rooms or car interiors can be transformed into "fuming tanks"; this technique could be used in cases where law enforcement officers are not sure where to begin looking for fingerprints. While the fumes can cause temporary respiratory tract irritation, they should pose no long-term health hazards, spokespersons claim.

This latest cyanoacrylate fuming technique has been shown in tests to outline fingerprints of persons wearing surgical or thin disposable gloves — those often used by safe-cracking criminals. In this instance, the fumes are attracted to impressions left by skin ridges on the thin layer of water vapor that naturally coats most objects. Furthermore, the system also has been shown in lab tests to detect fingerprints on human skin up to six hours after application. (The prints first are transferred onto a plastic-wrap material that in turn is placed in the fuming tank.)

Evidence gathered by this fuming technique already has led to several convictions. In March, for example, the Newport News, Va., Crime Scene Search Unit used prints detected in this fashion on plastic bags to convict a drug dealer.

Still, the system is in need of further development and is far from the ultimate fingerprinting technique, Frank Salacuse of Super Glue cautions. But, he says, "We've taken major steps...and generated a lot of excitement in this field."

—L. Garmon

A test-tube embryo on tap

Since the first "test-tube" baby was born in England five years ago, the *in vitro* fertilization technique that led to its birth has become less of a novelty. For instance, the first U.S. clinic to use the technique, at the Eastern Virginia Medical School in Norfolk, has already used it in the birth of 21 children. Now Australian scientists announce another advance with the method: the first successful pregnancy using a frozen *in vitro*- fertilized embryo.

The rationale behind using a frozen embryo, Alan Trounson and colleagues at Monash University in Melbourne explain, is that it increased their patient's chances of having an *in vitro*- fertilized (tissue culture-fertilized) embryo implant itself in her womb. Specifically, they gave the patient a drug to make her release a handful of eggs instead of the usual one and fertilized four of the eggs with her husband's sperm. Three of the resulting embryos were then placed in her womb in hopes that one of them would implant itself. The fourth was frozen in liquid nitrogen at a temperature of −200° F as a backup. One of the three embryos did implant itself in the woman's womb, but she miscarried it eight weeks later. Then the frozen embryo was thawed and put in her womb. It took. She is now in her 14th week of pregnancy, and the fetus appears to be developing normally. □

Building support for a materials center

Many materials scientists were surprised last February when the Reagan administration proposed the creation of a National Center for Advanced Materials (NCAM) (SN: 2/5/83, p. 87). Since then, protests criticizing the proposal and the government's failure to consult outside experts have surfaced.

At issue is a major new research center to be located at the Lawrence Berkeley Laboratory (LBL), a national laboratory funded by the Department of Energy and operated by the University of California. The centerpiece research instrument will be an $84 million synchrotron radiation source that produces short, brilliant flashes of X-ray and ultraviolet light. Three complementary laboratories will focus on studies of the behavior of catalysts and the surfaces of materials, the synthesis of new alloys, polymers and semiconductors for applications in electronics, and the building of novel electronic devices.

Emanuel Horowitz, director of the materials science center at Johns Hopkins University in Baltimore, says more discussion should have taken place before the national center was announced. "There's an enormous set of problems in the materials community that needs careful addressing," says Horowitz. "We recognize the need for very advanced instrumentation and equipment for the kind of research, the kind of testing and the kind of processing that we're doing." Involving more materials scientists in the decision would have produced a proposal that better reflected current needs, he says.

Much more vehement is Rustum Roy, director of the materials research laboratory at Pennsylvania State University. He complains that although the synchrotron light source is a valuable physics tool, its "relevance to the field of materials is marginal." Roy argues that funds designated for NCAM could be better spent supporting more applied research in areas like ceramics. "We should be concerned about the plight of the materials industry in the United States," says Roy.

Louis C. Ianniello, director of DOE's materials science division, says the proposal for NCAM was a way of redirecting the research capabilities of the Lawrence Berkeley Laboratory. He says, "LBL no longer had the distinction of being at the cutting edge of any particular science, although within the laboratory there are certainly very fine scientists." The NCAM proposal builds on the laboratory's strengths.

Ianniello notes that NCAM is not exclusively for the benefit of one research community. The center actually covers a wide range of activities. The facilities will be used by many different scientists from universities and industry, including biologists and chemists, for example. But, says Ianniello, "No one thinks that all materials research will be concentrated here."

Eugene E. Haller, NCAM scientific program director, says many materials scientists forget that important fundamental materials research also takes place in physics and chemistry labs. These scientists are more likely than engineers, who are interested in fabricating specific materials, to use the synchrotron light source. For example, the light source can be used to study the details of phase transformations during the instant that solids melt or materials shift from one crystal structure to another.

This month, LBL is sponsoring two workshops devoted to introducing potential users to the new facilities. About 200 people who use synchrotron radiation in their research will attend the first workshop. Robert K. Johnson, LBL staff scientist, says, "We're viewing the advanced light source as a unique national treasure, a resource that needs to be optimized to the needs of the broad scientific community. Our intent is to involve the industrial and academic communities as widely as possible in NCAM." A second workshop calls for company officials to recommend projects and to provide industry's viewpoint.

For some materials scientists, these efforts are too late to affect the decision to create NCAM. Almost 100 scientists sent critical letters to the House Science and Technology committee, which was studying the legislation that authorizes the creation of NCAM. Last month, the committee voted to reduce first-year construction funds by $5 million to $20.9 million. It also insisted that no funds be spent until an external review of NCAM is completed. Such a review panel has been appointed and will present a report in late summer or early fall.

Ianniello says, "We're not going to reexamine the decision. But we are definitely going to examine what individuals have to say that would strengthen NCAM and make it a better facility."

Horowitz concedes, "It may not be possible to reverse this decision, but perhaps an important pattern can be established where it's recognized that in areas of this importance [consultation] must take place." Whether the center becomes the "sharp leading edge of American materials technology," he says, remains to be seen.

Last month, at a meeting of the American Physical Society, George A. Keyworth II, presidential science adviser, defended the proposal by saying NCAM will help the country to "consolidate and expand its leadership in materials science." Keyworth added, "But even more important in the long run is what LBL learns and teaches the rest of us about how academic, federal and industrial scientists and engineers can collaborate on research of mutual interest." *— I. Peterson*