New Tool for Computer Visualization in Stereo

By Nina Adelman Stolar

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See whole story...

SLAC Physicists Join ILC Design Team

By Heather Rock Woods

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See whole story...

Ray Larsen: Fauske Ambassador

By Albe Larsen

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The KIPAC mission is to harness theoretical and experimental physics communities, and bring their combined strengths to bear on some of the most challenging and fascinating problems in particle astrophysics and cosmology. As a theoretician, Abel is developing a new technique that incorporates experimental data and could be a powerful tool spanning diverse disciplines.

“I’m interested in the first stars, the first black holes, dust... anything that was the first of its kind in the Universe,” he said. Abel uses supercomputers to address these questions. His programs can display gasses and dark matter, demonstrating their movement and behavior.

This technique is used to build a complete physical description by solving the equations for all relevant physics involved. Therefore the computer display is an accurate representation of structure in the universe.

A zoomin, with lots of pretty isosurfaces in log density, z=19.9. But that doesn’t really matter, since it’s beautiful and not scientific. (Image courtesy of Matthew Turk)
creating immense amounts of three dimensional data. One individual time snapshot may already be 10 gigabytes of data. A typical simulation may produce 10 to hundreds of these. Visualization and analysis of these multi dimensional datasets presents a unique challenge. “The extra dimension available in an immersive environment helps a great deal for this!” he adds.

In a curtained section of a small cluttered room in the Central Lab, two projectors are mounted on the back wall with polarizing filters in front of them. By donning a simple pair of matched polarized eyeglasses, the subject matter appears in three dimensions on a large screen. With this technique you can demonstrate how a blob of cells in a Petri dish grows—or how the universe began.

Looking for Large Datasets

“I’m curious about finding other people at the Lab and on campus with really large datasets to fine tune this technique,” Abel said after mentioning that some of the software he is using was developed by a couple of his friends. He is using the technology in his teaching and believes that it has applications in many fields. To demonstrate, he turns on the projectors and the screen shows green globs which look like, and turn out to be, cells in a Petri dish. This sample shows visually how cells in a Petri dish grow into a mice sperm.

Abel’s informal style and soft spoken explanations have a way of working into your brain and before you can think too hard understanding breaks through like sunshine. After fiddling with the program, a cluster of stars appears on the screen. Watching this, I have the same dizzy sensation you get viewing the night sky in the dessert. He describes what is being shown: the bits of our galaxy are accurately represented with their real characteristics. They appear before you with the same relative size, colors and intensity they exhibit when we observe them directly.

Abel is an ordinary guy, with an extraordinary new tool for exploring...
large data sets by visually showing how the process/subject moves through time. For his students, this may be a commonplace method for gaining a deep understanding of the internal conditions of astronomical phenomenon and how they evolve. For those working with three dimensional data, this can become a new tool to include in their scientific toolbox.

The Stanford Linear Accelerator Center is managed by Stanford University for the US Department of Energy

Last update Thursday September 01, 2005 by Chip Dalby
By Heather Rock Woods

Eight thousand feet above sea level in Snowmass, Colorado, five of SLAC’s accelerator experts joined the central, international design team charged with designing the proposed International Linear Collider (ILC).

During the Second ILC Accelerator Workshop, held August 14-27, the Global Design Effort (GDE) officially held its first meeting. The GDE has 49 members from Asia, Europe and the Americas who will work the equivalent of 20 full-time jobs.

The group will produce a Baseline Configuration Document by the end of the year. This document involves designing the entire layout of the machine, including choices of components and manufacturing techniques. The team will spend the next year doing a more detailed reference design that includes costs and engineering.

“The unique thing SLAC has to contribute is the experience of running the first and only linear collider. All SLAC members bring in that experience,” said Tom Markiewicz (ILC). Some non-SLAC members have also ‘done time’ on the Stanford Linear Collider (SLC), he noted.

Nan Phinney (ILC) possesses “years of operational experience in running SLC.” She says that while it will take time for the GDE to become fully organized, GDE Director Barry Barish (Caltech) has set out a clear manner for reaching decisions.

“Recommendations will be made by working groups or multiple working groups for issues with overlap,” said Phinney. “If they have a clear consensus, the decisions will tend to be accepted unless
there’s a big cost impact. Otherwise (if there’s no consensus), a small subgroup of the GDE will make a recommendation. If the bigger group doesn’t like that, it will go to some kind of GDE jury. In the end, all recommendations will be decided by Barry.”

Tom Himel and Chris Adolphsen (both ILC) also joined the GDE at Snowmass.

