

signal to background

Rowing Lake Geneva; partying for peace; high-voltage scarecrow; strangely familiar time machine; an innocent bystander drowns in physics spam; indecent equation; letters; call for physics license plates; corrections.



Photo courtesy of Monica Dunford

Row, row, row...

Monica Dunford couldn't stop swaying when she finally got out of the boat after 15 hours, 33 minutes, and 15 seconds of hard rowing. The physicist and her four teammates had just won the Tour du Lemman, held Sept. 22. Never again, she thought, would she do something so crazy as to row around Lake Geneva, Switzerland—that's 160 kilometers—in a single day.

But a few days later, fully recovered from the competition, she thinks she might do it again.

"Some people just never learn," says Dunford, a University of Chicago Enrico Fermi Fellow working on the Large Hadron Collider.

Dunford has certainly had ample opportunity to learn. She has rowed crew for the University of California at Irvine, played soccer ("horribly," she claims) while living in Philadelphia, and run four marathons. When she's not at the lab, she's training. While preparing for the Tour, "I hardly got any sleep," she says.

Dunford rows in a crew of five, among whom she is the only physicist. The others work in business and executive job search. The diversity of the group makes for interesting conversation during practice, she says: "They're very interested in the detector—'Why does it have to be so big and compli-

cated?' 'And when is the beam going to turn on?'"

There was little chatter during the big race, though—just five people determined to reach the finish line. Every two hours, each rower would get a break to rest, eat and drink, and use the "bathroom"—a cup.

There were 16 boats in the race, 11 with all-male or mostly male crews and five more evenly mixed teams like Dunford's. Her boat placed tenth overall, but first among the mixed teams.

For Dunford, it seems, there will always be another finish line looming. Right after the Tour, she was back in training. She had a marathon coming up.

Amber Dance

Images courtesy of Touchstone Home Entertainment

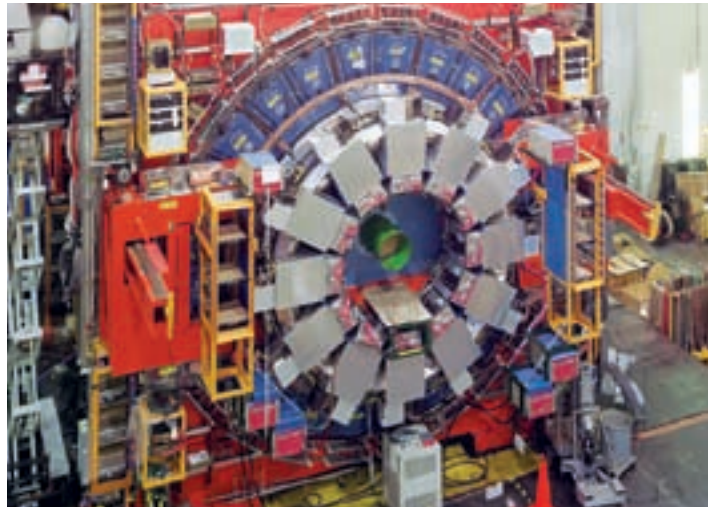
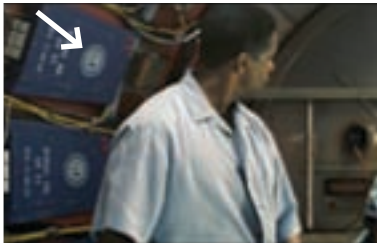


Photo: Reikar Hehn, Fermilab

As Clark Cully watched the movie *Déjà Vu*, he had his own flash of déjà vu: Something about that time machine seemed oddly familiar. At left, the fictional time machine in scenes from the movie; at right, Fermilab's CDF detector.

Déjà blue

As Clark Cully watched the movie *Déjà Vu* with his parents, something about the movie's time machine—with its bright blue wedges of metal spewing a ring of wires—seemed eerily familiar.

As Denzel Washington crawled into the time machine to travel to the past, Cully leaped up and hit pause. "It's CDF! It's CDF!" he shouted.

