

China as a destination for international postdoctoral researchers

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Year on year, the number of newly minted PhD holders from abroad that venture to Chinese research institutions to try their luck at establishing a scientific career increases. While the number of non-Chinese postdoctoral researchers at mainland Chinese universities and research institutions was a mere trickle only a decade ago, China is rapidly becoming a credible destination not just for culturally curious adventure seekers, but also for recent graduates from prestigious international programmes at top universities in Europe and the USA. It is, however, not yet a mainstream destination, and I predict that such a transformation will indeed take a significant and concerted effort to pull off, if this is at all realistic.

As a rapidly growing research superpower, there are numerous reasons for ambitious young researchers to consider China as their potential destination. For one thing, there are many opportunities to get involved in any of the “big” projects; Chinese scientists are very keen to embrace international collaborations, which has led to a pervasive, opportunistic “can-do” attitude. This was one of the first things I noticed myself upon moving to my current position at Peking University from an academic appointment in the UK. The latter had become somewhat stale, while at Peking University I was actively encouraged to make a name for myself and for the institution. The sky is literally the limit to the ambitions of our Chinese colleagues, with as a key result that the scientific community is a vibrant, attractive environment characterized by an ever-increasing professional level.

Second, science is seen as a valuable pursuit by the higher echelons. This is evidenced by the backgrounds of numerous government officials and of the country’s senior leadership, many of whom hold science or engineering degrees. Compare this with the ministers in Western countries and you’re often hard-pressed to find anyone at a senior level with competency in science or engineering... I like to think that, as a consequence, and of course also because of the still relatively strong Chinese economy, the funding landscape for both basic and applied research is healthy – in particular compared with the rather dire funding climates in the USA and Europe, where success rates of grant applications have dropped to the single digits in some fields. This is not to say that it is all that easy to obtain funding for foreign scientists, despite being based full-time in China; internal politics play a role too, and you still need to submit high-quality proposals to stand a chance at a piece of the funding pie!

In response to requests for comments from foreign colleagues around the country, one of my contacts pointed out a very useful funding avenue for foreign postdoctoral researchers affiliated with Chinese institutions:

“The NSFC [National Natural Science Foundation of China] International Young Scientists’ Programme is an excellent initiative. I know several

international researchers based full-time in China who have had quite a lot of success with this and it is seen as a very positive development."

At the Kavli Institute for Astronomy and Astrophysics (KIAA) we have gained a lot of experience with employing international postdocs at a top-level Chinese institution. The KIAA is an international research institute affiliated with Peking University. The Institute aims at promoting basic research of the highest international standards in China and, indeed, to establish a world-class centre of research excellence. Founded in 2007, the Institute is designed to be a forum for global scientific exchange and a bridge for international collaboration, an incubator of innovative projects, and a training centre for international postdocs and students, that is, for the scientific leaders of the future. Throughout the year, we organize a variety of academic activities and programmes to stimulate the research environment and promote interdisciplinary interactions. Our working language is English, from the high-level scientific interactions to the inner workings of the Institute's administration. Of course, we form part of the Peking University system and we certainly do not operate in a vacuum, so that we are very careful in establishing links with our counterparts in the Chinese community: we are, after all, part of our scientific community and not a separate entity!

The Kavli Foundation, our sponsoring institution which was established by the Norwegian–American industrialist Fred Kavli (1927–2013), is dedicated to advancing science for the benefit of humanity, promoting public understanding of scientific research, and supporting scientists and their work. The Foundation's mission is implemented through an international programme of 20 high-profile research institutes, professorships, symposia, and other initiatives in the fields of astrophysics, nanoscience, neuroscience, and theoretical physics. The Foundation is also a founding partner of the Kavli Prizes, which recognize scientists for their seminal advances in astrophysics, nanoscience, and neuroscience.

Since the KIAA's establishment, we have been working hard to set up a competitive international postdoctoral programme. The Institute's current postdoc population (December 2016)—under a scheme which is run jointly with Peking University's Department of Astronomy—is composed of 21 young scientists, of whom 10 hail from abroad (India: 3, Republic of Korea: 3, and one each from Japan, Germany, Italy, and Thailand). Our past postdocs came from countries and regions as diverse as the USA, Mexico, Spain, Israel, the UK, and Taiwan, as well as from Germany, Italy, South Korea, and Japan, like our present cohort, and of course also from mainland China. Since the Institute's inception, one of our main foci has been on the KIAA Fellowship programme, where we try to attract top-level postdocs irrespective of nationality. Also from the start of our operations, individual faculty members have been hiring their own project-based postdocs from grant funding.

