

# Newsletter

Week of July 4, 2005

Vol. 6, No. 14

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### Director discusses observations and priorities for the Lab

In this week's "From the top," Laboratory Director Robert Kuckuck discusses his observations during his first few weeks as Laboratory director and his three initial priorities for the Laboratory. . . . .Page 2



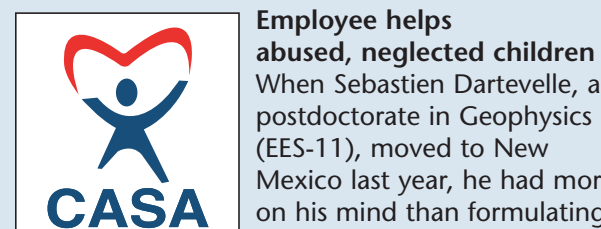
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### Berkeley political science professor named director of UC Washington Center

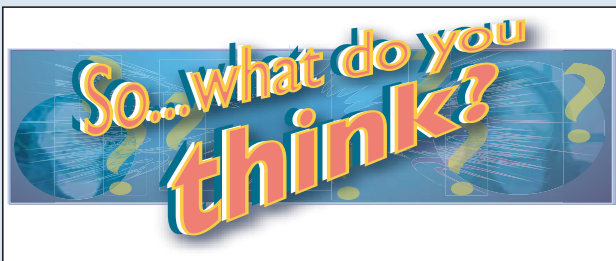
Bruce Cain, a University of California, Berkeley, professor with almost 30 years of teaching experience and political expertise, has been named director of the UC Washington Center. . . . .Page 5



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**Newsletter**

P.O. Box 1663  
 Mail Stop C177  
 Los Alamos, NM 87545

Nonprofit Organization  
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 Permit No. 532

LALP-05-002



## Quantum darwinism

# The reality of reality?

by Hildi T. Kelsey

Like Alice following the white rabbit down a hole into a bizarre, peculiar wonderland, where "nothing is as it seems," study of the quantum world invokes a feeling of bewilderment in many of those who dare to tread its seemingly ambiguous path. To Lab physicist Wojciech Zurek of the Theoretical (T) Division and his team of students, however, it makes perfect sense.

They recently proved a mathematical theorem supporting quantum Darwinism — a quantum form of natural selection. Quantum Darwinism sheds new light on the workings of environment-induced superselection or einselection — a process proposed quarter century ago to explain the behavior of quantum systems that are open (that is, that continue to interact, however, weakly, with their surroundings). In quantum Darwinism "survival of the fittest" is key.

Zurek presented the theory three years ago in order to explain how objective, classical properties — the essence of our familiar everyday reality — emerge from a quantum substrate of our universe. Now, the results obtained by Zurek and his co-workers support this initial hypothesis. Before diving into the significance of the equations, however, one must comprehend the underpinnings of the theory.

Simply put, instead of the classical world most individuals thought they were casually viewing, people are actually observing the multiple imprints of the "most fit" quantum states called pointer states that are made by the system on the state of the environment. These special stable quantum states emerge from the quantum mush to become good candidates for classical states. They can persist for a long time without being affected by the environment. Their stability is the reason for the success in making multiple imprints on the environment — multiple "copies of themselves" — that we then detect.

"In simple terms, pointer states can take a beating and make a dent in the environment ... over, and over and over again," said Zurek.

Because of the abundance of the information about these pointer states and the indirect nature of our observations that involve only a small part of the environment, these states do not get "messed up." Rather, they continue to persist and propagate surviving multiple observations.

Zurek said that quantum Darwinism is a natural extension of decoherence, a theory that explains how open quantum systems interacting with their environments differ from closed, completely isolated systems.

To understand the origins of decoherence, a short history lesson is in order. "The old way of thinking of the forefathers of quantum mechanics assumed that all systems are isolated, and that measurement involves a direct interaction — that one must 'bump into the system' to observe it. Scientists at the time did not recognize that the environment was bumping into the system as well," said Zurek.

Decoherence describes what happens as a result of such "measurements" carried out by fragments of the environment. In effect, it shows that an open quantum system

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## Snakes alive



In a recent article, the Los Alamos Monitor reported that snake sightings in Los Alamos and White Rock are 300 percent above normal. Following are some tips to following if you encounter a snake or are bitten by one.

### ***If you encounter a snake ...***

Stop immediately and don't panic. Snakes cannot see you when you're standing still because they have very poor stationary vision. Also, it is okay to scream or yell for help because snakes cannot hear.

Once you have located the snake, evaluate the distance between you and the snake and check to see if other snakes are around. If you are at a safe distance (6 feet or more), move away slowly. If the snake is close, use anything available, such as a stick or shovel, to move the snake away. If someone is with you, have him or her do it. Employees are encouraged to carry a walking stick when they go hiking and walking in trails.

Most important, leave the snake alone if at all possible, especially if it is a venomous one. The majority of people who get bitten by snakes are those who mess with them.

### ***If you are bitten by a snake ...***

Again, remain calm and do not panic. Increased heart rate and body metabolism will speed the flow of venom into the system.

Get to the hospital as soon as possible, keeping the bite area as immobile as possible and lower than the heart. You can use a restriction band to reduce the flow of blood, but never use a tourniquet. Improperly using a tourniquet will cause much more damage to the tissues surrounding the bite area.

Do not use ice or the "cut and suck" method on the bite area. If incorrectly

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## Director discusses observations and priorities for the Laboratory

My first few weeks as director have reaffirmed my strong belief in the extraordinary character of our work force, the proven resilience of our institution and the complexities of our work environment. I've also seen firsthand the strength, breadth and commitment of our community partnerships and outreach efforts across Northern New Mexico.

I'm amazed at the level of effort and attention that goes into our numerous educational programs such as: The Math and Science Academy, the Bradbury Science Museum's Science on Wheels program, our summer student program, the various science and computing workshops for local schools, our postdoc programs, our annual Lab-sponsored and funded scholarships, and the many collaborations offered at numerous universities, colleges and trade schools across the state. In my mind, all of these efforts add up to an impressive display of the Lab's willingness to create educational opportunities.

I've been similarly impressed with the many offerings of encouragement I've received when meeting with elected officials at all levels of government (national, state and local), and the Northern New Mexico Pueblo governors. In every meeting, I've been assured that Los Alamos National Laboratory still has the strong support of our local communities. We can all take heart in knowing that most people realize how hard this Laboratory has been working to meet the many challenges we have faced these past many months and years.

