

# Diary of a JSPS Short Term Fellowship

**Chris Kay**

Institute of Structural & Molecular Biology and London Centre for Nanotechnology  
University College London  
c.kay@ucl.ac.uk

**Host: Prof Hiroyuki Mino; Department of Physics - Biophysics Section,  
Nagoya University, Nagoya, Japan**

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## Foreword

I was honoured to have been selected for a JSPS Fellowship, which was sponsored by my collaborator, Prof Mino at the Department of Physics, Nagoya University. There is a 6 months window for taking up the fellowship, we decided on the second half of March which fitted with my teaching, research and family commitments. Moreover, the temperature is cooler at that time of year and I might even experience the famous cherry blossom season.

This would be my 9<sup>th</sup> visit to Japan – yes, it is one of my favourite countries to visit – and I know many Japanese researchers in my field: free radicals studied by EPR spectroscopy, so when news of my visit spread, I received invitations to visit several universities for discussions, experiments and to give seminars or lectures. Arranging a schedule suitable for everyone required some organisation!

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## Saturday

After the 12 hour flight from London with wonderful views of snowy Siberia, the sun was shining over Tokyo Bay as we touched down at Haneda Airport. Passport control was without a queue and my luggage had already emerged onto the conveyor belt by the time I got there; the first signs of Japanese efficiency that I always enjoy when arriving in Japan, and in contrast to the embarrassingly huge queues typical for non-EU citizens at passport control in London.

The Tokyo Monorail whisked me to the Yamanote line, and onwards to Tokyo station to board a double decker Shinkansen to Takasaki, and finally a local train to Kiryu, where I arrived as dusk fell. Fortunately, in Japan the stations have the names written in Roman letters on the platforms. But technology also helps these days, as my phone with GPS and pre-downloaded maps showed me that I was on the right train going towards my destination.

My host for this first stage of my tour, Prof Asano, met me at the exit of the station, and escorted me to my hotel and then for my first Japanese dinner in a quiet little pub, where the seating was Japanese style on the floor. I had definitely arrived in Japan.

## Sunday

We arranged to meet the next morning for a trip to a famous silk factory at Tomioka, which is in the region. We were driven by one of my host's students and accompanied by another. After lunch in a traditional noodle bar where I had one of my favourite set menus, namely Soba and Tempura, we visited a small park at the foot of a small mountain. It was proposed that I should go back to my room for a rest before dinner, but the weather was good and the trail heading up the mountain was too tempting so arranging to meet for dinner with my somewhat worried host,

I had a 40 minute steep climb to the top of Azumayama at 481 m and wonderful views across the Kanto plain below and other mountains in the distance, as the sun was setting in the West.

To my host's wonder and relief I made it back in plenty of time for dinner, in a noisy restaurant full of families near the train station.

### **Monday**

Prof Asano met me after a Japanese breakfast in the hotel, and we walked up to Gunma University to meet her colleagues, students and to give a seminar. Despite it being out of term-time, the seminar was well attended and many astute questions were asked. Some points I made were also translated into Japanese to help the students.

After the seminar, I was taken for a light noodle lunch in a traditional restaurant located nearby, with a view into a lovely garden. After more discussions, I took the train back to Shinagawa in Tokyo, where I had booked an hotel. With a room on the 19<sup>th</sup> floor, I enjoyed the view of the skyscrapers while eating sushi bought at the food hall of a department store at the station for dinner, whilst talking with my family over skype. Incidentally, every hotel or guest house that I have stayed in has had free wifi.



Soba and Tempura for lunch

### **Tuesday**

I took breakfast in the hotel – Western/Japanese – but decided that it was not worth the expense for the following days. The view from my hotel was also stunning in the day time, and I finished preparing my talk in the morning, before heading to the Department of Chemistry at the Tokyo Institute of Technology which is located at a short train ride away at Ookayama. I always use a prepaid Suica card on local trains and buses, which works like Oyster, except that the cost simply depends on the distance, and it works everywhere in Japan.