These programmes have since been expanded by a joint KIAA–Chinese Academy of Sciences (CAS) scheme, while we have also been successful in attracting excellent independent postdoctoral fellows associated with China's *LAMOST*

project (an ambitious innovative telescope design) and joint fellowships with colleagues in Chile funded through the China–Chile programme by the CAS and its Chilean counterpart, CONICYT. This year, Peking University launched a new high-profile programme to attract foreign postdocs, the Boya Fellows, while the University's postdoc office will also cover the basic expenditure of postdocs who obtained their Ph.D. degrees from World Top 100 universities.

This environment is therefore rather conducive to attracting good young people from around the world, at least that was our expectation. Let us therefore consider how successful we have been. I will use the numbers from our 2016 recruitment round as an example, but they are broadly representative of our past experience. We made four offers to Chinese nationals, who all accepted the appointments (100% success). Offers to non-mainland-Chinese Asian scientists were also attractive, with 2 out of 4 offers proceeding to an appointment (50%), but the success rate of offers made to Western scientists lagged far behind, with only one out of six acceptance. Since these are representative numbers, this shows that the Chinese community may be facing a number of challenges in recruiting international postdocs.

I believe that these recruitment challenges can be grouped into three categories. One involves the general perception of China as a destination country. One of my respondents phrased this problem quite well indeed:

“I think China has a major PR [public relations] job to do in how it is perceived abroad ... The virtues of being here – a high standard of public safety, a peaceful and relatively harmonious society – are not seen abroad.”

I must wholeheartedly agree. With few exceptions, international scientists based in China appear to thrive and they also seem to be quite happy in their personal lives. When we talk to our friends and colleagues abroad, however we often face a lack of comprehension and sometimes even a hostile reception to any positive comments we may make about the possibilities of pursuing a research career in China.

Second, a potential practical impediment facing junior scientists coming to China is that they need to retain a high visibility internationally if they ever want to secure a higher-level job elsewhere in the international community. Junior scientists need to establish themselves first, which is ideally done through networking in their respective international communities, but the mere fact of China's geographical location may make this a daunting prospect. Indeed, as a senior scientist with a high international visibility myself, I find the fact that almost all flights to the top international meetings in my field are long-haul flights a real impediment – in addition to the time it takes to engage properly with my own scientific community, the costs involved are not negligible either. I usually manage to secure funding from a variety of sources because of my deep involvement in a number of international organisations; more junior scientists will not be able to leverage funds this way... I therefore often advise postdoctoral researchers considering a move to China to carefully think about their career perspectives and decide in advance what the potential advantages and

disadvantages might be of such a move.

These concerns might not apply to all fields, of course. There may indeed be excellent reasons to accept a postdoctoral appointment in China if this would be geographically advantageous for one's study focus, for reasons of access to specialized equipment or in view of the availability of human resources. Context is the key consideration here. Nevertheless, Western postdoctoral scientists are often concerned about the perceptions of their mentors in relation to a move to China, where the relative rankings of the host universities also come into play. This latter aspect is, therefore, yet another reason why Chinese universities are pursuing improved rankings in the international league tables.

In addition to these challenges affecting the postdocs directly, secondary considerations often also make a move to China problematic. One of my respondents stated, quite vocally, that

"I think it's well-nigh impossible for foreigners with families to try and muster a decent living here, and there are serious issues with the trailing spouse not being able to work legally. (...) We need a mechanism for legal part-time work for non-working spouses who wish to work part-time. Right now, my wife has a residence permit, as my dependent, but she is not legally allowed to work."

Indeed, a significant fraction of junior Ph.D. holders have the well-being of their families to consider. This particular colleague lamented that his spouse had only two choices: either not to work at all, or to work full-time. For many international couples such arrangements are not very attractive; while one of the partners may work full-time, the other might prefer a part-time or volunteer role, neither of which are currently legally allowed on a dependent's residence permit.

