Q&A

In January, **Zhenrong Zhang** obtained her first faculty position as an assistant professor, at Baylor University in Waco, Texas. She will set up Baylor's first scanning tunnelling microscopy lab.

Did you want to be a scientist from an early age?
To be honest, I never thought I could be a scientist. It seemed so high end. I wanted to go to college for computer science because I thought it would be easier to find a job. Mentors redirected me to the physics department because I was good at it. Even after I started a PhD in China, at the Chinese Academy of Science's Institute of Physics in Beijing, I still was not sure I was going to be a scientist.

The defining moment for me occurred while I was working as a postdoc at the University of Innsbruck in Austria, and was fascinated by the beauty of seeing molecules on the surface of metals using a scanning tunnelling microscopy technique.

What was it about this technique that captured your imagination?
Using scanning tunnelling microscopy, my mentor (Zdenek Dohnalek) at the Pacific Northwest National Laboratory in Richland, Washington, and I developed a methodology to obtain site-specific information at the atomic level in order to learn more about the chemical and physical processes occurring on surfaces. For example, we worked on oxides, such as titanium dioxide, that often have surface defects — reactive sites that can alter chemical reaction rates. Using this technique, we were able to visualize molecules' attraction to the reactive sites. This helped us investigate the dynamics of several reactions important for energy generation and environmental clean-up.

How have you decided to focus your scientific efforts?
I want to connect my research to everyday life somehow. After I went to Austria, my interest in energy and the environment brought me to a joint postdoc at the Pacific Northwest National Lab and the University of Texas at Austin, where I could focus my research on surface reactions that were important to both energy generation and environmental clean-up. For example, one of our projects was focused on splitting water, in an attempt to find ways to create hydrogen for use as an alternative energy source.

Do you have plans to conduct more applied research?
I do fundamental research. My work won't translate overnight into new energy sources. But it could give rise to the fundamental understanding that provides the guidelines for people to design catalysts that can be used for energy and environmental clean-up.

One of the projects we did at the Pacific Northwest National Lab was to create catalysts that oxidize organic contaminants. In the future, I hope to design catalysts to clean up automotive emissions.

You have just finished that postdoc. Was it a difficult decision not to go back to China?
At the end of the postdoc I had the same pressure as everyone — the need to find a job. I applied for positions in both China and the United States. It was difficult to decide where to go.

I got an offer from one of the best institutes in the Chinese Academy of Sciences, to work with some of the best scientists in the world and be provided with a really good start-up package. I struggled quite a bit over this. Then I got the offer at Baylor University. It came down to a personal choice.

Baylor attracted me because they put so much emphasis on research and because it is a Christian university. Although I didn't narrow my job search to Christian universities, I feel that the environment Baylor could provide me with is a dream for a scientist and a Christian.

What do you anticipate will be the hardest part of getting the scanning tunnelling microscopy lab up and running?
The hardest part will be physically setting up the space to get optimum performance. The resolution of scanning tunnelling microscope images is extremely sensitive to mechanical and electrical noise. As a result, I have to think about its location and pay extra attention to the selection and operation of the other devices that are necessary to run the apparatus.

Who has been the most influential person in your career?
My previous adviser at the University of Texas, the late Mike White, who had a passion for science. His eyes would sparkle when we had exciting results. I want to be someone like that and feel joyful about what I do.

What has been your biggest challenge to overcome?
I'm a woman and I'm a scientist. I've had two kids in the past five years. Working full time and overtime as a scientist and taking care of young children is a challenge, both physically and emotionally. Luckily, I have support from my husband and mother. ■

Interview by Virginia Gewin

IN BRIEF

Postdocs waltz to Vienna

Announced on 10 February, the Vienna International Post-Graduate Program for Molecular Life Sciences marks a targeted effort to attract young researchers to the city. Based at the Max F. Perutz Laboratories, 18 participants will receive 3–5 years of postdoctoral funding, career-development training and guidance on establishing their own independent research projects and labs. The postdocs will receive an annual salary of around €45,000 (US$61,000) plus €14,000 for research and travel expenses. The total initial programme funding is €5 million, jointly supported by the city of Vienna and the Austrian Federal Ministry of Science and Research.

Science courses at risk

Science, technology, engineering and maths courses at US public universities and colleges could be imperilled, according to a report on higher-education revenues over the past 25 years. The 11 February report, by the State Higher Education Executive Officers group in Boulder, Colorado, finds that institutions are likely to face a growing budget deficit because of the combined effects of the recession, which has reduced state funding, and a spike in student enrolment. Just 40% of educational revenue is derived from tuition, the report says. "The ability of public colleges and universities to provide quality programmes in science, technology, and other fields is threatened," says Paul Lingenfelter, the group's president.

Biotech beats recession

Despite California's economic woes, its biotech and biomedical industries seem to be thriving. The biotech sector will hire 1,000 clinical scientists, medical lab technicians and medical physicists through a three-year training and placement programme. Funded by a US$4.95-million federal grant announced on 15 February, it will be administered by San Diego State University and its partners. A 2 February report by the California Healthcare Institute and PricewaterhouseCoopers, which polled 200 of the state's largest biomedical firms, finds promise in that sector too: 81% of firms said that they expect to maintain or expand their local workforce in 2 years. Almost half hope to grow research and development activities in-state by 2011.