With respect to the Laboratory, our Operational Efficiency (OE) project remains a top priority, and our progress thus far has been notable. I believe our continued success rests on ensuring everyone understands what we are doing and why. I cannot see us relaxing our standards, nor slowing the forward momentum that has been part of our success these past many months. At the same time, I want to make sure we don't find ourselves experiencing institutional burnout. Accordingly, I've set a course to clarify our priorities and assess our pace. The implementation plan for all directorates for OE should be complete by July 22. I see definite value in completing this important project. The challenge is this: how do we do this without wearing people out?

Which brings me to another key issue: enhancing people's ability to get their work done. We need to design and implement an optimum system that enables us to accomplish work in a safe, secure and compliant manner, and, with National Nuclear Security Administration's Los Alamos Site Office involvement, to devise a common-sense approach. We have the enthusiastic commitment of Ed Wilmot, LASO's manager, to do that. We also have the support of Ambassador Linton Brooks in Washington, D.C., who understands science is the underpinning for everything we do. Accordingly, with the help of the Chief Science Officer, Tom Bowles, I



Robert Kuckuck

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## Los Alamos National Laboratory NewsLetter

The Los Alamos NewsLetter, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located in the IT Corp. Building at 135 B Central Park Square and can be reached by e-mail at [newsbulletin@lanl.gov](mailto:newsbulletin@lanl.gov), by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below. For change of address, call 7-3565. To adjust the number of copies received, call the mailroom at 7-4166.

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Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the Cold War. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.



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## Harlow, Longmire honored as 2004 Los Alamos Medal recipients

Conrad "Connie" Longmire, right, and Laboratory Fellow Francis "Frank" Harlow, talk with Laboratory Director Robert Kuckuck at the 2004 Los Alamos Medal presentation ceremony in the J. Robert Oppenheimer Study Center at Technical Area 3. Harlow worked at Los Alamos more than 50 years and is credited with giving birth to the science of computational fluid dynamics. Longmire, a weapons designer who worked in the Theoretical (T) Division from 1949 to 1969 and currently a Lab associate, played a key role in developing an understanding of some of the fundamental processes in weapons performance. His work included the original detailed theoretical analysis of boosting and ignition of the first thermonuclear device. Harlow and Longmire were recognized as the recipients of the 2004 Los Alamos Medal, the highest honor the Laboratory bestows upon an individual or small group. For more information, see the June 20 Los Alamos NewsLetter. Photo by LeRoy N. Sanchez

## Cooperative research and development agreements

### What is a CRADA?

A cooperative research and development agreement (CRADA) is an agreement by which Laboratory staff work with partners from industry, academia and/or nonprofit organizations to achieve advanced research and development activities and possible commercialization of intellectual property by the CRADA participant. A CRADA can be an excellent tool to help the Laboratory meet its programmatic goals and mission. A CRADA also is an excellent mechanism to help Laboratory partners achieve technology developments that might otherwise be impossible to achieve if restricted to the commercial world. U.S. economic competitiveness is enhanced greatly by interactions between the national laboratories and private industry.

### Why get involved in CRADA activity?

- Many federal sponsors, such as the Department of Energy's Energy Efficiency and Renewable Energy and Fossil Energy, require that a certain percentage of their funds be used in collaborative research.
- Programmatic funds can be extended as a result of the cost-shared relationship between the Lab and the participant; a collaborative partner also may elect to fully fund an activity.
- Engaging in technical collaborations with peers from industry or academia enhances intellectual stimulation.
- Collaborations with industry can provide real world validation of scientific tests and hypotheses.
- The Laboratory retains a nonexclusive, royalty-free, irrevocable government use license to every subject invention produced under a CRADA.

### Currently working under a CRADA?

Don't forget the following:

- Understand one's obligations under the CRADA; it is a legally binding contract.
- Regular communication with the partner is essential for all successful collaborations.
- Keep a separate, bound notebook for each CRADA — this allows the Laboratory to demonstrate achievements in deliverables under the agreement. It also documents clearly the development of intellectual property.
- Think carefully before publishing or otherwise disclosing CRADA information.
- A CRADA may contain proprietary information that must not be disclosed. Patent rights risk being forfeited through premature disclosure.
- Perform only those tasks included in the Statement of Work.
- Allocate only funds from the specified program code for the CRADA work.

### Keys to successful CRADA implementation:

- Plan ahead — although it can be extremely rewarding in the long term, the CRADA negotiation will add time to the start of a project.
- Communicate early with Laboratory and industry technology-transfer staff responsible for coordinating overall activity.
- Establish agreement among all parties on funding levels and sources before starting the CRADA process.
- Keep in mind that negotiations deal with several important factors including (ownership and intellectual property; product liability and indemnification and hold-harmless clauses; and U.S. manufacture and competitiveness.
- Researchers who anticipate subcontracting any CRADA tasks or using any non-University of California employees to perform such tasks, must contact a TT CRADA specialist before proceeding.

For more information, see the TT Web site at [www.lanl.gov/partnerships](http://www.lanl.gov/partnerships) online or contact Patty Duran of TT Division at 7-2499.

## Quantum darwinism ...

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ceases to respect the quantum principle of superposition, which is the key to its "quantumness."

Theory of decoherence — developed by Zurek and others over the past quarter century — is now especially relevant in quantum engineering. For instance, to build a quantum computer one must make sure to limit the impact of the environment to eliminate decoherence.

But quantum Darwinism shows that decoherence is not the whole story. Zurek explains, "Recently, we realized that there was an extra twist — we never directly bump into a system to measure its state. We actually use the environment that has already bumped into the system to find out about it."

For instance, now, when you are looking at this article, you are not interacting with this page directly. Rather, your eyes are intercepting photons that have already interacted with the text. According to Zurek, this is how you observe — how you get information.

"In quantum Darwinism the environment becomes the middle man, the communication channel through which the information is propagated from the systems to the observer," he said.

Another piece of the puzzle that eventually led to the culmination of what is now known as quantum Darwinism is the fact that one never observes the entirety of the environment. Instead, individuals observe merely a fraction of the environment (e.g, the tiny fraction of all photons that have interacted with this page fall into our eyes),

*continued on Page 4*

## The Science Council

by Tom Bowles,  
chief science officer



It has been six months since the Science Council was formed and this is a good time to discuss what we have been doing. The Council consists of seven members — Dave Clark,

Nuclear Materials Technology (NMT) Division; Chuck Farrar, Engineering Sciences and Applications (ESA) Division; Jackie Kiplinger, Chemistry (C) Division; Bill Junor, International, Space and Response (ISR) Division; Tom Terwilliger, Bioscience (B) Division; Steve White, Applied Physics (X) Division; Ken Wohletz, Earth and Environmental Sciences (EES) Division; plus myself and the deputy chief science officer, Dave Sharp. There also are ex-officio members that are being finalized (those positions will be discussed in a future column).

