TURNING POINT
Julia Greer

BOB PAZ

Julia Greer is a materials scientist creating next-generation nanomaterials for space exploration at the California Institute of Technology (Caltech) in Pasadena. In August, she added an early-career faculty grant from NASA to her growing list of awards, and she will soon find out if she has secured tenure. Greer hopes that tenure will allow her to spend more time playing the piano — and exploring a new research direction.

You went back and forth between graduate studies at Stanford University in California and a job at Intel. How did that come about?
I applied late to Stanford, and was accepted, but they could not guarantee funding. So I worked for an adjunct faculty member who had Intel funding to build an X-ray diffractometer. Unfortunately, things ended poorly when he lost funding and criticized my work. I ended up working at Intel for two years.

How did those transitions affect your career?
I came into my own at Intel. I learned to champion my own work and became a self-starter. I stayed there until my husband finished his PhD, then I decided not to let one bad experience limit me, so I returned to Stanford to do my PhD with materials scientist William Nix. It was the most meaningful experience in my life. Using nanopillars, we demonstrated that when you reduce the dimensions of a metallic nanocrystal, it becomes stronger — a phenomenon known as smaller, stronger. That sparked a revolution, with many groups starting to make nanopillars out of gold.

Were you set on getting an academic post?
I had never really considered it, but a professor at Caltech encouraged me to apply for a faculty position. Several people said I had no chance because I would be competing against others who had done postdoc work and had a more mature vision. As a result, I totally relaxed. I thought that I would use the interview process to show the world what we have done. I had other faculty interviews, but ended up taking the position at Caltech.

How did you prepare for the position?
I asked that my tenure clock not start until after I had finished my postdoc at the Palo Alto Research Center in California. Caltech was very flexible. While finishing my postdoc, I wrote a proposal for a National Science Foundation Faculty Early Career Development award. I did a lot of preparation, flying to Caltech to figure out how to do outreach and how to demonstrate broader impacts. I got the award just as I started at Caltech in 2007.

Do you get overwhelmed?
Yes, mostly because I have two young kids. Everybody has to work out how not to go crazy. In teaching time, I am more hands-off in the lab. I take time to work out, and I practise the piano every night. Playing relaxes me and makes me more creative scientifically. One personal goal is to enter the Van Cliburn International Piano Competition for amateurs.

Do you have a big lab to meet your needs?
I have a group of 15 people and don't want more. Everyone deserves to have a mentor who is there for them. But I did create subgroups. Instead of meeting students individually, I see them in groups of two or three, based on their projects.

How do you manage students who don't meet expectations?
If I see that something is not working out, I ask if the student is satisfied with their progress. If necessary, I encourage them to consider other advisers. I make sure that these conversations are non-confrontational and that somebody else is in the room as a witness.

How might tenure change your research?
Tenure is not something anybody takes for granted, but it would be liberating. I would be able to pursue much riskier ideas. For example, I am very interested in making materials for biomedical devices. Now that I have helped to create a new direction in nanomechanics, it is time for me to get out. It is not healthy to stay in the same area for too long. ■

INTERVIEW BY VIRGINIA GEWIN

CAREER DEVELOPMENT

Mentoring analysed

Mutual respect, clear expectations, personal connections and shared values are key for healthy mentoring, finds a study in *Academic Medicine* (S. E. Straus *et al. Academic Med.* http://doi.org/jzc; 2012). Interviews with 54 medical-school faculty members at the University of California, San Francisco (UCSF), and the University of Toronto in Canada showed that relationships fail because of poor communication, personality clashes or lack of mentoring experience. The best mentors are trustworthy, listen well, help to set goals and have accessible networks. Co-author Mitchell Feldman, a professor of medicine at UCSF, says that trainees should set agendas for mentoring sessions and update their own development plans.

FUNDING

Policy fellowship pulled

The US National Academies has suspended a fellowship programme popular with early-career scientists seeking science-policy careers. Spokesman Bill Skane says that the National Academies Christine Mirzayan Science & Technology Policy Graduate Fellowship Program is seeking new sources of funding, in part because an endowment from the Carnegie Corporation of New York expires this year. So far, the programme's winter–spring 2013 session has been cancelled. The fellowship, launched in 1997, supports about 50 fellows each year and costs between US$750,000 and $1 million a year, including direct expenses and stipends.

ADVOCACY

Postdoc leader sought

Cathee Johnson Phillips, executive director of the US National Postdoctoral Association (NPA) in Washington DC, will step down on 30 April. The NPA's board of directors has launched a nationwide search and hopes to hire a new leader before she leaves. Johnson Phillips joined the NPA — which represents some 2,700 US and Canadian postdocs — in September 2008. She has helped to advocate for stipend increases and benefits for postdocs funded by the US National Institutes of Health; launch a best-practices certification programme for institutions; and facilitate the creation of postdoctoral offices and associations at US universities. She aims to maintain a postdoc-advocacy role but has no specific plans yet.

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