“We both have a lot of experience running a real accelerator, linear or otherwise,” said Himel.

“SLC was helpful. As the only linear collider it had a unique set of problems that we learned to solve,” said Adolphsen.

Tor Raubenheimer, head of the ILC program at SLAC, is also a member of the GDE. Because of a climbing injury, he could not attend the workshop but listened to meetings by phone. He also sent out an e-mail message just before surgery outlining important considerations, which Barish read to the first gathering of the accelerator designers. Raubenheimer is one of the ‘Gang of Three,’ made up of the lead accelerator experts from each region.

One year ago, an international panel decided that the world’s next-generation linear collider should use superconducting technology to accelerate electrons and positrons to the collision point. Although SLAC had been working on the normal conducting technology, the decision represented only a small detour in a road long traveled by SLAC physicists to develop high energy frontier machines.

“I’m glad to have a role in the decision making process. There’s a certain satisfaction to those of us working in the linear collider field for so long to be able to contribute in this way,” Markiewicz said.

Related Story: ILC Newsline - Weekly News of the GDE
ILC Newsline-Weekly News of the GDE

The ILC NewsLine website was launched on Interactions.org in mid-August. This on-line weekly newsletter is a new communication tool for the global International Linear Collider (ILC) community.

Recent features report on activities at the American Linear Collider Physics Group conference and project developments for the ILC.

Subscribe to receive the weekly e-mail newsletter: www.linearcollider.org/cms/?pid=1000041

ILC NewsLine: www.linearcollider.org/newsline/
Ray Larsen: Fauske Ambassador

By Albe Larsen

And well may you say “Huh!” but read on. Becoming Fauske Ambassador is a milestone in an adventure that began last February when Ray Larsen (TD) discovered Canadian naturalization papers showing his father had been born in Sulitjelma, Norway.

All Larsen had known previously was that his dad had come from Norway north of the Arctic Circle and had emigrated to Canada in 1922. A Web search found Sulitjelma references on the website of Dag Ove Johansen, a teacher and writer/researcher studying the Sami (Laplanders) people. Larsen learned that Sulitjelma is part of the Fauske Commune or, to us, county. Exchanges of information led to an article on the Larsen family in the Saltenpost, the regional paper that contained a photo of some 40-plus people, all thought to be Larsen-related, who emigrated from Norway to Canada in April 1922. The article immediately elicited a phone call to Larsen from a second cousin in Oslo who just happened to be scanning regional papers on the Web the day the story was published in mid-March. Then other contacts started to dribble in to Johansen.

Meanwhile, on the California coast a trip to northern Norway was being planned for June 13-21, squeezed between a conference and a seminar. It was later discovered that June 18 was the date set for both a Larsen family reunion in Fauske (arranged by Johansen and publicized in Saltenpost) and the 100th anniversary of Fauske’s founding.

Touring the Homeland

Moments after arriving at the Fauske Hotel, Johansen himself appeared bringing with him the mayor, and Espen Melvik. Melvik, Larsen learned, was the grandson of the man who had bought his grandfather’s property, a portion of which remains in the Melvik family today. Melvik offered to take Larsen, wife, granddaughter and Johansen to see the property, accessible only by boat. He also brought...
along a poem written by Larsen’s namesake uncle Sverre at age 13 and published in the Saltenpost in 1923. The poem talked of the land and the difficulty of leaving a place one loved. It had been cut out and saved by Melvik’s father who, at age 8, was touched by it and had kept it all these years. Larsen now owns a framed copy.

Other discoveries were many. The property was an entire fjord, including all the lands on both sides—an incredibly beautiful, still sparsely settled summer paradise also containing three lakes and two rivers. However, what the winters are like one can only guess.

And Then—the Ambassadorship

On June 18, about 25 relatives—many who did not know each other and some coming as far as 200 km—gathered at a Fauske historic house to meet Larsen, sort out relationships and greet each other. After an introduction by Johansen and some remarks by Larsen, the deputy mayor was introduced. She presented Larsen with a plaque, a shirt and a number of local genealogical record books, and named him Fauske’s ambassador representing those many Norwegians who had left the area to settle in North America.

