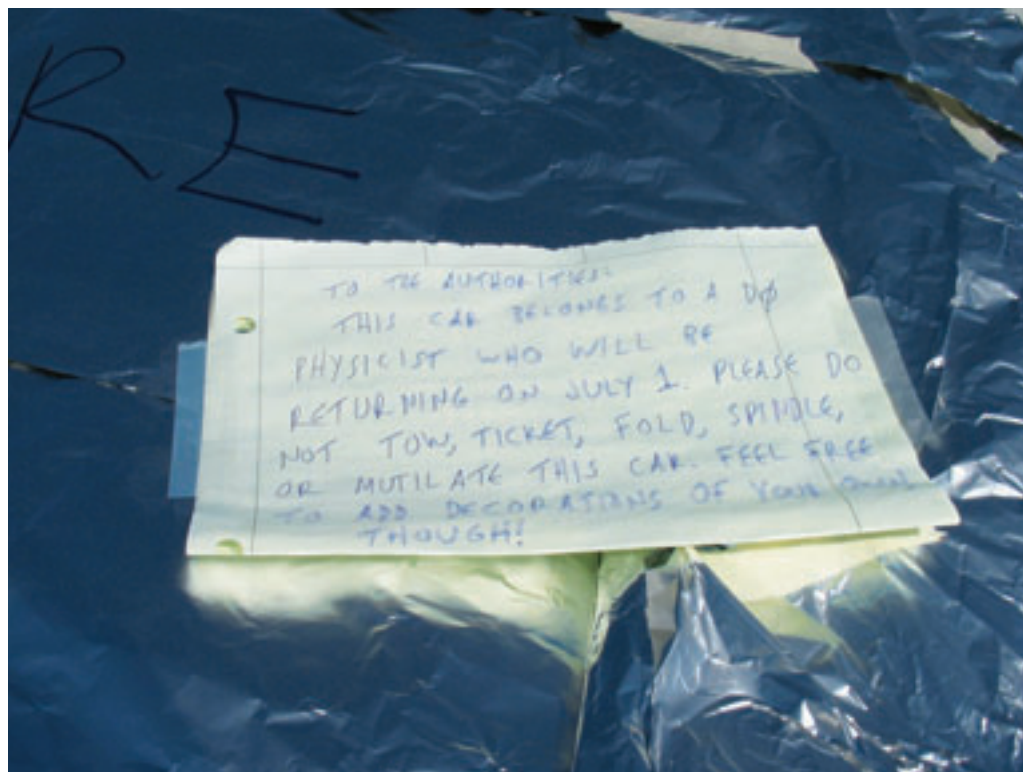


DZero physicists issue humorous warning; linear collider creates pile of publications; Caltech scientist joins videoconference at 40,000 feet; KEK provides reeds for restoration of thatched-roof house; Tevatron enters “femtobarn era;” SLAC’s battle with balloons for LCLS site; letters.



Photos: Kelen Tuttle

Foiled car foils attempt to monopolize parking

In mid-June, Fermilab employees got a surprise as they drove through the DZero parking lot. Sitting in a prime spot in the small parking lot in front of the main building was a car, completely covered in aluminum foil and adorned with decorations. A note, taped to the hood, encouraged passers-by to add their own removable message or decoration. Someone brought balloons, quickly withering in the summer heat; others had written strange messages such as “Rooster, Rooster, Rooster” in various places on the foil.

“All of the players in this drama are DZero collaborators,”

said Greg Davis, a member of the DZero team.

The car belongs to DZero physicist Marc-Andre Pleier, and his colleagues decorated it while he was out of town. The mastermind in this operation, Jeff Temple, had explained to Pleier that “if you are leaving for a long time, you should park in an out-of-the-way place,” because the lot serves many employees and visitors. Pleier ignored this advice from his colleague, and he was in for a great surprise upon his return. (His reaction was not available in time for this issue.)

“I knew that Pleier would be out of town for a few weeks after the DZero conference in Vancouver,” said Temple, “so his car became a tempting target.”

And so the car served as a humorous warning to others who wish to monopolize prime spots.