The council has focused on two major activities — the Laboratory directed research and development process and documenting how science supports the Laboratory's mission. We received a great deal of input on LDRD and worked with David Watkins of the Laboratory-Directed Research and Development (STB-LDRD) Office to address issues. We believe that the new process is clearer and more transparent. Laboratory management has well-defined means to provide input at the start of the process. We will use the feedback we get on this year's process to fine tune it for next year.

A significant amount of effort also was invested in documenting the case for how science benefits the Laboratory missions. This is important — as resources become more constrained, we need to make the case as effectively as possible for supporting science at the Laboratory. This effort already is being used to address issues raised by Congress on the LDRD program, as well as to provide information on the importance of the Office of Science to Los Alamos missions. And we have been working to make the case with the National Nuclear Security Administration (NNSA) on the importance of longer-term research and development in support of the weapons and threat reduction programs.

A critically important part of the Science Council's responsibility is to provide direct input from the staff on issues that impact science. You will soon be seeing various members of the Council at group meetings to let you know what we are doing and to get your input on the most important issues that need to be resolved at the Laboratory. The Council members will then work (in priority order) these issues and report back what has been done.

## Snakes ...

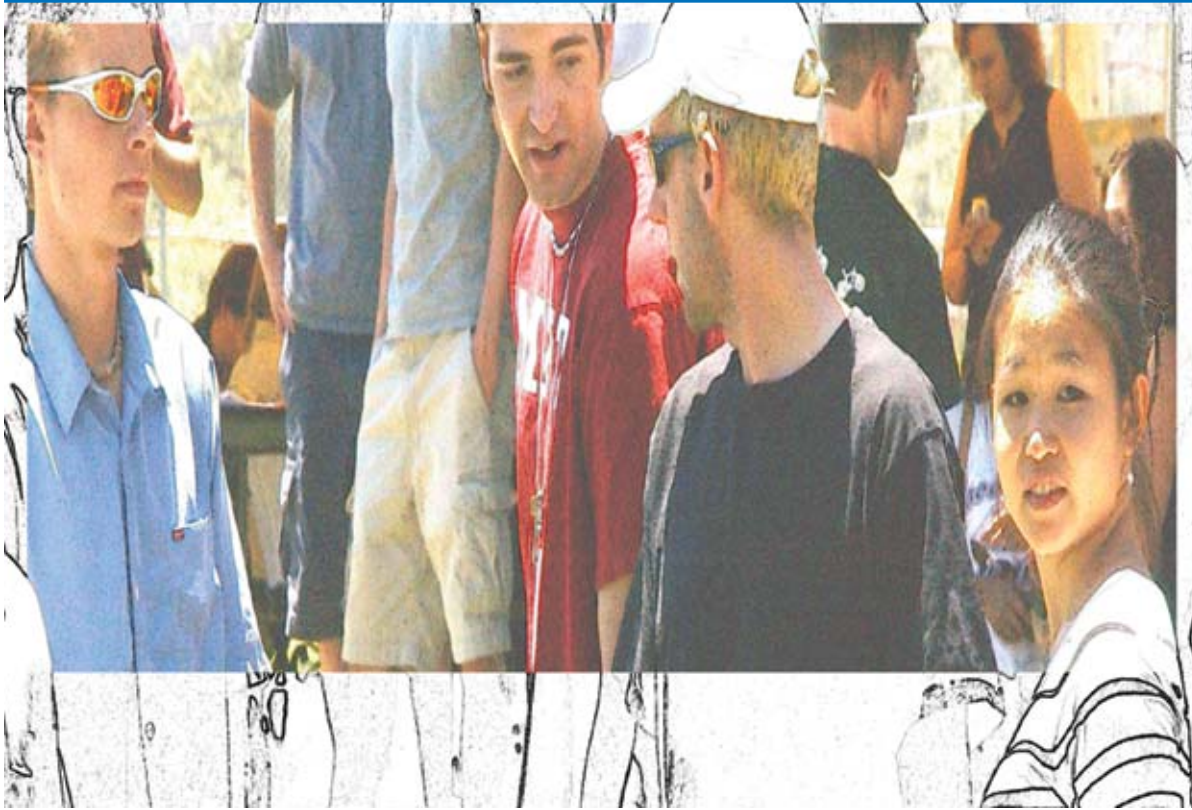
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performed, the procedure may end up providing more avenues through which the venom can travel.

If an individual is bitten while walking and is a long distance from a hospital, but someone is with him or her, that person should go for help.

The only accepted treatment for a snake bite is antivenin, which should be administered by trained hospital staff only. The staff should contact the National Poison Control Center for additional assistance.

For more information about snakes native to this area, sign up for the Laboratory's "New Mexico Snake Awareness" course (No. 13960) at <http://lanl.gov/training/> online.



## New student mentoring policy released

The Lab implemented a new student mentoring program policy and procedure May 31. According to Terry Lowe of University Programs (STB-DSTBP), the policy, IPP 787.0, references and supports IMP 300.2 Integrated Work Management for Work Activities, which directs that all Lab work be conducted in accordance with Laboratory policies and procedures.

The new student mentoring program requirements apply to mentors, their students and those organizations that host or employ students. All students — high school, undergraduate, graduate, minor students, students under affiliate guest agreements on-site for 10 days or more, post-baccalaureate degree students and post-master's degree students awaiting admittance to graduate school — are covered by the policy.

The policy formalizes and standardizes the selection, training, and recognition of mentors and students. Additionally, it consolidates the good mentoring practices already in place throughout many Laboratory organizations and clarifies or establishes responsibilities and requirements with respect to safety and security for students, mentors, division student liaisons, line management and other supporting organizations.

The Science and Technology Base (STB) Program Office administers and manages the student mentoring policy. The new policy can be viewed at <http://policies.lanl.gov/pods/policies.nsf/MainFrameset?ReadForm&DocNum=IPP787&FileName=ipp787.pdf> online (Adobe Acrobat Reader required).

