

Bell Labs inquiry spreads to superconductors

Geoff Brumfiel, Washington

An investigation into possible data fabrication at Bell Laboratories has been expanded to include three important papers on superconductivity published in *Nature*.

The additions to the investigation, which is being conducted by a panel chaired by Malcolm Beasley of Stanford University in California, have alarmed physicists, dozens of whom have been engaged in efforts to replicate the superconductivity work.

The expansion is also causing trepidation at Bell Labs in Murray Hill, New Jersey — its struggling owner, Lucent Technologies, lost a third of its already-diminished stock-market valuation last week (see graph, right), as investors reacted to news of a multi-billion-dollar fraud at telecommunications firm WorldCom.

Papers co-authored by Jan Hendrik Schön on the use of organic molecules in microelectronics first came under suspicion in May, when researchers noticed two graphs in separate papers that appeared to be identical, right down to the noise in the data (see *Nature* 417, 367–368; 2002). The Beasley inquiry was set up and soon more than a dozen papers co-authored by Schön were under investigation. Schön stands by his results and is cooperating with the inquiry.

In recent weeks, the inquiry added three more papers co-authored by Schön^{1–3} to its list, Beasley said at the end of last month. The papers describe how two fullerenes — C₆₀ and C₇₀ — and calcium copper oxide lose all electrical resistance (become superconducting) when they have been ‘doped’ using an electric field to add or remove electrons from their crystal structure. Two of the papers^{1,2} were co-authored by Bertram Batlogg, one of the world’s leading experts on superconductor physics, who is now at the Swiss Federal Institute of Technology in Zurich.

The three papers were brought to the panel’s attention by several researchers, including Nobel laureate Philip Anderson of Princeton University, New Jersey, who noticed similarities in the range of temperatures and charges in which two of the materials — C₆₀ and a calcium copper oxide — became superconducting.

Arthur Ramirez, a physicist at Los Alamos National Laboratory in New Mexico, who is trying to reproduce Schön’s work with C₆₀, admits that the similarities are “a little weird” but is withholding judgement on the reasons for them. Ramirez says he will press on with his effort while the Beasley panel completes its evaluation of the original result.

Meanwhile, the troubles of Lucent Technologies continue to mount, with the WorldCom scandal dashing hopes that demand for Lucent’s products will revive

any time soon. “The telecommunications sector is melting down,” says Scott Cleland, head of the Precursor Group, a Washington-based market analyst firm. “Many of these companies, including Lucent, are flirting with bankruptcy.”

David Farber, a professor of telecommunications at the University of Pennsylvania, Philadelphia, and a former researcher at Bell Labs, also sees tough times ahead for the laboratory. “When push comes to shove, what do you sacrifice first? Research,” he says. But

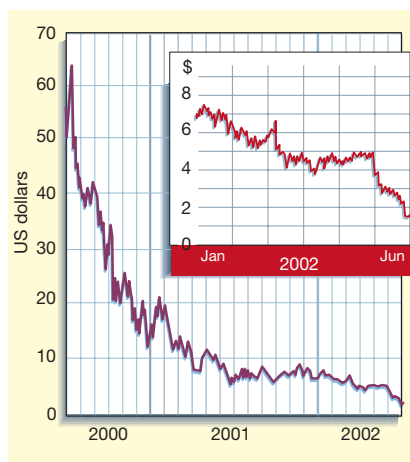
Farber doesn’t believe that the laboratory will shut. Lucent, or whoever takes over its business, will need research to stay competitive in the long run, he says.

Saswato Das, a spokesman for Bell Labs, expressed optimism about the future of basic research there. “We continue to be committed to creating the next-generation technologies to make our company successful,” he says. “Physical sciences research will be an essential component of that.” ■

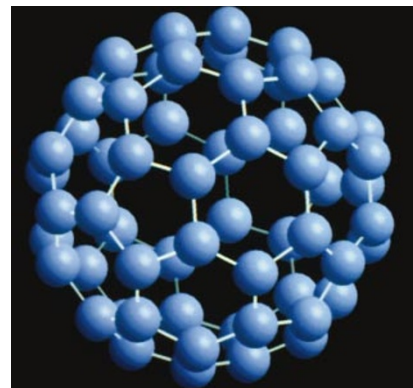
1. Schön, J. H., Kloc, Ch. & Batlogg, B. *Nature* 408, 549–552 (2000).

2. Schön, J. H. et al. *Nature* 413, 831–833 (2001).

3. Schön, J. H. et al. *Nature* 414, 434–436 (2001).



Downturn: Lucent Technologies’ share price, after stabilizing in 2001, fell sharply last month.



Balls of ire: papers showing superconductivity at 52 K for C₆₀ are being called into question.

Biotech woes set to hit academics

Jonathan Knight, San Francisco

The scandals and stock-market woes that have left the biotechnology industry reeling this year are beginning to take their toll on campuses, according to early indicators.

As biotech stocks collapse — collectively, they have lost two-thirds of their value in the past two years — companies may be shying away from funding research collaborations with academics. That is the picture painted by data from the University of California, San Francisco (UCSF), which has strong links with the state’s powerful biotech sector.

The number of such deals with UCSF peaked at 125 in 2000 for non-clinical research, but then slid to 70 in 2001. In the first 10 months of the 2002 fiscal year, only 39 deals were struck, according to Joel Kirschbaum, director of the university’s technology-transfer office.

Kirschbaum says that investors’ expectations for start-ups have changed. Companies making tools for drug discovery were popular a few years ago, he says, but

investors now want ventures that will rapidly bring a drug or other product to market.

Biotech stocks enjoyed a huge surge in popularity after the dotcom industry collapsed in early 2000. The impending draft sequence of the human genome fuelled the boom, and US biotech firms raised \$38 billion in new capital in 2000, according to the Biotechnology Industry Organization — more than three times that raised in 1999.

But in 2001 new financing dropped to \$15 billion. Now biotechnology is directly implicated in the scandals that have shaken investor confidence in the United States. On 12 June, the former chief executive of biotech firm ImClone Systems in New York, Samuel Waksal, was arrested on charges of insider trading and of alerting family and friends that regulators were about to reject Erbitux, the company’s promising cancer drug.

In this climate, deals to launch new companies are getting harder to broker, says Jonathan Kaufman, science director at LaunchCyte, a company in Pittsburgh, Pennsylvania, that advises entrepreneurs. ■