A physics walkabout

I’m living a great postdoctoral adventure. On a 27-month fellowship funded by the US National Science Foundation (NSF), I will spend time at several institutions, with the University of Cambridge, UK, as my base. It’s an amazing opportunity. I get plenty of money for living and travelling, a fancy title, ample freedom and the chance to work with famous professors on three continents — bolstering not only my résumé but also my personal growth.

I’m on a Maths and Physical Sciences Distinguished International Postdoctoral Research Fellowship, which is aimed at enhancing connections between the US science and engineering community and its international counterparts.

As a graduate student in condensed-matter physics at the University of Wisconsin, Madison, I worked as a theorist on the use of electrons in silicon nanostructures for quantum information processing.

The itinerant nature of my fellowship could make productivity a challenge. Fortunately, condensed-matter and quantum-information physics — with their tendency towards self-contained papers with few authors — are well suited to far-flung collaborations. In fact, work in emerging areas often benefits from interdisciplinary, cross-institutional cooperation.

My first stop was the University of Melbourne in Australia, from which I have just returned after four months. It was a natural choice: we in Madison have good relations with the Australians, whose government has invested heavily in a Centre for Quantum Computer Technology. Plus, I have family there.

Australia’s small physics community feels somewhat isolated. Save for the work of a well-known few, the fact that good physics happens there is often overlooked. The isolation and the relatively short PhD programme (3.5 years) can make it hard to compete for postdocs abroad.

Melbourne was wonderful. I often hung out with my cousins on sunny afternoons. I tackled projects in silicon, quantum optics and diamond devices, whose properties make them promising for quantum-technology applications. Especially exciting was the chance to work with experts in other subfields such as atomic physics. I have fond memories of group meetings over beers at the university pub.

Now I’m ‘home’ at the legendary Cavendish Laboratory. Soon I’ll be off for a couple of months in Japan. I’ll be writing about those experiences soon.

Charles Tahan is an NSF distinguished research fellow.

Graduation joy

The completion of my PhD marks the official end of my student life, which will constitute close to 75% of my lifetime by the time I graduate. I’ll finally move on after years of homework and exams, not to mention many hours of research on the effects of rising atmospheric carbon dioxide on carbonate ecosystems.

Completion gives satisfaction. To finally conquer a seemingly endless challenge, which right now seems to be the project of my life, is a source of tremendous joy.

At first, I didn’t see the benefit of receiving a fancy piece of paper with three rather ordinary letters after my name. But then I remembered working around the clock — in the field collecting water samples, in the lab analysing chemical properties, and in front of the computer creating numerical models, typing papers and analysing my results. And, of course, there was the amount of free time that I spent contemplating and reflecting on my research. Suddenly that piece of paper seems invaluable and those three letters magical.

Eventually, the anticipated graduation euphoria will subside and I may come to realize that it was just another stepping stone. Around the corner, adventures are lining up. With a few months to go, I still do not know what route I’ll choose. It may be a postdoc, a teaching position, something outside academia, or I may even pack my bags and explore the world for a while.

Regardless, I’m excited by the prospect of myriad possible directions.

Andreas Andersson is a final-year PhD student in oceanography at the University of Hawaii.