Cully works as a physicist on the CDF experiment at Fermi National Accelerator Laboratory. CDF, a three-story detector painted in classic Fermilab blue, is one of the two large experiments on the Tevatron.

Sure enough, when he enlarged the TV image of the time machine, there was the CDF logo on one of the wedges. "To really make that accurate a reproduction," Cully says, "you would have had to see the detector or the specs."

The film crew probably did.

Production designer Chris Seager says he first considered medical technology, such as an MRI scanner, as the model for a time machine. But the hardware seemed too small. He visited power plants, NASA's Jet Propulsion Laboratory, and the Cambridge High Energy Physics Laboratory looking for inspiration. But it was the roundness

of particle accelerators, and their raw display of wires and sensors, that finally caught his attention and provided the feeling of evolving science he was seeking.

"We wanted to keep things very much grounded and make it feel like the machine had come from a real laboratory," Seager says. "We found some fabulous references on the Internet to enormous pieces of equipment," and incorporated the look of those detectors into the movie prop.

While Cully burst with excitement at seeing the CDF in the movie, his family was more subdued.

After he finished jumping up and down, Cully noticed that his parents and sister looked confused. "They asked me, 'What's CDF?'" Cully says, with obvious disappointment. "I guess my family didn't remember the tour I gave them, or that I'm writing my thesis on it"

Haley Bridger

You have $3H\psi^i$ new messages

JoAnne Hewett's most recent paper is a collaboration between physicists at the Stanford Linear Accelerator Center, the University of Chicago, and the Massachusetts Institute of

Technology. The team relies heavily on e-mail; at certain stages of the project, they were sending between 50 and 100 e-mails per day.

Somewhere along the thread, one of the physicists mistyped an e-mail address, rerouting the deluge from Ben H. Lillie, a particle theorist at the University of Chicago and Argonne National Laboratory, to Ben V. Lillie, a 29-year-old pharmaceutical sales representative and father of two in Auburn, Alabama.

"The first e-mail showed up in early June, and I honestly thought it was spam," Alabama Ben recalls. "It looked like one of those pharmaceutical online purchase deals or viruses that had nothing but characters and numbers."

Oblivious to the error, SLAC's Hewett and her colleagues continued their discussions of ILC simulations and novel SUSY parameters. "We were wondering why we weren't getting any e-mails back from our Ben," Hewett says, "but we went our merry way."

As the paper neared its final stages, the content of the e-mails increased in complexity. "They hardly seemed like English," says Alabama Ben. "I have a BS in business management and a minor in computer



o Tim Barklow for extraordinary help with th
 e many invaluable discussions. We thank Burt
 We also thank Alexander Belyaev, John Cou
 artyr, Jeremy McCormick, William Morse, St
 Plimney, Bruce Schumm, Peter Shands, Tim
 Mike Woods for useful conversations. JLH th
 their hospitality while part of this work was ca
 lly grateful to Ben Lillie of Auburn, Alabama
 ad for his good humor and patience.

Document courtesy of JoAnne Hewett

science, so I would like to think I am not a complete idiot, but these e-mails were on such a high level I thought they had to be a joke. Even my computer programs have fewer symbols and characters."

Although the e-mails were incoherent, they seemed harmless, so Alabama Ben ignored them for three weeks. "But then I realized that someone else—my clone in Chicago—was probably feeling left out," he says. "So I told them they were sending their messages to the wrong address."

His attempt to clarify the situation, however, only made it worse. "We thought that message came from our Ben," Hewett says, "so it led to a huge flurry of e-mail messages—more than 100 per day for about a week."

Finally, Alabama Ben explained it as clearly as possible for the theoretical physicists. "I'd love to help you guys out," he insisted, "but I'm just a pharmaceutical rep in Auburn, Alabama, and I'm afraid this is way over my head. But thank you for the interesting e-mails."