Other Highlights

Finding grandmother Edvarda Aasback Larsen’s family farm on the last morning and visiting Johansen at his wife Ann’s cabin in Horndal (Ann is also a relative). Catching pollack in the Saltenstrauem, which is an incredible maelstrom where the waters swirl wildly, and having Ann cook them for dinner. Visiting Sulitjelma and the neighboring town of Jacobsbakken with a cousin and being shown where Johan Antonius’s Sulitjelma bakery had been. Being welcomed with warm generosity by all. Larsen commented, “Stepping onto Faerøy felt like coming home.”
GLAST Milestone: ACD Subsystem Delivered to SLAC

By Elliott Bloom and Tom Borden

A significant milestone for the GLAST project took place in mid-August. The Anti-Coincidence Detector Subsystem (ACD) of the LAT was delivered to SLAC and installed in Bldg. 33. The activities started Saturday about 9:00 a.m. with the off loading from the truck and finished with the ACD in the clean tent. As of about 4:00 p.m. on Saturday, the ACD was secured in the clean tent that was designed for it. Checkout of the ACD began on Sunday morning and continued for a few days before final handoff to the LAT systems engineering and Integration and Test teams. The people responsible for this part of the project were here from NASA-Goddard throughout the week. All went well. It was an exciting day for everyone involved. For more information, see: http://www-glast.stanford.edu

Team members from NASA’s Goddard Space Flight Center (GSFC) successfully delivered the ACD with the help of LAT I&T team members (pictured left to right).

Back row: Larry Wai (EK), Tom Nieland (REG), Tom Borden (REG), Steve Harper (GSFC), Al Lacks (GSFC), Name Unknown (Truck Driver), Jim Anderson (GSFC), Charles Coltharp (GSFC), Mike Lenz (GSFC), Richard Vermillion (GSFC), Dave Engesser (CEF) and Steve West (GSFC).

Front row: Paul Haney (GSFC), Tom Johnson (GSFC), Percy Clay (CEF), Name Unknown (Truck Driver), David Kiehl (REG), Ken Segal (GSFC) and Dick Horn (GSFC).

(Image courtesy of Sandy Pierson)
The Anti-Coincidence Detector Subsystem wrapped in protective foil.
(Photos by Tom Nieland)

The Interaction Point, September 2, 2005

particle background from cosmic ray primary and Earth albedo secondary electrons and nuclei. It consists of segmented plastic scintillator tiles, read out by wave-shifting fibers and photomultiplier tubes. The segmentation is designed to avoid the self-veto problem of EGRET at high energies while still providing high cosmic-ray rejection.

The Stanford Linear Accelerator Center is managed by Stanford University for the US Department of Energy

Last update Thursday September 01, 2005 by Chip Dalby

http://www2.slac.stanford.edu/tip/2005/sep02/glast.htm
Safety Comes First, a Personal Message from Jonathan Dorfan

Laboratory Director Jonathan Dorfan gave a series of All Hands talks in Panofsky Auditorium on August 11. He asked each of us to attend. Maintaining the health and safety of everyone who works on the SLAC site is a central issue for all of us. Dorfan gave an update on ES&H status, progress made and future initiatives.

He thanked each of us for the tremendous support we have given to these activities. Conveying this message directly to each member of the Laboratory community was important enough that make up sessions were scheduled. Anyone who was not able to attend can view the video prepared for this purpose.

The video of his talk is available from the SLAC Library (Central Lab, Y215).

Handouts from the presentation:

- The SLAC ES&H Policy (March 11, 2005)
- The Respectful SLAC Workplace (November 27, 2000)
- SLAC Safety, Values and Expectations (January 31, 2005)
Getting Rid of Household Hazardous Waste: County Programs Make it Painless

By Rich Cellamare

Many common household products—like old paint, cleaners, spent automotive or household batteries and fluorescent bulbs—are hazardous and can threaten our environment if not properly disposed of. To encourage residents to manage household hazardous wastes properly and help keep them out of our landfills, California counties offer free drop-off services to their residents.

If you are accumulating hazardous products in your home or garage, it may be time to make your life easier and safer by taking advantage of these programs. Call your county program in advance to find out when you can make a drop-off and what you need to do.

Waste Management can provide information on household hazardous waste programs offered by San Mateo and neighboring counties. If you are having difficulty finding your county household hazardous waste program or have other questions, call Waste Management (Ext. 2399) or Rich Cellamare (Ext. 3401).

For more information and collection sites in your area, see: https://www-internal.slac.stanford.edu/esh/wm/guidance/household.htm
Route Changes for Construction Projects

The North Klystron Gallery Road will be closed at Sector 20. All vehicle and pedestrian traffic will be diverted to the Positron Vault Access Road. The road is scheduled to be closed as early as Tuesday, August 30 and will remain closed approximately 6 months for safety due to construction in the area.

