doesn't occur to them that they were hired to make money for the company." One way to get students thinking about the bottom line is through internships, an important component of the professional master's curriculum. Students at Arizona, for example, could be placed with a company in Tucson's burgeoning optics industry, and Shupe expects many graduates to end up at the same companies where they intern.

MSU's professional master's is designed for "people who aren't interested in spending their lives doing basic research but who want to do a bit more physics and are impatient to get into the industrial world at a high level," says Phillip Duxbury, who is overseeing the new physics degree. The curriculum offers two concentrations: One introduces the characterization and fabrication techniques used in commercial R&D labs, and the other focuses on computation. In addition, students will take a ten-weekend workshop on business fundamentals, such as accounting and patent law.

The idea behind the Wisconsin program is to familiarize students with remote sensing technology, and then show them how to apply those techniques to environmental problems in transportation, land use, and other areas, explains Olsen. Many places are seeking that kind of expertise, from satellite manufacturers, to developers of image processing software, to utility companies, he adds. In fact, two companies have already expressed an interest in hiring graduates, although the first class won't enroll until this fall.

At USC, a pair of courses, in complex systems and computational methods in physics, have been specifically developed for the new master's curriculum, which also includes course work in the business school. Bozler says that in designing the new degree, "We asked [employers], 'Well, why do you hire physicists?' The answer was their ability to organize disparate information and develop models of all sorts, and to do something that's predictive with those models." Bozler hopes that a few of the professional master's students will go on to the PhD. "The biggest concern [among faculty] was that we not do anything to jeopardize our PhD program," by siphoning off students or resources, Bozler says. "I think we were able to convince them that it's not a zero-sum game, that this could actually increase the flow of good students through the department."

Hopes and hurdles

Recruiting students to the new, untested programs may take some doing. The drastic drop-off in physics bachelor's degree recipients in recent years means there is already fierce competition for students among the existing graduate programs. "They're trying to snap up every undergrad they can," notes Bozler. "They're thinking in terms of staffing their own PhD programs, and not thinking too much about alternatives." The new programs are therefore looking to draw students from other disciplines, "who may not have thought of applied physics as a career," says Arizona's Shupe.

It's also not clear who will pay for tuition. Law and business schools expect their students to shoulder the cost of their educations, but will science students, who traditionally enjoy full support, do the same? At USC, Michigan State, and Arizona, the first few classes will be offered teaching assistantships, until some other kind of support—corporate-funded grants, for instance—can be worked out. The Wisconsin program plans to recruit mid-career professionals, who may be in a better position to pay, or whose employers may foot the bill.

As Duxbury sees it, the professional master's will ultimately be judged by "what kind of jobs the students get and how quickly they move up, how happy they are with those jobs, and how happy their employers are with them." In the longer term, Tobias hopes that "by supplying industry with such versatile people, they'll say, 'We want more people like that.' It's the reverse of the usual demand–supply equation. That's my theory at least, and only time will tell."

JEAN KUMAGAI

APS Time Line Celebrates a Century of Physics

High schools around the country—8000 and counting—have received this time line, a wall chart entitled *A Century of Physics*. Unveiled at the American Physical Society's 100th birthday meeting in Atlanta this past March, the time line highlights physicists and their discoveries over the past century, as well as some of the applications spawned by scientific advances.

Five color-coded themes thread across the time line's eleven panels: discoveries in physics at the cosmic (blue), human (pink), and atomic (green) scales; technological advances (red); and interfaces of physics with biology and medicine (yellow).

AMOS CHAN

Peppered throughout the time line are historical nuggets. For example, the time line notes that around when quarks and cosmic background radiation were discovered, the Vietnam War was "tearing at the fabric of America" and the Beatles "were conquering the world."

APS teamed up with Lucent Technologies, the Department of Energy, the National Science Foundation, and United Parcel Service to offer every US high school a gift of the time line, along with a teacher's guide (paid for by the Richard Lounsbery Foundation). The team has also sent free copies to all of the nation's universities, two- and four-year colleges, and science museums. A Web version (supported in part by IBM), which APS plans to continue to expand and update, can be found at http://www.timeline.aps.org. And copies of the time line can be ordered for $35 each ($80 for overseas delivery) on the Web at http://www.aps.org/timeline/main-order.html.

Duke Laser Lab Gets New Director

On 1 May, Glenn Edwards became head of Duke University's Free Electron Laser Laboratory. Edwards's most immediate goal "is to get light out of the pipe again," he says, referring to the lab's infrared free electron laser, which has been down for about a year.

The lab was founded in 1988 by John Madey, the inventor of the free