

LETTERS

New Image Approaches Urged for Physicists—and Physics Meetings

I was washing my hands in a rest room between sessions at the APS March meeting when I came across a stack of pamphlets containing beautiful pictures of, er, something. Upon closer inspection, I realized that it was not the reconstructed 7×7 surface of silicon, but an industrial design for the patterns at which I stare when I do most of my deep thinking. As almost everyone who attended this year's March meeting was certainly aware, the Los Angeles Convention Center was rented out not only to the American Physical Society, but also to NeoCon West, the annual contract furnishings fair. As with many conventions, it too featured an exhibit area, or trade show. I had tried to crash it earlier, but the backpack over my tweed jacket must have revealed my status as a nonmember, since I was swiftly ejected.

Seeing the dog tag of the attendee whose pamphlets I had been admiring, I launched a second campaign to get in.

"Are you here for the floor and tile show?" I asked ALAN. (Name tags for the fair carried first names in large bold lettering.)

"Yes," said ALAN, "are you here for that physics conference?"

"Yup. I tried to get into your trade show but I got bounced."

"Here, take my name tag."

Entering the trade show, I felt as though I had been transported to a parallel universe, one in which parquet and limestone were my central focus instead of ferroelectrics and semiconductors. I looked around, trying to imagine this alternate lifestyle and career choice. Were these people happy to have chosen a life outside physics?

I immediately noticed several differences between their trade show and ours: an open bar, Internet cafe, two-dimensional barcode scanners that actually worked, patrons name-tagged DESIREE. I safely concluded that their show was much better organized and much higher tech than our own. (And yes, they seemed happier as well.)

My experience at the NeoCon West trade show stimulated some thought about the current state of physics in the US. Why is it that a physicist needs to sneak into a floor and tile trade show to log on to the Internet? Didn't we invent the Internet? And, year after year, we gather at convention centers to talk to ourselves, shoulders hunched, holding unwieldy, incoherent light pointers, placing hand-scribbled notes on overhead projectors and wondering when the woefully inaccurate egg timer will decide to ping—yes, "we," of the same clan that invented the laser, the liquid crystal display and the atomic clock! We have discovered and invented so many wonderful things, yet we look and act like losers. Is it any wonder that some of the best young minds don't choose physics anymore?

Physicists, I concluded, have an image problem. For too long we have neglected our own shabby appearance, all the time wondering why enrollment in our discipline is dropping. We need to educate the public about the significance, the importance and the fascination of fundamental and applied physics research. And we need to look cool doing it.

Next year there will be the centennial celebration of the American Physical Society. Let us exploit this free media opportunity by orchestrating an all-out media blitz aimed at educating the public about the impact of a century of physics discoveries on everyday life. CNN will be next door. Let's toss the egg timers and buy radio-synchronized atomic clocks, lay to rest the incoherent light pointers and buy \$10 laser diodes, phase out the hand-scribbled transparencies and equip every conference hall with

Letters submitted for publication should be addressed to Letters, PHYSICS TODAY, American Center for Physics, One Physics Ellipse, College Park, MD 20740-3843 or to ptletter@aip.acp.org (using your surname as "Subject"). Please include your affiliation, mailing address and daytime phone number. We reserve the right to edit letters.

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Table-Top Classical Teleportation Channel Found in East Lansing

With respect to Graham Collins's story entitled "Quantum Teleportation Channels Opened in Rome and Innsbruck" (PHYSICS TODAY, February, page 18), let it be known that a classical teleportation channel has just been discovered here in East Lansing that teleports far more information than the four-state quantum channel revealed by Collins.

Classical teleportation works as follows.

Alice and Bob are on opposite sides of a pool table, on which there are one red ball and a white cue ball. The red ball, at rest, is much closer to Alice than it is to Bob. A "preparer" launches the cue ball toward the red ball in such a way that the cue ball has momentum only in the y direction. This momentum is known to Bob, but not to Alice, who suffers from terminal nearsightedness. In the subsequent collision, the impact is not dead center, and the cue ball speeds toward Alice's side of the table, where it hits the cushion with momenta P_x and P_y . Alice (despite her nearsightedness) can anyhow measure P_x and P_y at the cushion next to her.

Meanwhile, the red ball is heading toward the cushion where Bob is waiting. (Bob is color blind and cannot distinguish the red ball from the green table top.)

Alice and Bob are equipped with a telephone consisting of two tin cans and a piece of string. Unlike the quantum mechanical analog, this communication system is not entangled. Instead, the string is straight and taut. Using the telephone, Alice communicates her measured values of P_x and P_y to Bob. Because the sound moves along the string faster than the red ball moves across the table, Bob is able to use the information from Alice (and what he knows about the initial state of the cue ball) to predict both the x and y components of the momentum of the red ball that is headed in his direction. In an apparent crisis of causality, he is able to

make this prediction in advance of the arrival of the red ball at his side of the table. Further, his prediction is classical without the loss of information inherent in quantization. Note, however, that the process does not travel faster than the speed of light, tin can telephones being notoriously slow channels.

Recent experiments at Pinball Pete's in East Lansing, Michigan, have suggested that classical teleportation may be capable of transmitting more information than previously imagined. For example, it appears that the accuracy with which Bob predicts the momenta on his side of the table may be directly related to the accuracy with which Alice makes her own measurements. Thus, not only is momentum information transferred, but accuracy information is also somehow teleported in the process. Pool-table theorist Sluggo Pulaski points out that if accuracy is truly teleported, then that will occur without any knowledge of accuracy on the part of either Alice or Bob.

"I guess that sorta leaves quantum teleportation in the dust," concludes Pulaski.

MARC TROIS
East Lansing, Michigan

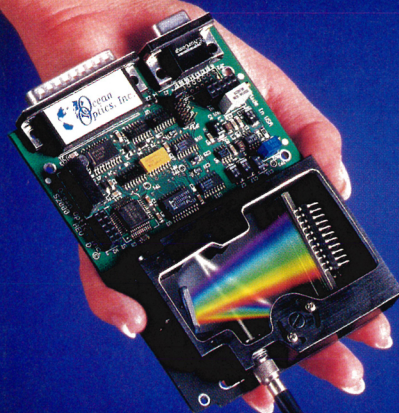
Error Caused Drop in Ranking of Physics at SUNY at Stony Brook

In his letter on US doctoral programs in physics (PHYSICS TODAY, March, page 15), Jeffrey Bair mentions that whereas the physics department at the State University of New York at Stony Brook was ranked number 12 in the 1982 National Academy of Sciences study, it was ranked number 22 in 1995 by the National Research Council. He seems to suggest that this change may somehow be related to Stony Brook's relatively low proportion of faculty who obtained their doctoral degrees in the Stony Brook department or in one of the other eleven top-ranked departments (as ranked in 1995).

We would like to remind your readers of the correct explanation: Stony Brook's low ranking in 1995 was caused by a factual error, in that our entire Institute for Theoretical Physics was omitted from the list of faculty circulated to the NRC study's panelists. (In fact, the error was reported in a "Washington Reports" story by Irwin Goodwin in PHYSICS TODAY, November 1995, page 67.)

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