My host for stage two of my tour, Prof Kawai, and I discussed some recent results from our collaboration: a PhD student of his had recently spent a month at UCL to do some experiments that could not be performed in his lab. I then gave a seminar to his group, which with many interruptions and explanations in both English and Japanese went on for over 2 hours, which must be a record. This left all of us in need of sustenance, so at 6 pm we headed off to a pub for food and liquid refreshments. Around 10 pm, we called it a day, and although my host was busy most of the following day, we arranged for me to join the students in the lab for some experiments in the morning.

### **Wednesday**

I got some items for breakfast at one of the ubiquitous convenience stores near the train station, and headed back to Institute, and got straight into the lab with the students. Apart from a break for lunch we spent the day working out why the ESR spectrometer (I have a comparable one at UCL) was behaving strangely. Trouble-shooting is one of my favourite hobbies, especially when it saves the cost of calling the manufacturer of the spectrometer for technical support, and the associated downtime. And this day, luck was with us, as we isolated the problem-causing component and got the spectrometer back up to full operation by the time Prof Kawai was finished with his university commitments, and it was time to go for dinner. We had arranged to

meet one of the first Japanese professors that I had got to know over 25 years ago at a conference, when I was a PhD student. Dinner was at a Tempura restaurant in a nearby neighbourhood.

### Thursday

As we had failed to complete the planned experiments yesterday, we arranged for me to spend the morning at the Institute before travelling the 350 km to Nagoya for the main part of my stay in Japan. I was not using a Japan Rail Pass (which I usually do and is great value if you intend to travel extensively), so could choose the fastest train which goes by the name *Noizomi*. The Shinkansen not only takes only 100 minutes for this journey, but the trains also leave every 10 minutes. You can also just turn up, buy a ticket and go – this is not more expensive than booking in advance, although this might be necessary for getting a seat at busy times of day. One can also board the train at Shinagawa, which is partially why I had booked a hotel there. The hotels are usually fine about leaving your luggage before check-in or after check-out, for no additional price. Incidentally, Shinagawa is also convenient for Narita Airport, as the Narita Express train runs from there, too.



Which train?

The train arrived at Nagoya precisely as scheduled and I made my way on the metro to Higashiyama campus, again using my Suica card for payment. The major train stations have free wifi, and so I had managed to give my host, Prof Mino, an approximate E.T.A., and of course he was waiting for me at the exit to the metro. He had booked a room at the university guest house which was to be my home for the next week. This was conveniently located on the campus just a 2 minutes walk from the Physics Department. He had already collected the keys, so I could leave my luggage and then go to the laboratory, where the students were waiting to meet me and we started discussing how to organise the week ahead. Then it was time for dinner in a buzzing pub, with excellent food, and because it is Nagoya; lots of chicken.

### Friday

The day started with finalizing the programme for the weekend: Prof Mino was going to drive, and the two PhD students would be joining us. We eventually settled on visiting Mt. Gozaisho on the Saturday for a hike, and the town of Gujo Hachiman on Sunday where there is a famous castle, and nearby caves in the mountains that can be walked through.

Lunch was with the full professor who leads the biophysics research group in an on campus restaurant. This was a student-free zone, costing apparently much more than the other cafeterias on campus, as I would discover subsequently.

In the afternoon, one of the PhD student took me into the city on an unsuccessful quest to find new pairs of trainers for both of us. It seems our feet were too big for the standard sizes stocked. Later though, Prof Mino took us in his car to a shop specializing in orthopaedic shoes from Germany, and I found some excellent trainers, which were even on sale. Dinner followed and finally we agreed to meet at 8 am on Saturday morning in order to get an early start.

