

## GRADUATE JOURNAL

Working for balance

We all know those dark days of graduate work. A three-week experiment has failed. You dropped your perfect gel. The questions after your presentation made you feel as if you had the brains of a hamster. You think of leaving and opening a fast-food franchise.

I have learned the importance of including something else in my life to keep me from disintegrating after a dark day of science. This something else must wipe all thoughts of the day of disaster from my mind. Justifying the time spent on extra-curricular pursuits to one's supervisor can be daunting, but some labs incorporate these pursuits into everyday life (see *Nature* **427**, 268–269; 2004).

Rowing indirectly brought me to my graduate life, and it still propels me through days of data despair. If I fail to focus on balancing the boat, I am certain to become a soggy scientist. Biological chemistry graduate student Josh Finkelstein hunts for harmony with his band of rock'n'roll chemists, and physics postdoc Etienne Boaknin lost and found his balance on the judo mat. The time and energy invested in our hobbies clears our minds, gives us something else to have nightmares about, and provides another subject for conversation in job interviews. ■

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Reference points

**L**ining up references goes hand-in-hand with making a résumé or CV. In the final stage of the selection process, recommendations can make or break a candidacy. To make your references as effective as they can be, follow these three steps.

First, your referees should know your background, have seen your work close up and hold you in high regard. Employers want their good impressions reinforced. Former advisers who will enthuse about your qualifications are ideal. Asking someone to serve as a referee may seem like an obvious first step, but be aware that every day some unsuspecting graduate adviser or laboratory supervisor gets called up out of the blue to comment on the performance of a past advisee or employee. Approach your carefully



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selected targets to ask if they would be willing to serve as referees and if they would be comfortable in recommending you strongly.

Second: your responsibility doesn't end with the selection and request. When you've got your list, create a reference sheet to distribute to potential employers upon request, usually after an interview and after finalists have emerged. Most employers prefer to check references on the telephone, although some, particularly in academia, may ask for letters. These

should be tailored to the specific openings sought. Don't assume that your referees remember everything about you — they need guidance. Extend the courtesy of a call or an e-mail with details about the position. Remind them of the skills and accomplishments that are most relevant to your current focus.

Finally, after your referees have taken the time to speak or write on your behalf, let them know how your career unfolds. Express your appreciation and provide updates. Try not to overuse them, and only provide your reference list when requested. Be sure to share the good news when you get a job, and keep the door open for future opportunities. After all, you never know when you might need a glowing reference again. ■

**Deb Koen is vice-president of Career Development Services and a columnist for *The Wall Street Journal's CareerJournal.com*.**

## MOVERS

Sun Kwok, director, Academia Sinica Institute of Astronomy and Astrophysics, Taiwan



**O**ne book changed Sun Kwok's career. While an undergraduate at McMaster University in Canada, the Hong Kong-born engineering major picked up a copy of Fred Hoyle's *Frontiers of Astronomy*. Until then, he had associated astronomy with sophisticated star-gazing, but as he turned the pages he realized that modern physics had changed the discipline. By the time he put the book down, Kwok knew he wanted to change majors.

When he began his PhD at the University of Minnesota in Minneapolis, Kwok was able to take advantage of the

expanding physical tool kit Hoyle's book proposed. "In Minnesota we were fortunate because they had the first telescope with mid-infrared detectors," he says. That helped Kwok in his early work on stellar winds from red giants.

But his curiosity expanded beyond these large, mature stars. So in 1976, the self-described "red-giant guy" attended an International Astronomical Union symposium on planetary nebulae. At the conference he learned that the conventional theories of sudden ejection of the nebulae had lots of problems. So his knowledge of red-giant winds led him to propose in 1978 that planetary nebulae form when stellar winds plough pre-existing planetary gas out of the way, piling it up like a snowbank.

As the physical tools of astronomy improved, Kwok's theoretical model was validated with infrared, ultraviolet and X-ray observations. More recently, technology helped attract Kwok to

Taiwan. His relationship with the country extends back to 1991, when he helped Frank Shu to develop a ten-year plan to build up its astronomy.

Now at the helm of the Academia Sinica Institute of Astronomy and Astrophysics, Kwok is in a position to establish Taiwan's role in two international astronomy projects. The Submillimeter Array — eight antennas on Mauna Kea in Hawaii that can image molecular emissions from star-forming regions — is already under way. And Kwok hopes to get Taiwan involved in an even more ambitious project — the Atacama Large Millimeter Array, an international project currently led by US, Japanese and European astronomers.

All of these developments mean more tools for the next generation of astronomers to use. "We now have all these capabilities to look at the Universe in a new light," Kwok says. "It's still very much a young and developing field." ■

**CV** **2000–02:** Killam Fellow, Canada Council for the Arts  
**1983–2003:** Professor at the University of Calgary, Canada  
**1978–83:** Research associate at the Herzberg Institute of Astrophysics, Ottawa, Canada  
**1974:** PhD, University of Minnesota, Minneapolis