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I was fortunate enough to have the opportunity to spend one month with Prof. Susumu Kitagawa and Prof. Satoshi Horike at the Institute for Integrated Cell-Material Sciences, Kyoto University, in September 2017. The research of my group in Cambridge concerns that of a new family of glass-forming liquids, arising from metal-organic frameworks (MOFs). The latter are three dimensional porous materials, formed from organic linkers and inorganic ions, that are one of the current hot-topics in Materials Chemistry. The group in Kyoto work on the liquid and glass states of coordination polymers, a related family. Outside of the two groups, few, if any people work in this area due to its extreme novelty, and so the visit was a highly productive one.

In one research strand, we collated the canonical features of liquid and glass forming MOFs and formed a perspective together. In the other, we explored the modification and chemical 'tuning' of liquid and glass structures arising from MOFs, and discovered that the facile replacement of the inter-layer species in coordination polymers results in different materials with different glass transition points.

The trip will give rise to a long lasting research collaboration between the two groups. Importantly, it was also my first extended research trip abroad, and the international experience is invaluable. I am incredibly grateful to my hosts, Prof. Horike and Prof. Kitagawa, to Prof. Furukawa also for his welcoming and to the JSPS for a wonderful opportunity.

Top tip if visiting in summer : Buy a bike, and cycle through Kyoto in the early morning to get a real taste of peace and quiet before the day really gets going!

Picture 1: Dinner with the Horike Group and Prof. Kitagawa

Picture 2: Just one example of the many fantastic gardens in Kyoto