Beyond spousal employment, if the international couple have children as well, this further complicates matters. At this stage of their careers, not many international couples will want to commit to a career-long stay in China (or anywhere else, for that matter), which implies that they will most likely relocate internationally again at some point. They will, therefore, be concerned about their children's education, and they would want to ensure international education opportunities. Unfortunately, international schools in the main cities are unaffordable on a postdoc's salary. Witness the following comment from one of my colleagues:

*"I know of an international fellow who got an annual salary of RMB 500,000. He has 2 children [who] went to WAB [Western Academy of Beijing], so $2 \times \text{RMB } 240,000 = \text{RMB } 480,000$. His wife is a physician, but she could not find work. They used up about US\$ 100,000 in savings to self-fund their one-year stay abroad. And this is the highest level of scientist working here. It's so unsustainable, and I feel that **NO ONE** understands the real costs of an international family."*

Solutions to this and other practical aspects (e.g. access to international-level healthcare at an affordable level) will need to be found, but this may require high-level policy changes. For instance, one could consider implementation of an international education allowance, similar to the housing allowances some (but not all!) international staff receive from their universities or local governments. However, implementation of any policy changes is rife with additional concerns. For instance, we would not want to discriminate against local Chinese colleagues who might be ineligible to receive such benefits...

This leads me to one of the main issues affecting the retention of international postdoctoral staff. Of course, everyone understands that employment in a country other than one's home country requires possession of a valid residence permit and filing of other immigration paperwork. A significant obstacle we all face is the need to renew our residence permits every year. This is unheard of in most, if not all, of the competing economies, where residence or work permits are issued for the duration of one's contract. Because of the international graduate-school and scientific-job cycles, many postdoctoral researchers tend to take up new employment around the start of the academic year, in September or October. Applications for the renewal of one's residence permit must be submitted a few weeks prior to its expiration date, which means that—given the 10-day to two-week processing time required at present—during the prime international conference season, *every year* many junior scientists who need international visibility for their career progression will be without their passports and, hence, without the opportunity to promote their research and the standing of their Chinese host institution at international meetings.

At Peking University, or at least at the KIAA, we are well prepared to deal with the immigration and visa paperwork, because we employ dedicated staff to handle these issues for our foreign colleagues. Clearly, from the comments I received from my respondents, the same cannot be said for all institutions on the mainland:

“One example – a colleague in Qingdao sent off his passport to the foreign affairs office of his University for visa renewal, only to find four weeks later that they had been sitting on his passport as they weren't clear about what to do – I have heard this story many times repeated.”

... and ...

“After 3 months of hard work by the university's office for foreign experts, I had all the documents together to apply for a Z visa, only to be rejected by the visa section in Hong Kong. As I only found out later, there is an unwritten rule about where one can apply for a Z visa.”

Although I have pointed out a number of issues that our (and other) international postdocs have been facing ever since I have been involved with their well-being at the KIAA, I want to emphasize that without exception they all rate(d) their research appointments in China as a great success. Every country has its own idiosyncrasies—and I have seen more than my fair share in my

previous appointments in the Netherlands, the USA, and the UK! I have also come to realize that the issues affecting foreign staff may not be so obvious to nationals of the country in question, so I hope that this contribution will go some way to raising these issues.

This leads me to conclude with a number of potential policy improvements that would make life for our international postdoctoral colleagues much simpler:

1. Learn from positive examples, for instance consider in detail the NSFC's International Young Scientists' Programme as an example of good practice.
2. Improve retention of foreign (postdoctoral) talents through policy improvements.

Potential improvements to consider may include housing and (children's) education benefits and spousal work opportunities, as well as issuing work permits for the contract's duration rather than on an annual basis. From an academic perspective, some funding councils already allow international scientists to apply for domestic funding, some even in English, but this is not yet a common approach. More openness to make international researchers feel at home in the Chinese system, where their talents are demonstrably appreciated, would go a long way towards development of an inclusive and welcoming scientific community.

3. Make the postdoctoral positions themselves more attractive.

Consider easing obstacles to research productivity. One of my respondents commented that

"I have a book contract with an internationally renowned press. I spent 3 weeks in the UK this summer to get it started, because I could not possibly have made so much progress in China."

He cited as a considerable obstacle the fact that he could not access a wide variety of historical documentation made available through *Google Books*. In addition, postdoctoral appointments in China are considered a two-year degree programme. While this period in one's career is indeed similar to an apprenticeship, I am not aware of any other country issuing "diplomas" upon successful completion. In fact, many of my foreign colleagues find this approach somewhat patronizing... In addition, internationally postdoctoral research positions often run for three years or more; two-year appointments are, in my professional view, too short and inadequate for postdocs to mature and innovate, to reach their true potential, particularly in a completely different cultural and language setting, as would be the case for Western researchers coming to China. Fortunately, at Peking University we can now make offers of up to three years, which makes our offers more competitive internationally. Of course, we still need to find sufficient funding for the longer duration...

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I sincerely hope that some of these recommendations will be taken on board in forward planning. My aim here is to raise practical issues many of our postdocs in Beijing have run into, and which could potentially be resolved to facilitate a truly world-class postdoctoral experience in China.