## Saturday

With perfect weather, it seemed that the whole population of Nagoya was also on the road, given the amount of traffic, but we made it to the cable car station at the base of Mt. Gozaisho still quite early – inevitably stopping at a convenience store for breakfast on the go and supplies for our hike. I had done some internet research, and had made the suggestion to take the cable car to the top of the mountain, and then hike down. The cable car ride was spectacular. It travelled slowly so one could enjoy the sweat-free ascent of the mountain. If I get the chance, one day I will have to climb it the hard way. It was a short walk from the cable car to the peak, and at 1212 m, there was still quite a lot of snow in places, which gave us some interesting moments, and made my companions nervous. But the serious walkers we meet said “no problem”, or at least that’s what I think they said. We spent about 4 hours going down, enjoying wonderful scenery and saw only a handful of people.

Traditionally, one would go to an Onsen after a hike, but one of the students needed to go back to Nagoya quite early, so that would have to wait. Back in Nagoya we went to crab restaurant for another great meal. The restaurant was curiously quiet – it seemed that all the dinners were concentrating on extracting the meat from the crabs.



Prof Mino and his students enjoying a rest on the mountain



Natural sculptures in caves near Gujo Hachiman

## Sunday

We again started out early. This time heading north for about one hour, to visit a couple of cave systems which had been made accessible for regular tourists, and then to the town of Gujo Hachiman, with its fast-flowing mountain rivers and castle perched on a hill commanding a view of the valley. In the late afternoon, we headed to an Onsen. The outside bath looked out over the river towards the mountains: relaxation, indeed.

## Monday-Wednesday

These days were spent in the lab, doing experiments. Our collaborative work is focused on photosynthesis, and before my arrival one of the PhD students had prepared a fresh sample of the protein from spinach bought at the local market for our experiments. The particular protein is called photosystem II, and this is the complex that plants use to make oxygen. Achieving a deeper understanding of how plants manage this process is key to developing artificial photosynthetic materials. The samples were transferred to liquid helium, as our experiments are performed at 10 K (-263 °C). Although we worked 10 hours each day in the lab, we did not complete all the planned experiments, but we did lay the foundation for the next round of work. One of the PhD students is going to come to UCL in summer to undertake some experiments that cannot be done in Nagoya.

Lunch during these days was in the student cafeteria. It was remarkably cheap but nevertheless the food was fresh and tasty. It was also graduation time, so we were treated to the sight of many students dressed up in kimonos and suits accompanied by proud parents.

### Thursday

Today and tomorrow is the "IGER International Symposium on Science of Molecular Assembly and Biomolecular Systems 2015". This is an annual workshop with talks covering diverse areas of physics from both Japanese and some foreign guests, such as myself. Some of the topics were way outside my area, so I skipped one afternoon session – given the perfect weather and emerging cherry blossom – and went to see temple nearby which has a huge statue of Buddha, painted bright green in the grounds. The day ended with a stand up buffet "banquet", which according to Japanese conference tradition has specific opening and closing speeches. Some of the foreign guests were invited to make short speeches; however this time, thankfully, I was not!



Statue of Buddha  
at a temple near Nagoya University

### Friday

I packed my bags, and gave my talk at the symposium. Possibly not many of the participants understood much of my talk, but my host and his PhD students said that they learnt something from it. After a *bento box* lunch, I took the metro back to Nagoya station and boarded the next Shinkansen bound for Tokyo. The train passes quite close to Mt. Fuji, but on the way out it had been shrouded in cloud. So it was a pleasure to get a great view; and not only for me considering the number of phones that were suddenly pressed against the windows amid shouts of *Fuji-san* from the children.

I arrived in Tokyo, but found that I had lost my ticket. "How do I explain this at the gates?", I asked myself. But the ticket inspector waved me though. After a metro ride, in rush hour with 2 bags, I met my host for the final stage of my trip, Prof Kobori from Kobe University, at Kameido station where he had booked an hotel for us. The hotel had the smallest room I ever stayed in, and no cleaning during your stay, unless you asked for it and paid a supplement. Spare towels, however, could be collected from reception. Actually, I quite liked this as I could leave my room in any state I wanted and did not have to worry about someone knocking on the door. We returned to the train station to meet Prof Kobori's group, who were staying elsewhere, for quick dinner.