For more information about the student mentoring program and policy, contact Carole Rutten, STB-EPO student/mentor liaison, at 5-5194 or [crutten@lanl.gov](mailto:crutten@lanl.gov) by e-mail.

## Annual student symposium is Aug. 2-3

### Registration deadline July 15

The student symposium, an opportunity for students to present their research and projects via a poster presentation or technical talk, is scheduled for Aug. 2 and 3 at the University of New Mexico's Los Alamos branch campus. The registration deadline is July 15.

The symposium is open to students and postdoctoral appointees from the Laboratory and Sandia National Laboratories. There is no charge to participate in the symposium and the poster presentations and technical talks are free and open to the public, said Carole Rutten of the Education Programs Office (STB-EPO).

In addition to the presentations, there will be two professional development seminars: "Exploring the topic on every graduate's mind: How to get a job at Los Alamos National Laboratory" and "A Career in Science and Engineering."

The two-day event will highlight student work and include exhibits, professional development seminars, a continental breakfast and lunch. It concludes with symposium awards, distinguished student and mentor awards and a keynote address by Los Alamos High School graduate Dr. Randall Hyer.

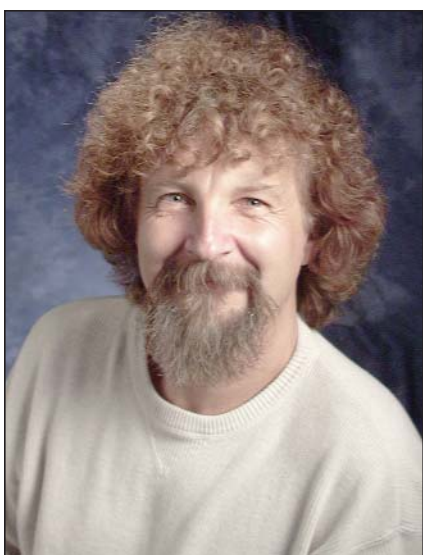
At 6 p.m. on Aug. 3, during the symposium awards banquet, Hyer will talk about his academic and professional career as well as encourage students to continue in their education, said Rutten.

The full schedule for the symposium, registration information and additional details can be found at <http://www.lanl.gov/education/symposium> online.

For more information, contact Rutten at 5-5194 or [crutten@lanl.gov](mailto:crutten@lanl.gov) by e-mail.

## Quantum darwinism ...

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Wojciech Zurek

but still can see the same systems in the same states — all the observers get the same big picture. This means that many copies of the same information must have proliferated throughout the environment, Zurek said.

How did this "advertising" happen? Why is the information about some states readily proliferating while data about competing alternatives (their quantum superpositions, which according to the quantum superposition principle are "equally good" when a quantum system is closed) are in effect extinct?

Zurek and his team, which also included Robin Blume-Kohout (Caltech), Harold Ollivier

(Perimeter Institute) and David Poulin (University of Queensland), have demonstrated in a sequence of papers that the already familiar pointer states that are distinguished by their ability to survive decoherence are the same states that advertise best — states that are easiest to find by intercepting small fragments of the environment.

This makes sense: pointer states live on. Survival is the precondition to reproduction — be it proliferation of the species or of information. And only pointer states can continue to be measured by the environment without suffering any ill effects of such inquisition

(in contrast to their fragile superpositions). So, as time passes, they tend to leave a redundant, prolific and, thus, noticeable imprint on the environment.

As Zurek said, their results prove that "quantum Darwinism works."

"In our quantum universe the environment is promoted from a passive role of a reservoir selectively destroying quantum coherence to an active role of amplifier selectively proliferating information about the system," he wrote in one of his papers.

Sound more like philosophy than science? Well, Zurek and his team of students were able to prove the identity of pointer states and states the are easiest to find from a small fraction of the environment through a complex, yet rigorous, sequence of equations. They show, for example, how much of the environment one needs to intercept to find out all one can find out about the system without intercepting all of the environment — e.g. every last photon.

For those who are intrigued by the unique wisdom behind quantum Darwinism but still unclear as to its real-world implications, the whole idea sounds a bit intangible. However, of late, such seemingly abstract results as illustrated in the photon example above are increasingly valuable for applications.

For instance, "smaller is better" is the mantra of nanotechnology, computer hardware and other high-tech areas. And, things begin to be more susceptible to "quantum weirdness" as they get smaller. For instance, if the size of the smallest fragments of computer chips continues its downward spiral in size at a present rate (halving the size every 16 months or so — the so called "Moore's law") then in a decade or two researchers will have to deal with individual atoms, and, hence, individual quanta. According to Zurek, that is where quantum Darwinism enters the picture.

"Understanding what happens on the quantum-classical interface helps us prepare the necessary documents for this inevitable border crossing," he said.



## Berkeley political science professor named director of UC Washington Center

**B**ruce Cain, a University of California, Berkeley, professor with almost 30 years of teaching experience and political expertise, is the new director of the UC Washington Center.

Based in the nation's capital, the center provides an experiential learning environment and coursework for students from UC campuses that includes internships. The UC Washington Center also sponsors policy debates and symposia.

Cain was appointed director of the UC Washington Center following a systemwide search advised by a committee of faculty and academic administrators from around the UC system.

"Professor Cain's tremendous knowledge of the federal government and its relation to the state and the university will add substantially to the many other benefits UC students receive from their time in Washington," said UC President Robert C. Dynes. "With his leadership and expertise, our students will gain a superb, hands-on understanding of the workings of American government."

Cain was educated at Bowdoin College in Brunswick, Maine, where he received his bachelor's degree in 1970. He studied as a Rhodes Scholar at Trinity College, Oxford (1970-72) and received a bachelor's degree in philosophy from Oxford in 1972. In 1976, Cain earned a doctorate in political science from Harvard University.

From 1976 to 1989, Cain was a faculty member in political science at the California Institute of Technology, and since 1989 has been a full professor of political science at UC, Berkeley. In the mid-1990s, Cain was named the Robson Professor of Political Science and has served as the director of UC Berkeley's Institute of Governmental Studies since 1999. Under his leadership at the institute, its portfolio of extramural research funding has grown four-fold.

Cain has been honored for his teaching, scholarship and public service. He received the Associated Students of California Institute of Technology Award for Excellence in Teaching in 1988, the UC Berkeley College of Letters and Science Distinguished Research Mentor award in 2003, and the outstanding teaching award from the American Political Science Association and Pi Sigma Alpha (the national political science honor society) in 2003. His research excellence was acknowledged with his election to the American Academy of Arts and Sciences in 2000. That year, Cain also received the Zale Award for outstanding achievement in policy research and public service from Stanford University.

