

## Judge Dismisses Missile Case

Citing concerns about the disclosure of classified material, a federal judge has dismissed a case brought by an industry scientist against a company that she says falsified the results of ballistic missile defense tests for the Pentagon. But last week the researcher asked the court to reconsider.

The company, TRW, and the U.S. Justice Department were elated by last month's decision, which appeared to end a 7-year fight. But on 6 March, plaintiff Nira Schwartz petitioned the U.S. District Court in Los Angeles to review the case.

Schwartz, a former TRW engineer, told *Science* that unclassified data support her claim that TRW used test software that couldn't distinguish between real missiles and decoys, as it was supposed to. She also wants to amend her original complaint to include unclassified data from a recent report by Congress's General Accounting Office. Still, Schwartz predicts that it will take a "strong person" to accept her petition in the face of the government's support for TRW. The court has 3 weeks to consider the petition. —ANDREW LAWLER

## Spanish Advisory Panel Backs Human Stem Cell Studies

**BARCELONA**—A government advisory panel has endorsed extracting stem cells from leftover human embryos, putting the panel at odds with Spain's health and science ministers in the debate over the nation's stem cell research policy.

Advocates of stem cell research have been urging the government to revise a 1988 law that forbids using "viable" embryos for research. The Andalusian state government announced last October that it would sidestep that ban by backing research using embryos that have been frozen for more than 5 years; these aged embryos, left behind at in vitro fertilization clinics, can't be legally implanted, and so Andalusian officials deem them not viable (*Science*, 25 October 2002, p. 723).

Prolonged freezing, however, may have a "negative effect" on the embryos' usefulness as a source of stem cells, the science ministry's ethics advisory panel concluded in a report issued last week. The panel, led by microbiologist César Nombela of Madrid's Complutense University, backs changing the law to allow work on fresher embryos and recommends that a new panel oversee the research.

Science minister Josep Piqué says the report will be "hugely useful," but he cautions that the government won't act immediately on the "complex and dense report."

—XAVIER BOSCH

strains may be that it produces a particular combination of toxins—although researchers disagree on which ones are important. But whatever the roots of their pathogenicity, epidemiologists fear that if aggressive MRSA strains become firmly established in the community, the bugs might pick up resistance to additional antibiotics, says Scott Fridkin of the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta. Another worry, says Schlievert, is that the strains will move

into hospitals, replacing the more benign strains now residing there.

As a step toward finding answers, Matthew Boulton, Michigan's state epidemiologist, has proposed that resistant Staph infections be reported to CDC, as are about 50 other diseases. If the Council of State and Territorial Epidemiologists, the body that advises CDC on this matter, passes Boulton's proposal this summer, he says, "we would at least get a much better idea what's going on here."

—MARTIN ENSERINK

## METROLOGY

# A Thermometer Beyond Compare?

**AUSTIN, TEXAS**—A person who has one thermometer knows the temperature, physicists sometimes quip, but someone who has two is never sure. That adage may not remain true for long, however, now that researchers have developed a type of electronic thermometer that needs no calibration.

A thermometer is only as accurate as its scale, which is set by comparison with better thermometers and ultimately with several natural reference points. By international agreement, researchers at national standards institutes set the universally accepted scale using the point at which water, ice, and steam can peacefully coexist—defined as 273.16 kelvin—and other references. They then interpolate between these points with a variety of elaborate thermometers. From 3.0 to 24.5561 kelvin, for example, the standards czars set the temperature scale by tracking the increasing pressure of a fixed volume of helium. Between 13.8033 and 1234.93 kelvin, they follow the increasing electrical resistance of a platinum wire. "It's a kind of Frankenstein monster of all sorts of scales put together," says Lafe Spietz of Yale University. "They're never going to turn this into a real thermometer that you're going to have in the lab."

Thermometer manufacturers use the elaborate standards to set the scales for the practical thermometers used in research. If two lab thermometers disagree, it's impossible to tell which is right without resorting to the standards again.

But a tiny gadget called a tunnel junction could change that, say Spietz, Robert Schoelkopf, and colleagues at Yale. The junction consists of two bits of aluminum sandwiching a layer of aluminum oxide only a few atoms thick. Electrons cannot pass through the oxide freely but must burrow through it one by one. As they do, the current jitters up and down. This jitter is called "shot noise," and it increases in a precisely predictable way as researchers ramp up the voltage across the junction. The way the noise changes with voltage depends only on the temperature and on fundamental constants such as the charge of the



**How cool?** A new thermometer might replace several reference standards.

electron, Spietz told scientists at a meeting of the American Physical Society\* here last week. That means researchers can determine the exact temperature by simply tracing the variation of the shot noise. Spietz and colleagues showed that the device could track temperature from less than a degree above absolute zero to room temperature.

The new thermometer could potentially replace the elaborate collection of reference points, says Samuel Benz of the National Institute of Standards and Technology in Boulder, Colorado. "This is a technique that allows you to avoid that interpolation," he says. But first the researchers "need to push down the uncertainties," Benz says. The device is accurate to within 0.1%, but the researchers think they can make it many times more accurate.

—ADRIAN CHO

Adrian Cho is a freelance writer in Grosse Pointe Park, Michigan.

\* March Meeting 2003, 3–7 March.