

TURNING POINT

Yogesh Joglekar

Yogesh Joglekar, a theoretical physicist at Indiana University–Purdue University Indianapolis (IUPUI), this year became a visiting scholar at the Kavli Institute for Theoretical Physics at the University of California, Santa Barbara.

How did you move from India to Indiana?

After my master's degree in abstract mathematical physics at the Indian Institute of Technology Kanpur, I wanted to do something more concrete. I applied to numerous places for a PhD, but ended up at Indiana University in Bloomington, in part because I had the chance to combine theoretical and applied research by doing condensed-matter physics. I studied quantum Hall conductance, which is found in two-dimensional electron systems in strong magnetic fields.

You did one short and one long postdoc. Why?

I went to the University of Kentucky in Lexington for nine months with a short-term goal — to learn a method for studying the quantum Hall effect, with Ganpathy Murthy. But to expand my skills, I also applied for multi-year postdocs. I moved to Los Alamos National Laboratory in New Mexico to learn about high-temperature superconductivity. It was not academia, but not industry, and I wanted to experience that. But it became obvious that high-impact research could be difficult in a 15-year-old field where advances were incremental — especially at that stage of my career.

How did you carve out your faculty niche?

I came to the IUPUI in December 2005, when graphene research was taking off. I saw an opportunity because electrons in graphene are two-dimensional systems, like those I worked with on the quantum Hall effect.

You have done a short stint as a visitor at Kavli before. How did that help your career?

At Kavli, theorists and experimentalists are given space to work together and exchange ideas. In 2009, I attended a workshop there for three weeks. It was helpful to interact with a variety of experts who could help me to figure out how to run my experiments. The IUPUI has a 13-person physics faculty, whereas other, larger universities can have 20 faculty members in condensed-matter physics alone. Kavli visits are ideal for active researchers at smaller institutions.

How has branching out altered your teaching?

I have been able to find research areas that



are amenable to involving undergraduate and school students. I strongly believe that research should be accessible at every level, to help future scientists to learn problem-solving. In the past few years, I have had 19 peer-reviewed publications — of which six are with undergraduate students, and two with high-school students. My youngest co-author, Jacob Barnett, was 13 years old when we published on theoretical physics in 2011. He was the youngest-ever author in *Physical Review A*, and was featured on the US television news programme *60 Minutes*.

What has been the impact of involving students in your work?

It was a key to my career success — one that I did not appreciate at first. I had not been including my mentoring efforts in grant applications for graphene research because the students were working on different topics. But I kept being told that the broader-impact elements of my proposals were not strong enough. A programme officer pointed out that any research involving younger students counts on grants. I included it in my next application and received a CAREER grant for faculty early-career development from the US National Science Foundation.

Do you encourage colleagues to involve young students, too?

Yes. Research and teaching are two sides of the same coin. If you focus on research accessible to the postdoc or PhD student, you are tapping only a small part of the work that can be done. With MATLAB and other sophisticated software, what a student can do has changed dramatically. For theoretical physicists, it is definitely worth exploring. ■

INTERVIEW BY VIRGINIA GEWIN

GOVERNANCE

A voice for adjunct staff

US universities should let adjunct and contingent faculty members participate in setting policy, argues the American Association of University Professors (AAUP) in a report published on 21 January. *The Inclusion in Governance of Faculty Members Holding Contingent Appointments* says that excluding full- and part-time non-tenure-track teachers, as well as graduate students, postdocs and librarians who teach or do research, leaves them unrepresented and undermines equity among colleagues. It recommends paying contingent staff for time devoted to governance. Gwendolyn Bradley, senior programme officer for the AAUP in Washington DC, says that faculty senates and AAUP union representatives will work with universities to adopt the recommendations.

EQUALITY

Bias in UK recruitment

Just one in five professors at UK higher education institutions (HEIs) is female, although women comprise nearly half of other academic staff, according to a report. Black and minority ethnic (BME) researchers account for only 7% of professors, but 13% of other academics. Four times more men than women applied for professorial posts between 2008 and 2011, says *The Position of Women and BME Staff in Professorial Roles in UK HEIs*, released on 29 January by the University and College Union (UCU) in London and based on data from the UK Higher Education Statistics Agency. In its report, the UCU calls for universities to track recruitment and retention, create and monitor equality targets and investigate why so few women apply to be professors.

UNIVERSITIES

Minority enrolment falls

Minority enrolment in natural-sciences doctoral and master's programmes has fallen by 19% in California, Florida, Texas and Washington following bans on affirmative action in admissions, says a study (L. M. Garces *Am. Educ. Res. J.* <http://doi.org/kb9>; 2013). Liliiana Garces, who studies higher education at the George Washington University in Washington DC, examined enrolment data from 118 graduate institutions, including 33 in the target states. "Students may be receiving a message that they're not welcome," she says.