Research Visit at the Yamago Group and Kaji Group, Kyoto University

Organic Semiconductor Centre, EaStCHEM School of Chemistry, University of St Andrews
Dongyang Chen

This is my first research visiting in Yamago group and Kaji group. This research project is possible thanks to the collaboration between Professor Eli Zysman-Colman (University of St Andrews), Professor Kaji Hironori (Kyoto University), and Professor Yamago Shigeru (Kyoto University) which provided me this opportunity to start experimental that are essential to my research, as well as the chance to exploring the life and culture in Japan.

My research in Kyoto University is focused on functionalizing the cycloparaphenylene (CPP) as thermally activated delayed fluorescence emitter. I have done the computation of the designed emitters based on CPP structures and selected the most promising molecules to synthesize in Yamago group before coming Japan. With the cooperation between St. Andrews and Kyoto, we successfully synthesized one designed molecules which consist of four strong electron donors attached to [10]-CPP. We also measured the photophysics of this molecule in diluted toluene solution. We collected the data of UV-vis spectra, fluorescence spectra and phosphorescence spectra in toluene. We also measured the photoluminescence quantum yield of this emitter. The result got in Kyoto is inspiring and pioneering. It will help me continue my research after back to St. Andrews. In Yamago Group, I also learned the method to synthesize CPP on gram scale which is a big breakthrough in CPPs' research field. I received detailed experimental steps and tricks to synthesize CPP on gram scale and got a chance to see the purification process via GPC for this kind of macromolecules.

During my stay, I got chance to exploring the famous historic city—Kyoto. The views of the old temples and shrines are breath-taking. The nature landscape is scenic and the cuisine is healthy and amazing.

I want to acknowledge financial support from "International Short-term Exchange Program for Young Researchers by the International Collaborative Research Program of Institute for Chemical Research, Kyoto University" which covered flight and housing costs in Uji. I also want to thank Prof. Yamago and Prof. Kaji for hosting me, and the whole researchers in two groups for the very nice welcome and help during my visiting.