For more information about the UC Washington Center, go to [www.ucdc.edu](http://www.ucdc.edu) online.

## Valley reception touts Math and Science Academy Lab honors state legislators

Master teacher Cathy Berryhill of the Education Programs Office (STB-EPO) works at a computer with students Jamie Tenorio, center and Jennifer Bailon at the Math and Science Academy Summer Institute in Española. Tenorio will be a freshman this fall at University of New Mexico while Bailon attends Pojoaque High School. The academy is a program of the Northern New Mexico Council for Excellence in Education of which the Laboratory is a partner. The Laboratory on June 17 recognized four state legislators who were instrumental in obtaining \$200,000 in state funds for the Math and Science Academy from the 2005 State Legislature. The legislators honored were State Rep. Nick Salazar, D-Mora, Rio Arriba, San Miguel, Santa Fe, Taos; Rep. Debbie Rodella, D-Rio Arriba, Sandoval, Taos; Rep. Jeannette Wallace, R-Los Alamos, Sandoval; and State Sen. Richard Martinez, D-Los Alamos, Rio Arriba, Sandoval. Since the academy was created, nearly \$600,000 in state funds — they are used to pay teacher stipends — have been acquired. The Math and Science Academy was created in 2000 and has been expanded to five Northern New Mexico school districts with 100 teacher participants. Photo by LeRoy N. Sanchez



## Lab director addresses students, stresses safety and security

by Chris Roybal

**L**aboratory Director Robert Kuckuck recently welcomed hundreds of students to the Lab and said students have a large role in the Lab's future.

"I have never seen at any Lab a student emphasis quite like this," said Kuckuck. "The Laboratory looks at you as part of its future, and hopefully you will look at it as part of your future."

At an all-student meeting in the Duane Smith Auditorium at Los Alamos High School, Kuckuck expressed a common bond with students by stating that he too knows what it is like to be new to the Lab and still is taking time to adjust. "I really relate where you are coming from," said Kuckuck. "I'm on a learning curve, and you're on a learning curve also."

Kuckuck encouraged students to make the most out of their appointments and urged students to take seriously their safety and security roles. The Lab's job is to protect its students, said Kuckuck, noting that part of the students' job is to help the Lab understand when it is not doing its job.

"You're in charge of what you're doing in the sense of safety," said Kuckuck. "If you're uncomfortable in any way, you should stop. Nobody expects you to do anything that you are uncomfortable with."

Kuckuck said the Laboratory is going through a transition period and that the students will be directly affected by such issues as tighter resources and changing priorities as the management competition for the Lab gets under way.

Kuckuck also mentioned that the Lab makes a tremendous effort to bring qualified students to the Lab, and that that effort is always rewarded. He especially noted that students have a right and a responsibility to help the Lab refine its processes and work in a more safe, secure and efficient manner.

"New eyes looking at things can always give us better ideas," said Kuckuck.

Kuckuck also responded to questions from students ranging from the fate of the student program after the Lab competition, to the role of foreign nationals, to facility renovation.

In closing, Kuckuck reminded students to remain safe and expressed his confidence that the Lab's student program will survive through any managerial change.

"Los Alamos is so unique in bringing students in that I can't think of anyone that could change that," said Kuckuck. "I really want you to feel welcome [and] to know that we value you as our future."

# So...what do you think?

**Q:** Many organizations across the Laboratory have picnics during the summer months as a show of appreciation or a bonding activity for their staff. What types of social activities would you like to see more of at the Laboratory, and would you participate?



**Cynthia Schwartz of Subatomic Physics (P-25)**

Lunchtime pickup basketball games, volleyball games, ultimate Frisbee games, those kinds of activities. They are a good way for people to exercise, relieve stress, have fun and connect outside of the formality of

the workplace.



**Phil Stauffer of Hydrology, Geochemistry, and Geology (EES-6)**

I would like to see more field trips to interesting sites around Northern New Mexico. Everybody knows of some special spot that would be of interest to others in a group or division. For example,

petroglyphs on the Red Dot Trail would make a great afternoon hike/picnic.



**Travis Serna of the Operations and Administration Office (CFO-OAO)**

I enjoy the picnics, but I would enjoy some more activities during the picnics like volleyball.



**Joe Gutierrez of Property Management (SUP-2)**

Yes, this is a perfect morale booster and a nice way to meet co-workers.



**Myrriah Gomez of (CFO-OAO)**

The student events are always great. It would be nice to see more of those.



**Greg Wilson of Statistical Sciences (D-1)**

I'd like to see a "LANL Day" at the Valle Grande.

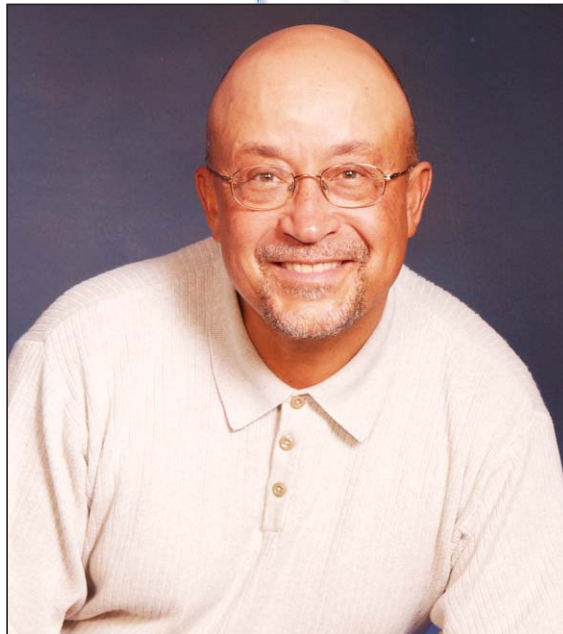


**Leo Jaramillo of CFO-OAO**

In an effort to raise money for the United Way during the fall, the Chief Financial Officer (CFO) Division co-sponsors a Fall Fiesta with the Supply Chain Management (SUP) Division. Each year we pull off an

amazing party with lots of food, fun and music on-site. It's a great way to get the Laboratory community together for a good time and a good cause. I would like to see us do something very similar to the fiesta during the summer months. By doing so, we would bring the work force together for some fun under the sun and raise money for another charity in need of assistance. Having a good time while helping others, I would definitely join in!

