

MOVERS

Gregory Crawford, dean, College of Science, University of Notre Dame, Notre Dame, Indiana



2006–present: Dean of engineering and professor of physics, Brown University, Providence, Rhode Island

2006–present: Co-founder/scientific adviser, Corum Medical, Providence, Rhode Island

2001–06: Associate professor of engineering and physics, Brown University, Providence, Rhode Island

Gregory Crawford says he owes his career success to two words: “What if?” Framing basic research questions in this manner has helped him find ways to turn ideas into tangible solutions and products. As the new dean of the College of Science at the University of Notre Dame in Indiana, Crawford plans to use this strategy to emphasize the value of interdisciplinary projects with real-world applications.

On receiving his undergraduate degree in physics and mathematics from Kent State University in Ohio, Crawford had been set to study nuclear physics. But rather than spend time putting a project in place, he took advantage of an offer to begin graduate research immediately at Kent State’s famed Liquid Crystal Institute. This put him at the forefront of a revolution in liquid-crystal displays.

Crawford’s PhD adviser, Bill Doane, then the director of the Liquid Crystal Institute, credits Crawford’s ambition and drive. As a PhD student, Doane says, Crawford helped solve some basic problems in liquid-crystal physics — for example, the measurement of a fundamental constant that relates to certain properties of liquid-crystal displays, such as how fast the material becomes aligned in a particular direction.

After a sabbatical at the Xerox Palo Alto Research Center in California, Crawford’s drive took on entrepreneurial zeal. “It pushed my creativity,” says Crawford, adding that, in today’s competitive research climate, working in a high-tech industry before joining academia offers valuable perspective.

In his next position as professor of physics and engineering at Brown University in Providence, Rhode Island, Crawford taught a class on entrepreneurship. While searching for research ideas for that class, he made contacts at the medical school. This resulted in a collaboration that yielded an optical device that uses liquid-crystal technology to measure haemoglobin concentrations in the blood non-invasively. Crawford calls it one of his greatest career accomplishments so far, on account of its promising applications. He has subsequently co-founded two biomedical companies — Corum Medical and Myomics.

“In many ways, my push into the life sciences and biomedical technology elevated me as a researcher and broadened my scope,” says Crawford. That background, he says, was pivotal in his recruitment to Notre Dame. There, he plans to continue to “think big”. He will start by applying his ‘what if’ questions to complex problems such as those of global health and infectious-disease research, which he says Notre Dame is well positioned to tackle. ■

Virginia Gewin

BRICKS & MORTAR

Nucleus of growth at Louisville

The University of Louisville in Kentucky last month unveiled a \$300-million plan to construct five life-sciences buildings. Project leaders aim to generate \$2.3 billion and 8,700 jobs over 20 years. The initiative, NUCLEUS, will include space to incubate biotech companies and provide services in technology transfer, business development and intellectual property.

“There was no space, no economic incentives to incubate and develop start-ups,” says president James Ramsey. “We weren’t doing much in the way of research. We didn’t have much infrastructure in place. We didn’t have life-science seed funds. We didn’t have venture funds to invest in start-up companies.” The city, state and university all realized they needed to make changes for the area’s historically manufacturing-based economy to be competitive, he says.

The first step was a 1997 state programme called ‘Bucks for Brains’. The state matched donors to create endowed chairs. So far, it has raised \$198 million and helped the university to triple the number of endowed chairs to 126. That has increased the university’s competitiveness for federal research dollars. The Bucks for Brains scholars have brought in more than \$144 million in additional federal funding. In 2007, the university had

the nation’s biggest 10-year increase in US National Institutes of Health (NIH) funding.

That programme helped set the stage for the new life-science park, says Manuel Martinez-Maldonado, vice-president of research. He says the NUCLEUS project will help with the next step: attracting companies to the area and spinning off start-ups from the university’s research. He hopes the university will compete for clinical trials and attract related services, such as contract-research organizations.

To that end, the NIH awarded the university \$22 million in 2005 to build the Center for Predictive Medicine, one of 13 national biosafety level-3 labs that will develop vaccines to protect against bioterrorism and emerging diseases. The lab will open by the end of this year. It should help the university to carve out research niches in areas such as *in vivo* imaging of host-virus interactions, Martinez-Maldonado says.

NUCLEUS will offer services to help researchers at all stages of drug and technology development, says Vickie Yates Brown, chief executive and president of the new organization. It will allow the university to take research “from the mind to the marketplace” she adds. ■

Paul Smaglik

POSTDOC JOURNAL

Passion and obsession

Lately I’ve been struggling to maintain balance in life. And on a recent Sunday, I almost teetered off the edge. At midnight I was still working through a long list of tomato seeds to be sown for this summer’s experiments.

Between organizing new projects for my next career move and preparing pancakes for my daughters while my wife treats her dental patients, I am stretched thin. Meanwhile, my free moments are consumed by doing or thinking about research — and as I’m a mentor as well, not necessarily my own.

From the outside, one might say I’m obsessed, but I prefer a more positive spin. I have passion. My friends have seen it when I talk about my excitement for growing giant pumpkins, and my parents claim it started with a fascination with frogs. Nowadays, the movement of pollen from one flower to another excites me; I visualize their chromosomes doing a molecular dance.

Having crossed paths with many scientific minds, I think I can spot those with passion rather than obsession. The passionate ones exude joy, and insist on sharing that joy with others. It’s passion that keeps the sparks flying, the ideas flowing, and my eyes open past midnight on Sundays. But I did get to bed before one o’clock. Had I stayed up any longer, there’s a chance that obsession might have stolen away my joy. ■

Zachary Lippman is a postdoctoral fellow at the Hebrew University of Jerusalem’s faculty of agriculture.