"Just a pharmaceutical rep," he may be, but one with a unique link to the field of theoretical physics. Hewett and her colleagues acknowledge his contribution in the paper they submitted to the *Journal of High Energy Physics*, "General Features of Supersymmetric Signals at the ILC: Solving the

LHC Inverse Problem," with a line citing him by name "for his good humor and patience."

As for Alabama Ben, "I see it as the time I dabbled in particle physics and linear theory," he jokes. "The particle accelerator in the garage still has a few bugs in it, but it's getting there."

Lizzie Buchen

GEQ*T**

When Tom Nash bought a new Porsche 911 Carrera 4, he wanted to give it some personal flair. So he applied for a custom license plate: GEQ8PIT.

"I'd never had a vanity plate before," Nash says, "but I thought it might be fun. And it fit perfectly!"

To his surprise, the California Department of Motor Vehicles denied his request, pronouncing it "offensive to good taste and decency" and "misleading to some of our citizens."

"I was astonished," Nash recalls. "I didn't understand how this could be interpreted offensively by even the most distorted of minds." He immediately called the agency, which told him to submit a written appeal.

So Nash, a retired Fermilab physicist and member of the Laser Interferometer Gravitational-Wave Observatory scientific collaboration, wrote to explain that the message represented Albert Einstein's gravitational field equation, $G=8\pi T$.

The equation describes how the distribution of mass (stress energy tensor, or T) affects the curvature of space-time (G), encapsulating Einstein's general theory of relativity. "This is one of the most important equations in all of science," Nash wrote, "and is used to predict the future course of the universe."

When two months passed without a response from the DMV, Nash called Governor Arnold Schwarzenegger's office. "Then things started to happen," he says, "and several very efficient people got on the case."

According to an e-mail from Steve Haskins, a communications officer for the agency, "GEQ8PIT was originally refused because it appeared to read 8 with PI (pie). The Special Processing Unit refuses any configuration with 8 (ate) in it, if they are not sure of the meaning, as it appears to be of a sexual connotation."

Haskin says Nash's original application apparently did explain that the numbers and letters represented Einstein's field equation, "but it's safe to say that our technicians, not being gravitational physicists, simply didn't understand what he meant. When it was later explained in more detail, the configuration was approved."

On Oct. 18, five months and nine days after his initial application, the plates finally arrived. In spite of the delays, Nash is happy with the outcome. "Apparently there had been a change of personnel in the Special Processing Unit and my first letter was lost," he says. "So the DMV has no hard feelings about Einstein, and I have no hard feelings about the DMV."

Lizzie Buchen

Photo courtesy of Tom Nash



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Letters

Image courtesy of Roshan Houshmand



Bauhaus particle physics

Some of these paintings by Roshan Houshmand (*symmetry*, Jun/Jul 07) remind me of the works of Paul Klee (of the Bauhaus School in the 1920s in Germany) and also those of Joan Miró to some extent in another way. Certainly her painting "Retro" connects in my mind with Kandinsky.

It is very interesting to me because I see the work of these artists and other 20th century European and North American artists as intimations of a gateway into a new human world. It is happening as much in the human psyche as it is in particle physics, for I see a correspondence here.

Intriguing stuff, indeed!

David Erickson, Gatineau, Québec, Canada

Steering a dragon

Since I visited Fermilab almost seven years ago on a cross-country trip, I've enjoyed keeping in virtual touch with the world of high-energy physics, first through *FermiNews* and now through *symmetry*. I'm a physician rather than a physicist, but I love the subject and have fond memories of being a college physics tutor while studying for my med school prerequisites.

I've been an avid dragonboat paddler for three years, so imagine my delight when I discovered the article about your dragonboat team in the June/July issue! I just wanted to call your attention to an important team member who appears in the photo but not in the text. Along with the paddlers, caller (drummer), and flag catcher, the humble but essential individual either standing or seated in the back is the tiller, sometimes called the steersperson (as in your photo). If it weren't for the tiller, the boat would probably go in circles rather than across the finish line! As an apprentice tiller myself for the past four months, I've gained a new appreciation for the skills tillers bring to the boat.