Amelia Greene





Illustration: Sandbox Studio

Collaborating at 40,000 feet

Phillipe Galvez wasn't even supposed to be on the flight. After a delay of his original flight, from Los Angeles to Frankfurt, he was placed on a flight to Munich. While watching the airline's mundane beginning-of-flight video, Galvez and others saw an advertisement for wireless Internet connectivity available throughout the plane.

"Everybody immediately jumped out of their seats to get their laptops," recalls Caltech's Galvez. "After I paid my \$29.95, the first thing I did was instant-message my wife and hook up my Webcam so the kids could say 'hi' to papa on the plane."

Next Galvez visited the virtual headquarters of Virtual Room Videoconferencing System (VRVS), a Web-oriented system first developed for the high-energy and nuclear physics communities. Collaborators from California, Geneva, and Slovakia were rather surprised to see Galvez appear on their screens, and his seatmates were astonished to see him get out his headphones and webcam and start talking to people on two continents, in the first VRVS video-conference from 40,000 feet.

"The people near me looked at me as if I came from Mars.

It didn't help that I got out my camera and started taking pictures to immortalize the event," says Galvez, who has since learned that not all flights, including his original flight from Los Angeles to Frankfurt, carry the technology. On your next transatlantic or transpacific flight, check for the availability of this service: You might be able to make that videoconference after all—with the blessing of your seatmates and enough battery power.

Katie Yurkewicz, *Science Grid This Week*

Researching the ILC

Research papers are traditionally written about data gathered in an experiment. However, research papers are also published before an experiment has even begun, and the International Linear Collider is an example.

Theorists have been thinking—and writing—about ILC research for over ten years. This section of physics literature has become an important one, long before the first shovelful of dirt has been moved.

A SPIRES search finds over 1200 papers with titles that include ILC or the acronyms of two of the earlier design studies, NLC (Next Linear Collider) and TESLA (TeV-Energy Superconducting Linear

Accelerator). For a machine that is not yet built, or even designed, it may seem a bit odd to find so many papers already written about it.

Over half of the papers, not surprisingly, are design-related, reporting on microwave and radio-frequency systems, electron beams, and other aspects of accelerator design. Some of the papers date back to the late 1980s.

Perhaps more surprising, though, are the 200 or so papers about topics such as supersymmetry, the Higgs boson, and large extra dimensions. These papers describe the possible discoveries that could be made at a future linear collider. For example, *Physical Review D* 52:1418 (1995), "Testing Supersymmetry at the Next Linear Collider", by Feng, Peskin, Murayama, and Tata, has accumulated over 100 citations. Papers like this explore the scientific capabilities of the colliders, and they are crucial to the ILC project.

Of course, no one knows for sure what the ILC will discover when it is turned on, but by making these types of simulations and predictions, theoretical physicists influence the design of the machine and provide the scientific basis for its construction.

Travis Brooks, SLAC



Tied with reed

What do a 200-year-old thatched-roof house and a modern high-energy-physics laboratory have in common?

Kunihiro Ando, a professor of Japanese traditional folklore at the University of Tsukuba, found the ties.

Every summer, the vast area of the KEK campus is covered with thick reeds and pampas grasses. Ando was looking for an untamed field of reeds to mow, for use in restoring the roofs of the old houses in a nearby town, Yasato. He found the solution in KEK.

Led by Ando, his students and members of the thatched-roof preservation association of Yasato came to KEK for the reeds last December, and a craftsman used the grasses to repair the roofs of the houses of the Edo era.

Yoji Totsuka, Director General of KEK, visited the restored houses and was amused. "I did not quite expect the fundamental physics laboratory would contribute to the folklore in this way," he said.



Photos: KEK

"I'm sure KEK will keep tying the knot of tradition."

Youhei Morita, KEK

Collisions galore

In May, Fermilab accelerator experts began to speculate about when the Tevatron collider would hit the inverse femtobarn mark, a measure of the gazillions of collisions produced since March 2001. Rumors about scientists betting on the exact date began to spread and, by the middle of June, the CDF and DZero experimenters knew that the "femtobarn era" was within reach. But with the Tevatron

operating 24/7, would it happen on a weekend or perhaps in the middle of the night?