### Saturday

I finished off my talk in the morning, and met Prof Kobori and his group for lunch. We paid in advance with a slot machine outside the restaurant, and handed over the receipt to the people in the kitchen. Then we travelled out to Nihon University in Chiba where the 95<sup>th</sup> Annual Meeting of the Chemical Society of Japan was taking place. We were only attending one session in which I and several of the students were speaking, and my host was chair and organiser. My talk was the only one in English, so I had to attempt to follow the talks from the slides. Interesting!

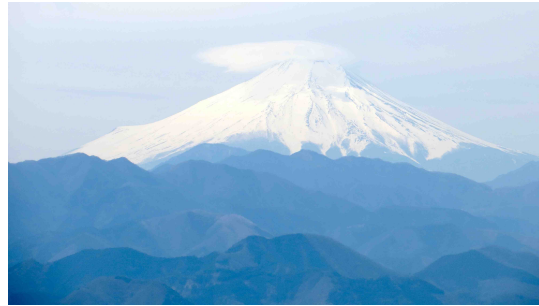
Afterwards our group, most of whom I know, went off for dinner in a Japanese style pub – sitting on the floor. I am still not very good at sitting cross-legged! Finally, everyone departed, with many Sayonaras and “see you soon”s. Tomorrow would be my last day in Japan, and weather permitting I had planned a hike.



In a pub after the conference

### Sunday

I woke up early to do a hike from Mt. Jinba to Mt. Takao. This is actually “the wrong direction” according to tradition, but the transport connections for getting back to Tokyo were more convenient. A train, followed by a bus, took me to a valley at the foot of Jimba-san, with about a dozen other hikers, all headed in the same direction. The reward of the one hours climb through the forest, was a view of snow capped Mt. Fuji. After that the trail followed a mountain ridge for about 17 km, back towards Mt. Takao, with great views all the way, and with perfect timing, a light drizzle started as I reached the train station.



View of Fuji-san from Jinba-san

The train back to Tokyo brought me to Shinjuku, which I had not visited previously, so I took the opportunity to visit this district, famous for its skyscrapers. I finished the day with a meal near the train station; thanks to the pictorial menus ordering is not such a lottery, and found a supermarket to buy some snacks to take home for my group and family.



Skyscrapers in Shinjuku

### Monday

Again an early start, first the train to Narita Airport and then the long flight back to London; tired and sad to leave but looking forward to seeing my family again.

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### Afterword

My stay went by incredibly quickly, and was very intense, but also rewarding in terms of experiments performed, and discussions about the next steps in which to take our collaborative research effort. By spending time with four different research groups and participating in two conferences I also made many new scientific acquaintances and renewed existing ones. Furthermore, several students are now considering visiting UCL to carry out experiments as part of their PhDs, which should lead to joint publications and maybe even international grant applications.

As usual, the hospitality of my Japanese colleagues and their students was amazing. One point on this, though: For dinner, the students usually paid a nominal price of 1000 Yen, and the group leaders split the rest, so eating out every night with a large group of students can get quite expensive! However, the generous allowance I received from JSPS more than covered this. And of course, the food was fantastic, and the exchange of ideas extensive.

Apart from the scientific outcome, I did see an abundance of cherry blossom, and managed to get some hiking done each weekend, which is one of my favourite pastimes. Public transport in Japan helps you get to many places, and there are many well-marked trails, although getting the information of routes in advance can be challenging, even with all the information available on the Internet.

To conclude, I hope this diary has given a taste of a short-term scientific visit to Japan. As for me, my trip already resulted in another invitation to Japan to give a lecture at a conference in the autumn. Needless to say, I am looking forward to it immensely.



Cherry blossom in Nagoya