Good luck in the races next year, and don't forget to thank your tiller when you capture that flag!

Margaret Hammitt-McDonald, Portland, Oregon

Life list tourism

It would be nice to have the "Life List" (*symmetry*, Aug 07) sorted by location.

Reason: In the article, the various life list items are "a little bit here, a little bit there" based on category. For example, items for Fermilab appear on pages 11, 12, 14, 15, 16, 17, and 18. Although organization by category is good for a magazine, it's not so great for a traveler.

A traveler would like to know "I'm going to be near Chicago on Thursday. What Life List things are in that area?"

John Takao Collier, Winfield, Illinois

The editors reply: We completely agree and plan to update the life list on the Web with new items and sorted in additional ways.

Request to readers: Physics license plates

For the past few years, the editors of *symmetry* have kept their eyes open for physics-related license plates on vehicles, and have been collecting photos of them. However, we want to expand our collection for a future story.

Let us know about your or your colleagues' license plates at letters@symmetrymagazine.org. We would love to receive photographs of the plates and the stories behind them. Perhaps you have an even stranger story than that of Tom Nash's GEO8PIT plate (page 7).

The Editors



Photo: J. Bryan Lowder, Fermilab

In the tunnel

While looking through the June/July 07 issue of *symmetry*, I enjoyed reading Glenda Chui's article "The particle physics life list"

On page 18 there's a picture of "Hans Bethe and friend" touring what is now the CESR tunnel at Cornell University's Laboratory for Elementary-Particle Physics. At the time the photograph was taken, however, it was the tunnel of the 10 GeV Synchrotron at the Laboratory of Nuclear Studies.

The picture's label may have been shortened for brevity or humor, but I suspect many of your readers may not have recognized the friend. He was Boyce "Mac" McDaniel. For many years Mac was the director of LNS, having succeeded Robert R. Wilson to that position.

Unfortunately, that particular Life List entry is no longer a possibility, although tours of the tunnel can be arranged. The construction of the CESR storage ring in the tunnel resulted in many obstructions, so many that the bicycles finally were retired after more than 30 years of yeoman service. In the final years of their use, they primarily were used to speed travel from Wilson Lab through the cross-tunnel to the CUSB "north-area" experiment under Tower Road.

Selden E. Ball, Jr., Cornell University

I loved the Life List article. I just want to point out that the person riding the bike alongside Hans Bethe ("Ride a bike through the CESR tunnel") is Boyce D. McDaniel, a very influential physicist in his own right. Some of his remarkable achievements are mentioned at: <http://www.news.cornell.edu/releases/May02/Obit.McDaniel.bpf.html>.

Richard Kass, Ohio State University

Itinerant Cavendish?

How many people have pointed out that the Cavendish is at Cambridge, not Oxford? I very much enjoyed the article, and the others too, since I got my PhD on the Cockcroft Walton stack at the Cavendish (it emigrated to WITS university in Johannesburg, where, oddly enough, I also used it—on diamonds.) I was into high-energy on the Cosmotron, then the meson factory at Los Alamos. Anyway, *symmetry* keeps me abreast with what is going on in a very entertaining way.

Ron Edge, University of South Carolina (Emeritus)

Birthplace of the penguin

I very much enjoyed your particle physics life list, but "eats and drinks" contains a factual error—the birthplace of the "penguin diagram" was not Charly's Pub in St. Genis, but in fact Short's Arcade on the Grand-Rue in Geneva's Old Town, now sadly long gone (and there isn't even a plaque!)

Serge Rudaz, University of Minnesota

Corrections

We have made online corrections of the errors mentioned in the letters above. One of the runners-up in the particle-naming contest was given an incorrect affiliation in the Sept 07 issue of *symmetry*. John T. Collier is from Winfield, Illinois. In the Sept 07 logbook, we misprinted the first name of one of the creators of plutonium. He was Arthur C. Wahl.



Photo: Cornell University