## PEOPLE



**Warren "Pete" Miller**

### Miller new UNM associate vice president for laboratory affairs

Laboratory retiree **Warren "Pete" Miller** is the new associate vice president for laboratory affairs at the University of New Mexico.

UNM is the lead member in a consortium of New Mexico universities that are teaming with the University of California to form an Institute for Advanced Studies. Miller will head up UNM efforts in the consortium, which is contingent on UC winning the contract to continue operating the Lab. He also will serve as UNM's lead for its interactions with Battelle Energy Alliance and the Oak Ridge Affiliated Universities of Oak Ridge National Laboratory.

While at Los Alamos, Miller held a number positions, including senior adviser to the Lab director, deputy Lab director for science and technology, director of the Science and Technology Base (STB) Programs Office and associate Lab director for researched education.

"Pete Miller brings his long background of management within the Los Alamos National Laboratory to UNM to assist in a number of complex activities now in progress at the university," Terry Yates, UNM's vice president for research and economic development, said.

Miller is currently a private management and technical consultant. He is a member of several organizations such as the National Academy of Engineering and the Nuclear Energy Research Advisory Council of the Department of Energy.

Miller graduated from the United States Military Academy at West Point, where he earned his bachelor's degree in engineering sciences. In addition, he earned a doctoral degree in nuclear physics from Northwestern University.

### Procurement personnel receive recognition for working with small businesses

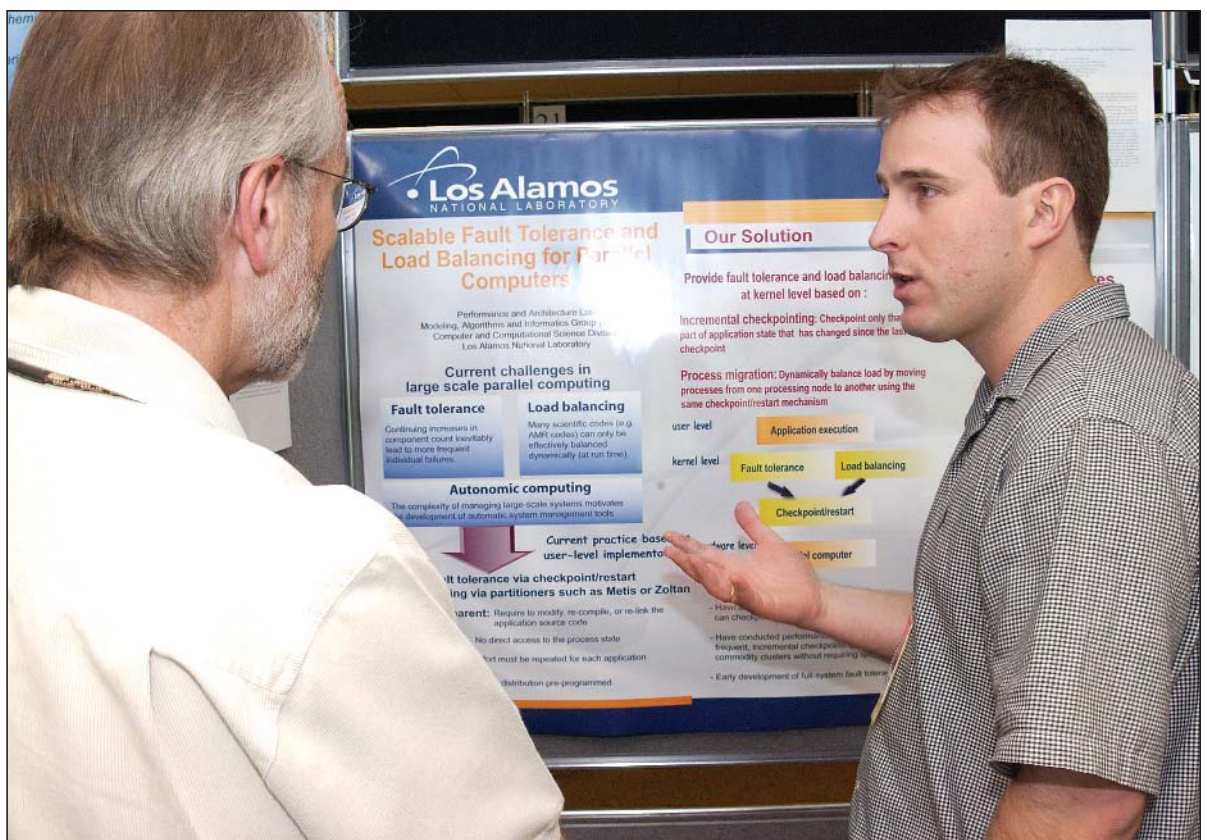
The Laboratory's Small Business Program (SUP-4) recently recognized 35 procurement personnel for their work in doing business with small and other socio-economic businesses.

Each of the buyers received a letter and certificate distributed by their procurement managers in the Supply Chain Management (SUP) Division and signed by Richard Marquez, associate director for administration. The recognition was based on the number of dollars and transactions placed by each buyer in the following socio-economic categories during the 2004 fiscal year:

- Small Business
- Small Disadvantaged Business
- Woman-Owned Small Business
- Northern New Mexico
- 8(a)
- HUBZone
- Veteran-Owned Small Business

"Each year the Laboratory establishes small business goals with the Department of

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### Poster session highlights research of Lab postdocs

**Jose Sancho Pitarch of Modeling, Algorithms and Informatics (CCS-3), right, discusses his research on scalable fault tolerant and load balancing for parallel computers with William Feieresen of Computer and Computational Sciences (CCS) Division at a postdoc poster session in the Los Alamos Research Park. The poster session was a joint initiative of Staffing (HR-S) and the Postdoctoral Program Office in Science and Technology Base Programs (STB) to showcase postdoc research to hiring officials in 11 Laboratory divisions.** Photo by LeRoy N. Sanchez

## In Memoriam

### Chester Roy Smith

Lab retiree Chester Roy Smith died on April 29. He was 92.

Smith was born in Huntington, Mass. He married Beatrice Louise Smith on July 8, 1933.

Smith began his career at Los Alamos with the Atomic Energy Commission Protective Force and was hired as an employee in the former GMX Division in 1957.

While at the Lab, he also worked in Experimental Physics (P), Medium Energy Physics (MP) and Accelerator Operations and Technology (MP-8).

Smith retired in April 1978 but rejoined the Lab from 1981 to 1991.