The Loop Road will remain closed from the Main Gate past the Kavli Building for the duration of the construction project or until further notice. All traffic entering the site will proceed to the left. Expect delays at the Main Gate and keep your badge handy to facilitate traffic. All vehicles with window stickers will get through more quickly.
New Stop Sign in Heavy Traffic Area

By Rick Yeager

A new stop sign has been placed in the exit lane between the GLAST Project Offices (Bldg. 28) and Heavy Fabrication (Bldg. 26). The placement of this stop sign is to reduce speed of vehicles exiting the parking lot, and to provide protection for pedestrians leaving Bldg 28.

A full and complete stop for all vehicles is mandatory. Violators will be given a moving violation notice in accordance with the SLAC Traffic Control Program dated September 2004, with copies provided to their immediate supervisor and to Human Resources.
The SLAC Emergency Hotline Number:

1-877-447-SLAC (7522)

Please make a note of the SLAC Emergency Hotline number. In the event of an emergency, the most current information about SLAC will be a single phone call away.
MILESTONES

Service Awards

Appointments and Awards
Herman Winick (SSRL) and Professor Zafra Lerman received the New York Academy of Sciences 2005 Heinz R. Pagels Human Rights Award in recognition of their effective and tireless work on behalf of dissident scientists throughout the world, particularly in Iran. The award will be presented at the Academy annual meeting in New York on September 29.

5 Years
Berber, Jesus (KLY), 9/1
Brachmann, Axel (AD), 9/11
Dao, Tom (ASD), 9/1
Yang, Wei (SCS), 9/15

10 Years
Bharadwaj, Vinod (ILC), 9/1
Buhain, Juanito (ESD), 9/11

15 Years
Butler, Craig (CEF), 9/4

20 Years
Piennipicharn, Athikorn (MFD), 9/10
Tompkins, Hal (ESD), 9/3
Schindler, Rafe (EE), 9/1

25 Years
Lee, Eric (EE), 9/15
Moss, Leonard (SCS), 9/1

35 Years
Collet, Gerard (SSM), 9/8

To submit a Milestone, see: http://www.slac.stanford.edu/pubs/tip/milestoneindex.html
Mark Your Calendars

2005 Safety and Security All Hands Briefing & Expo

Tuesday, September 20
Panofsky Auditorium

Sessions Begin 9:30 a.m., 1:30 p.m., 3:00 p.m.

Everyone in the SLAC Community will be asked to attend the Annual Safety and Security Briefing. Speakers will discuss the importance of integrating safety and security into all aspects of our work. Information about SLAC’s Safety and Security Integrated Management program will also be available at Expo tables in the Auditorium Breezeway.

Subject matter experts will be manning the tables to answer questions about counter-intelligence, physical security, computer security, safety and emergency preparedness.

More details about speakers and topic areas will be announced. If you have questions, contact Doug Kreitz (Ext. 4550, dougkr@slac.stanford.edu).
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(Photos by Diana Rogers)
SULI Awards Ceremony

“The SULI program helped me grow as an engineer, a researcher and as an individual. Helen, James and Pauline laid a great foundation for us during our entire stay. Each member of the French House added more value, meaning and fun to my life as well. Thank you.” – Marcus Bellamy

“This program is amazing. Everyone is so nice and helpful. Hearing about the new ideas through lectures and student talks really opened my mind to the world of physics. I feel that this program benefited everyone involved; I know it has for me. I’ll never forget this experience nor the people who made it possible.” – Sara Marshall

“I consider myself very fortunate to have been given the opportunity to participate in the SULI program. It was well-organized, and I very much appreciated the effort to make it a well-rounded experience in term of lectures, transportation, housing, etc. I was consistently impressed by the amount of time that so many people put into making my time at SLAC worthwhile and enjoyable. It made an enormous difference in the quality of my experience, and I hope that I was able to repay these efforts at least in part. My thanks to everyone involved.” – Mary-Irene Lang

(Photos by Diana Rogers)
“The SLAC program at SLAC is a great experience. Plus, you are in the middle of the Bay Area, which allow you to have an extraordinary experience” – Sean Cauley

“SULI was the best research experience I’ve had. I had an excellent mentor, a stimulating project, and I got to know lots of cool, smart and motivated people. I had my first taste of materials science, which I am now considering as a career. Being able to spend the summer in California, my favorite place was an added bonus. Thanks for everything this summer” – Matthew Bibee

“My SULI experience was great. I learned about Galaxy Clusters, Cosmology and more importantly, I gained a greater understanding of what it is like to be a part of a scientific collaboration. KIPAC and SLAC are exciting places to work and I hope to be able to return someday.” – Matthew George
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