Circling the Tevatron ring at close to the speed of light, the protons and antiprotons of collider store 4233 pushed the collision total for both CDF and DZero experiments past the historic mark on Friday, June 24, at 3 p.m.

The timing couldn't have been better. Half an hour later, more than a thousand employees and experimenters from collaborating institutions began to gather for a champagne-and-brownies celebration in the atrium of Wilson Hall.

In 2001, the lab still measured the number of collisions in inverse nanobarns, or millionths of an inverse femtobarn. Since then it has boosted the performance of the Tevatron, and it plans to collect another seven inverse femtobarns by 2009.

Rumor has it that some scientists have already begun betting on the exact dates of the new set of milestones.

Kurt Riesselmann

Party poopers

Busloads of new Stanford graduates and their families admired the field of golden grass on SLAC's eastern-most hill on a sunny Saturday in May. But their stunned tour guides looked in dismay as they sought 50 bright red balloons, intended to outline the 100,000 square feet of the future Linac Coherent Light Source (LCLS) building.

Earlier that morning, SLAC volunteers had fixed the helium-filled balloons above the freshly mown

grass to give an impression of the planned building's size. The LCLS building will house the controls of the world's first "hard" x-ray free electron laser, which generates precisely-controlled, high-intensity, ultrashort x-ray light pulses using a high-energy electron beam.

Sadly, stronger-than-expected bay winds knocked the helium-filled balloons onto the dry, prickly grass, and all except one popped before the first tour began at 1 p.m., leaving the lone balloon to greet the guests.

But never underestimate the tenacity of SLAC physicists. For a special event twelve days later, they outlined the future LCLS site with orange plastic fencing and blue balloons mounted on tall stakes to create a life-sized map of the structure that will take shape for the facility's start-up in 2009.

"This time, they all survived like a charm," says SLAC physicist Paul Phizackerley, who came up with the idea. Guests gazing over the same hill can now see more than just grass growing.

Monica Bobra

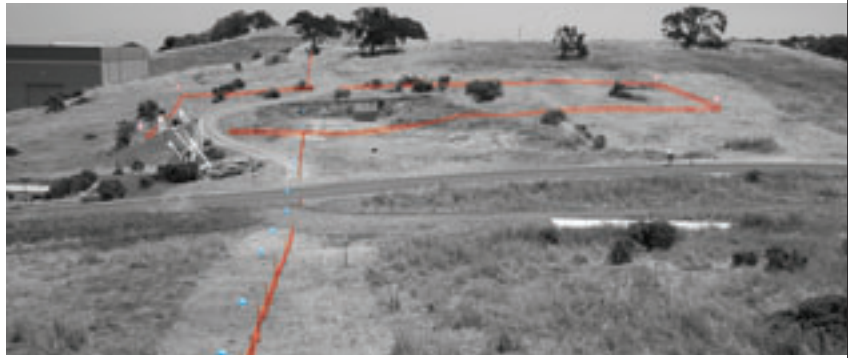


Photo: Diana Rogers, SLAC

Letters

Secret color code

Thank you for a charming issue on neutrinos (May 2005). The use of jelly beans of different colors to convey the notion of the various flavors of neutrino is very sweet and engaging.

I am curious about the actual choice of colors. Is there a message in the fact that yellow and pale blue are two of the three subtractive primary colors, producing green when combined in equal proportions? Is this the secret of oscillations, or related to the possible Majorana nature of neutrinos, or merely an indication of your favorite flavors of jelly bean?

Peter Rosen, DOE, Washington, DC

Great minds think...

I want to point out for the record that the cover of the June/July issue of *symmetry* appears to have been "heavily inspired" by the cover of the recent SLAC report SLAC-R-709, *The Discovery Potential of a Super B Factory*.

David Hitlin, SLAC/Caltech



Editor's note: *The similarity between the covers seems to reflect only a convergence of ideas. The issue of symmetry was on press before we were aware of the illustration on the SLAC report's cover.*

Correction: *The photo caption on page 25 of the June/July 2005 issue should have read "Members of the ATLAS collaboration gather at CERN."*

Letters can be submitted via letters@symmetrymagazine.org