He is survived by his children Barbara Caldwell, Virginia Harkleroad and Robert Smith; 10 grandchildren and 13 great grandchildren.

### William Leroy Kirk

Laboratory retiree William Kirk died April 10. He was 74.

Born in Charleston, Mo., Kirk graduated from Castle Heights Military Academy in 1948. After receiving an appointment to the United States Naval Academy, he graduated in 1952 with a bachelor's degree in engineering and served for nine years in the United States Air Force.

Kirk obtained his master's degree in nuclear engineering from the Wright Patterson Institute in 1957 and joined the Laboratory the next year.

While at Los Alamos, Kirk was a program manager for two test reactor programs. Later, Kirk moved into power reactor safety, nuclear safeguards, and a variety of other energy applications in the former Energy (Q) and Nuclear Safeguards, Reactor Safety and Technology (R) divisions, among others. He retired in 1991 but returned to the Laboratory as a Lab associate for three years, leaving in 1994.

He is survived by his mother, Bertie Kirk; his wife, the Reverend Patricia Lanier Kirk; his son Alan; two daughters Kathy Nelsen and Lisa Meyer; four grandchildren; and his sister Inez Robinson.

### Celeste Immaculate Porto

Lab retiree Celeste Immaculate Porto, a resident of Los Alamos since 1949, died April 30. She was 91.

Porto was born in Yonkers, N.Y. In 1944, she began her medical secretarial career at St. Vincent's Hospital in New York City. She continued her vocation at Madigan General Hospital in Tacoma, Wash. From 1947 to 1949, Porto filled a similar position at Mt. Zion Hospital in San Francisco. In Sept. 1949, she began her career at Los Alamos as the secretary for the former Industrial Hygiene (H-5) group.

Porto retired from the Laboratory in 1972.

She is survived by her brother Tony and his wife, Bernice, three nephews and two nieces.



## LANL Foundation wins Governor's Award

The Los Alamos National Laboratory Foundation recently received the 2004 Governor's Award for Outstanding Non-Profit Volunteer Program.

State Representative Nick Salazar, D-Mora, Rio Arriba, San Miguel, Santa Fe, Taos, nominated the foundation earlier this year for its continued investment in human potential throughout Northern New Mexico. The New Mexico Commission for Community Volunteerism, a bipartisan group appointed by Governor Bill Richardson, judged the nominations.

Since its inception the Laboratory Foundation has given more than \$16 million to New Mexico communities through 1,201 grants to nonprofit organizations and schools in the region. The foundation's assets now also include a \$53 million portfolio.

The foundation also manages the Los Alamos Employees' Scholarship Fund, which awards college scholarships to Northern New Mexico area students. Since the scholarship program began in the late 1990s, 320 students have received scholarships valued at \$1,849,750.

The LANL Foundation is a philanthropic grant-giving entity created in 1997. It supports a range of regional and community not-for-profit organizations.

There were 40 total nominations in 10 award categories. The LANL Foundation was nominated in the Nonprofit Volunteer Program Award. Gregory Webb, executive director of the New Mexico Commission for Community Volunteerism, said "The LANL Foundation really stood out in terms of their service to the communities of Northern New Mexico."

"We are thrilled to receive this award," said Susan Herrera, executive director of the LANL Foundation. "Behind each of the foundation's successes is countless volunteers supporting our mission. This award is a way of thanking each of them."

## Procurement ...

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Energy and the National Nuclear Security Administration," said Dennis Roybal, SUP-4 manager. "It is the buyers that help us achieve those goals and we want all buyers to know that we appreciate their efforts in helping the institution meet its small business program mission."

The 35 procurement personnel recognized by their managers for awarding contracts to small businesses during the 2004 fiscal year are the following:

Small Business: **Alison Dragt**, Streamlined Purchasing (SUP-7); **James Carrigan** and **Beverly Martinez**, Small Purchases (SUP-6); **Mike Boule**, Technical Support, Staffing, R&D (SUP-10); and **Frank Targhetta**, Construction, A&E, Facilities (SUP-8).

Small Disadvantaged Business: **Paul Schwarz** and **Angelina Gonzales**, SUP-7; **Kathryn Smith**, SUP-10; **Barton Burson**, SUP-9; **John Roybal**, SUP-8; and **William Hilbert**, SUP-6.

Women-Owned Small Businesses: **Dolores Arreola**, **Dianna Duerre** and **Edith Trujillo**, SUP-6; **Mark Padilla** and **Jeff Kuxhausen**, IT, Equipment, Fabrications, Services (SUP-9); and **Susan Bryant**, SUP-10.

Northern New Mexico: **Carla Martinez**, SUP-7; **Leslie Martinez** and **Andrea Martinez**, SUP-10; **Barton Burson**, SUP-9; and **Cyndi Eden** and **John Hernandez**, SUP-8.

8(a) Small Business: **Elena Fuentes-Ortiz**, SUP-6; **Monica Ortiz** and **Regina Glowonia**, SUP-10; **Tony Ballard**, SUP-9; **Jesse Castanon**, SUP-8; and **Jodie Drinkard**, formerly of SUP-9.

HUBZone: **Elena Fuentes-Ortiz**, **Barbara Lopez**, **Barbara Martinez** and **Melanie McDuffie**, SUP-6; **Angelina Gonzales**, SUP-7; and **Jesse Castanon**, SUP-8;

Veteran-Owned Small Businesses: **Florence Serna**, SUP-7; **Dereck Willis**, SUP-10; **Katherine Alano**, **Mark Backus** and **Darren Knox**, SUP-9; and **Frank Targhetta**, SUP-8.

For more information regarding the 2004 fiscal year Buyer Awards program, contact the Small Business Program Team at 7-4419.

## Director discusses ...

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have begun efforts to establish a process to accomplish this goal. I hope to report to you on this effort in the very near future.

Lastly, and maybe most importantly, we all need to continue to work toward reestablishing an atmosphere of trust and mutual respect for each other. I would use the recent deflagration incident in DX-2 as an example. The fear of possible repercussions the afternoon of the accident was stunning. At the same time, I was encouraged that, upon meeting with the DX-2 group the following week, they already were talking about how to prevent a recurrence. It's a difficult problem, but more regulations are not necessarily the right answer. There was tremendous emotion and caring in the room. Clearly, everyone involved understood the significance of the event. My thought is to take the incident, work with the scientists and allow those who know the work best to design safer approaches.

