

INTELLECTUAL PROPERTY

Academic Patent Binge

PATENT ACTIVITY AT COLLEGES HAS JUMPED IN BOTH quantity and quality over the last five years. Data provided exclusively to *Technology Review* by CHI Research in Haddon Heights, NJ, which ranks universities by technological strength (a measure combining both the number of patents issued and their relevance) reveal how great the upsurge is. In fact, in 2002, 13 of the top 25 universities saw a 50 percent or greater increase over the number of patents issued in 1997, six of which have seen increases of 100 percent or more (see table, this page).

At some institutions, a mere handful of discoveries helped bump up rankings. John Ritter, director of Princeton University's Office of Technology Licensing and Intellectual Property says its jump from 43rd in 1997 to sixth in 2002 may be due to heavily cited patents, such as one for a three-color organic light-emitting device that could yield more-efficient flat-panel displays.

With the patent boom has come growth in the number of university-related startup companies and in income from patent licensing. The Association of University Technology Managers'

annual licensing survey shows total university income from patents increasing from \$699 million in 1997 to \$1.07 billion in 2001. Patenting by universities has "just come into its own in the last five years," says Patricia Harsche Weeks, president of the Association of University Technology Managers and vice president of the Philadelphia-based Fox Chase Cancer Center.

That trend also reflects the entrepreneurship that has taken root on campuses. More and more, researchers are taking time away from the lab to write patents, consulting on technology licensed from their labs, and even taking leaves of absence to found companies and commercialize technologies. "No longer are faculty satisfied with publishing," says Mark Coburn, associate provost and director of the Office of Technology Transfer at the University of Rochester. "They have the sparkle in their eye to start their own business."

Coburn believes that their passion isn't merely a matter of financial incentive. "Entrepreneurship in a university is a good thing," he says. "It's not just for starting a business. [It] can lead to innovative educational initiatives, research breakthroughs, and a greater recognition of the university's role in the community." With consequences like those, university patenting will benefit more than just a school's bottom line. —Tracy Staedter

| INSTITUTION | TECHNOLOGICAL-STRENGTH RANKING | | NUMBER-OF-PATENTS RANKING | | TECHNOLOGICAL-STRENGTH SCORE | | NUMBER OF PATENTS | | | CURRENT-IMPACT INDEX | |
|-----------------------------------|--------------------------------|------|---------------------------|------|------------------------------|-------|-------------------|------|----------|----------------------|------|
| | 1997 | 2002 | 1997 | 2002 | 1997 | 2002 | 1997 | 2002 | % CHANGE | 1997 | 2002 |
| University of California | 1 | 1 | 1 | 1 | 310.8 | 496.7 | 305 | 466 | 53 | 1.02 | 1.07 |
| MIT | 2 | 2 | 2 | 2 | 154.9 | 265.6 | 107 | 152 | 42 | 1.45 | 1.75 |
| Stanford University | 6 | 3 | 4 | 4 | 75.3 | 165.9 | 67 | 110 | 64 | 1.12 | 1.51 |
| Caltech | 7 | 4 | 10 | 3 | 73.5 | 165.6 | 50 | 117 | 134 | 1.47 | 1.42 |
| University of Texas | 3 | 5 | 3 | 5 | 130.1 | 98.8 | 92 | 106 | 15 | 1.41 | 0.93 |
| Princeton University | 43 | 6 | 18 | 17 | 23.4 | 75.9 | 17 | 38 | 124 | 1.38 | 2.00 |
| University of Wisconsin | 8 | 7 | 5 | 7 | 71.6 | 74.6 | 63 | 82 | 30 | 1.14 | 0.91 |
| Johns Hopkins University | 10 | 8 | 6 | 6 | 62.1 | 74.1 | 61 | 95 | 56 | 1.02 | 0.78 |
| University of Washington | 5 | 9 | 12 | 13 | 88.3 | 70.7 | 45 | 44 | -2 | 1.96 | 1.61 |
| University of Michigan | 4 | 10 | 8 | 8 | 90.3 | 63.2 | 58 | 57 | -2 | 1.56 | 1.11 |
| University of Chicago | 17 | 11 | 10 | 9 | 39.9 | 56.0 | 50 | 55 | 10 | 0.80 | 1.02 |
| North Carolina State University | 22 | 12 | 14 | 16 | 30.3 | 54.4 | 27 | 39 | 44 | 1.12 | 1.40 |
| University of Southern California | 33 | 13 | 16 | 18 | 25.2 | 51.6 | 21 | 36 | 71 | 1.20 | 1.43 |
| Pennsylvania State University | 31 | 14 | 17 | 9 | 25.5 | 51.5 | 20 | 55 | 175 | 1.27 | 0.94 |
| Georgia Institute of Technology | 72 | 15 | 18 | 18 | 12.9 | 45.6 | 17 | 36 | 111 | 0.76 | 1.27 |
| Columbia University | 15 | 16 | 13 | 12 | 47.8 | 45.4 | 38 | 47 | 24 | 1.26 | 0.97 |
| Cornell University | 12 | 17 | 9 | 15 | 56.7 | 45.4 | 53 | 40 | -25 | 1.07 | 1.14 |
| University of Pennsylvania | 9 | 18 | 7 | 11 | 70.6 | 45.0 | 59 | 49 | -17 | 1.20 | 0.92 |
| Rutgers University | 25 | 19 | 15 | 14 | 27.8 | 43.7 | 23 | 43 | 87 | 1.21 | 1.02 |
| Carnegie Mellon University | 67 | 20 | 20 | 21 | 13.9 | 42.8 | 9 | 19 | 111 | 1.55 | 2.25 |
| Duke University | 24 | 21 | 14 | 14 | 27.8 | 41.4 | 27 | 43 | 60 | 1.03 | 0.96 |
| Harvard University | 19 | 22 | 13 | 10 | 35.9 | 39.2 | 38 | 52 | 37 | 0.95 | 0.75 |
| Emory University | 27 | 23 | 19 | 19 | 26.5 | 38.1 | 14 | 30 | 114 | 1.89 | 1.27 |
| University of Rochester | 81 | 24 | 21 | 20 | 11.2 | 37.4 | 8 | 20 | 150 | 1.40 | 1.87 |
| State University of New York | 13 | 25 | 11 | 10 | 48.7 | 36.7 | 48 | 52 | 8 | 1.01 | 0.70 |

Technological strength: The number of patents multiplied by the current-impact index (see below).

Number of patents: The total number of U.S. patents awarded, excluding design and other special-case inventions.

Current-impact index: A measure of how frequently an institution's patents from the previous five years are cited in the current year, relative to all patents in the U.S. system. A value of 1.0 indicates average citation frequency.

SOURCE: CHI RESEARCH