and farmers rely on fertilizers to help plants survive and grow.

Discovered by scientists at Los Alamos National Laboratory and developed by Verdesian Life Sciences, Take Off® is a technology that increases a plant's nitrogen efficiency. In addition, the technology enhances the absorption of other nutrients, such as potassium, and improves the efficiency of fertilizer use. Take Off, which features a proprietary mixture of amino and organic acids, can be used in seeds, fertilizer, pesticides, and irrigation to improve crop growth and enhance yields.

The technology was first commercialized in Europe for use on wheat in 2006. The commercial launch in the US took place in 2007, for use on both wheat and vegetables.

Today—after several major acquisitions—Verdesian Life Sciences stands as one of the largest independent and nutritionally focused companies in North America.

Take Off represents a compelling and game-changing technology in agriculture. With this technology, it will be possible to enhance crop yields necessary to feed an ever-hungry world in which commodities such as wheat (2012 production of 701,395,334 metric tons*) and soybeans (2012 production of 262,037,569 metric tons*) have yearly values in the billions of dollars.

*Food and Agricultural Organization

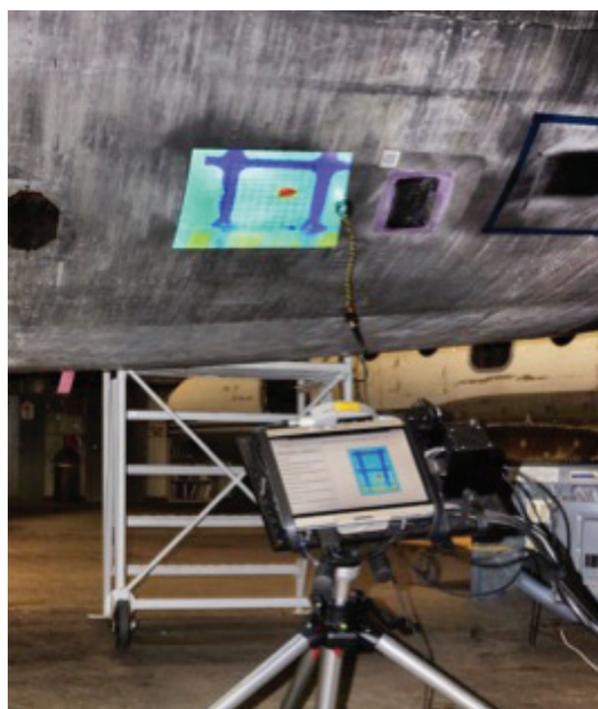
“A grower tried just 1 tonne of seed with Take Off last year and has reported back that he was getting 0.75 tonne more per [hectare] and an extra 2 bales of straw per round. The straw itself paid for the Take Off.”

Scottish Agronomist, D. Steel

In 2014, two Los Alamos technologies won R&D 100 Awards from R&D Magazine. The R&D 100 Award recognizes the best and most unique high-technology products of the year. Since 1978, Los Alamos has garnered 131 R&D 100 Awards.

AWS: Acoustic Wavenumber Spectrometer

A revolutionary laser-based nondestructive inspection system, AWS creates images of structural properties and/or hidden defects in aircraft and other vehicles. AWS takes full-field measurements of an inspection target's steady-state response to periodic ultrasonic excitation and analyzes its wavenumber signatures on a pixel-by-pixel basis. AWS is 30 times faster than the leading noncontact ultrasonic inspection system and can be used to conduct overnight full-body scans of air and ground vehicles within completely automated nondestructive inspection hangers, garages, and docks; perform inspections of critical components while vehicles are being refueled; and conduct total quality control, inspecting all manufactured parts coming off the line, not just samples.



Safire

The key to optimizing recovery from oil wells is straightforward: more data equals more oil. To achieve such optimization, Los Alamos, Chevron ETC, and GE Measurement & Control developed Safire, the world's first cost-effective topside multiphase flow meter. With Safire, the energy industry now has a nonintrusive device that simplifies oil production monitoring and is environmentally friendly. But Safire is not simply limited to dramatically strengthening the energy industry and improving its response to the world's demand for oil. Safire can be easily modified for various applications, including biomedical, alternative energy, environment, health, and national security.



Established in 1974, the Federal Laboratory Consortium for Technology Transfer (FLC) is a nationwide network of approximately 300 federal laboratories. Every year, FLC recognizes federal laboratories and their industrial partners for outstanding technology transfer efforts. This year, Los Alamos and our partners received four FLC awards at the Mid-Continent Region Conference held in August.

New Mexico Small Business Assistance Program

Winner of Outstanding State and Local Government Collaboration

The rural nature of New Mexico makes the economy of most communities dependent on the success of their small businesses. To help such businesses succeed, Sandia National Laboratories created the NMSBA program to help small businesses throughout New Mexico solve technical problems. Los Alamos joined the program in 2007. From 2000 to 2012, NMSBA helped create and retain 3,510 jobs with a mean salary of \$38,735, assisted 2,195 small businesses in all 33 New Mexico counties, and yielded investment in New Mexico goods/services of \$56.3 million. In 2013 alone, NMSBA assisted 354 small businesses, 230 of which are located in rural areas.

CASA Grande: Containment Accident Stochastic Analysis

Winner of Excellence in Technology Transfer

CASA Grande is a software code that automates the evaluation of a single postulated accident within a nuclear power plant, so that thousands of possible scenarios can be assessed. In 2012, Los Alamos established an exclusive licensing agreement with Alion Science and Technology Corporation. Alion has made substantial improvements to CASA Grande since its transfer from Los Alamos. The Nuclear Regulatory Commission believes that CASA Grande represents a paradigm shift in how they assess safety in nuclear power plants.

Muon Scattering Tomography

Winner of Excellence in Technology Transfer

Los Alamos and Decision Sciences International Corporation (DSIC) developed muon scattering tomography to monitor vehicles and cargo for special nuclear materials. In August 2012, DSIC deployed its first fully operational Multi-Mode Passive Detection System at the Freeport Container Port in the Bahamas. One year later, DSIC and Los Alamos received an R&D 100 Award for this technology. Currently, Los Alamos is finalizing a Work-for-Others agreement to use muon scattering tomography to image the damaged reactors at the Fukushima site in Japan.

MiniMAX

Winner of Notable Technology Development

MiniMAX takes x-ray images as detailed or even better than conventional hospital systems. At just under 5 pounds, MiniMAX outperforms x-ray systems that weigh between 30 and 500 pounds and cost three to six times as much. In 2013, Los Alamos received an R&D 100 Award—and an Editor's Choice Award—from R&D Magazine. In 2014, Los Alamos licensed MiniMAX to Colorado's Logos Imaging LLC in specific fields of use. Los Alamos continues to negotiate with other companies interested in MiniMAX for various other application areas.

18

FLC Mid-Continent awards received by Los Alamos since 2007