In light of the fact that we are in the middle of a contract competition, I also have heard many concerns about the future. Ambassador Brooks' recent announcement of a contract extension until June 1, 2006, means that you will know the conditions of the new retirement plan well before that date. With this in mind, I view the next 12 months as a "campaign," in which we must triage and prioritize. We need to take this time to stabilize and position our Laboratory the best we can for the changes that are to come. I want to establish a strong foundation of things that won't be disrupted no matter who comes in after the competition.

In closing I want you each to know, as I said on my first day, it is truly an honor to be the director of this great institution. I have truly enjoyed starting the process of getting to know the incredible people who make this laboratory what it is and I look forward to our future successes.



# Employee helps abused, neglected children

by Hildi T. Kelsey

When Sebastien Darteville, a postdoctorate in Geophysics (EES-11), moved to New Mexico last year, he had more on his mind than formulating and solving equations at the Laboratory. With a background in institutionalized foster-care giving and teaching children, he was a man on a mission: helping children in need. So, he set out to find an outlet for his goodwill.

What he found was the Court Appointed Special Advocates (CASA) program for abused and neglected children placed in foster care.

Founded by a judge in Seattle, Wash., who in 1976 realized that the existing system did not provide him with enough facts and data to make crucial decisions on foster-child welfare and placement, the CASA program is composed of volunteer individuals of various ethnic, social and educational backgrounds legally sworn in as advocates of the court to follow these civil cases.

The program branched out to other states, including New Mexico, which started its program in 1995. According to the CASA Web site, there are now more than 900 CASA programs in operation nationwide with 70,000 women and men serving as CASA volunteers.

"The reason for the special advocate is to appoint a completely independent, autonomous official — a citizen, not an attorney, not a social worker — who is only accountable to the judge," said Darteville.

These advocates, referred to as CASAs, are assigned to closely follow one or two families from the time they enter the civil court system (first adjudication) until a decision is made by a judge as to which environment (back home with parents or up for adoption) would be in the best interest of the foster children.

"The attorney for mom and dad want the child back with the family. The state thinks the child should be, for the time being, in the custody of the state," Darteville explained. "The case worker has so many cases, he or she often doesn't know what is best for the child. For a judge, [placing the child] is a stressful decision: Do I send the child back to a potentially unsafe home? Do I want to put a 10-year old up for adopting, knowing children at this age rarely get adopted?"

Darteville feels CASAs can help judges make these crucial decisions.

He said that CASAs participate in civil court where these types of cases are heard. However, most of the action and decisions in the case happen in negotiations with attorneys and case workers out of court.

So what does it take to be a CASA volunteer?

"You have to be very sociable. You must like people. You have to be a good listener — that is very difficult for some people. And, you have to care," says Darteville.

Being a CASA also requires a background check, 30 hours of training and being officially sworn-in as a member of the court.

"As an appointed advocate, you have to be able to stand up for your opinion and face others in court. It takes some will and some guts. You have to know who you are. But, if you care, things go naturally," he said.

Darteville said that his goal is to find out as much information as possible about the child in question during the length of the court process, which is normally one year. The research consists of finding out what the child wants, rebuilding the family tree, meeting with siblings, looking into the child's extended family and finding out the family dynamic. It may include talking to the child's teacher, doctor, psychologist (if involved) and others who know the child's thoughts very well. In addition, Darteville reads administrative documentation on the case to find out the specific data pertaining to the child. (As a court-appointed official, CASAs have access to all court documents.)

"You not only watch the progress of the child, but also you follow the dads and moms to make sure they are abiding by the treatment program mandated by the court," he said.

Every month or so Darteville provides information to both the judge and the court through an oral and written report.

"The court has so many cases, so many kids. Since you always are connected with your kids, you sort of become an encyclopedia of everything about their cases. After a few months everyone in the court listens to you, because they know you know what is going on with the children," Darteville said.

He mentioned that this often prevents the court from delaying the case, which precludes the child from remaining in a continuous limbo and saves the tax-payer money — a child in foster care costs \$20,000 to \$40,000 a year.

According to Darteville, every case is different, ranging from complex cases with siblings and a big extended family to simple cases



Sebastien Darteville, a postdoctorate in Geophysics (EES-11) is a CASA program volunteer. This photo is used by permission of CASA

with one child and one parent. A volunteer averages 30 hours a month in a case, but he or she may spend more time in the first two months conducting research and collecting information on the child.

"You have to be very well organized. Because I have a full-time job, I do most of my CASA activities in the evenings and on the weekends, but occasionally I need to take a half-day off to attend a court hearing.

"Being a CASA volunteer is a huge responsibility; once you go to the child — it's a commitment. You give your word, so you have to stick to it," he said.

Good to his word, Darteville currently is working on two cases pertaining to five children ages 3 to 11.

The first case entails parental neglect because of drug trafficking and addiction. With the mother and father still in jail, Darteville concluded that it looked like the child in this case, a three-year old girl, will likely be put up for adoption.

The second case involving alleged physical abuse, straddles the border between civil and criminal.

Darteville said the case is quite complex and has been subject to multiple delays. Meanwhile, the children are in foster care.

Although these cases sound stressful and time-consuming, Darteville claims the benefits far outweigh the efforts. The two most rewarding aspects of volunteering as a CASA, he said, are connecting with the children and earning respect from the court.

"First [the children] don't know you. When they start trusting you, it is really rewarding. It is important to spend quality time with the kids. It is not easy — sometimes they have attachment disorders from what they have been through. But if you pay attention to the children, you will find something to connect with," he said.

In terms of his interactions with members of the court, Darteville said, "The court becomes appreciative, and you know they are relying on you. Everyone is thanking you — even the attorney from the other side, [the side you recommended against]."

But he concedes that the most challenging aspect of being a CASA volunteer is communication. "There are lots of people with different backgrounds involved in the case — the family, attorneys, social workers and the judge. You have to be a good listener, especially to the families who are new to the legal system and do not know what is going on.

"I am an applied mathematician. At work, it is all equations, but in reality I still need to interact with human beings," he said.

Darteville is not the only Lab employee drawn to the cause. Ellen Castille, of Laboratory Counsel (LC), Barb Burress of Primary Design and Assessment (X-4) and several Lab retirees also are active CASAs.

To date, 30 cases in the first judicial district (Los Alamos, Rio Arriba and Santa Fe counties) still need CASAs. For more information, contact Darteville at 7-6815 or [sdart@lanl.gov](mailto:sdart@lanl.gov) by e-mail.

