

MERIT : Report for Overseas Dispatch

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■ Abstract

From June 5 to August 4, 2024, I visited Georg-August-Universität Göttingen (University of Göttingen) in Göttingen, Germany, to join Prof. Lutz Ackermann research group. Prof. Ackermann has made outstanding achievements in C–H activation reactions using electrochemistry. The purpose of the visit was to integrate my current research topic, “Development of protein modification in water by radical methods,” with the knowledge of electrochemistry in order to develop it to a higher level. In this article, I would like to describe what I learned through my research activities and cultural exchange at the Ackermann lab.

■ About research activities

One of the main themes of the Ackermann Lab is the C–H activation reaction using electrochemistry, in which Co(III), the active species for C–H activation, is generated by oxidation of Co(II) in the system. Ackermann and coworkers have eliminated the need for co-oxidants by using electricity. In addition, it is noteworthy that they have developed asymmetric reactions through the development of ligands.

Although the details of the reactions that we worked on during our visit cannot be described because they have not yet been published, we worked on extending the range of substrate applications in asymmetric reactions in which Co(III) is generated in the system by electricity.

The most stimulating aspect of the Ackermann Lab was the sense of purpose to efficiently produce results; the research team structure, equipment system, and meetings were devised to maximize results in a short period of time. Although the degree of freedom of each researcher may be lower than that in Japan, I learned a lot from the way that they approached their research, which was very cross-cultural.

■ About cultural experience

A unique feature of German laboratories is the social room, a place where everyone can get together for discussion and chit-chat. The room is equipped with an oven, refrigerator, freezer, cooking utensils, etc., and is often used for small parties. Since it was right around the time of the UEFA Euro soccer tournament, we often got together and talked about many things over pizza and beer. In Japan, it is difficult to have a chance to talk about work, career,

and life with team members unless you plan a “NOMIKAI”. I was very lucky to be able to adjust to the research quickly through socializing in the social room.

■ Summary

I am not fond of the expression “my horizons have broadened,” which is often uttered by those who have gone to study abroad, because it seems somewhat arrogant. However, there were definitely some things that I saw anew because my eyes were spatially shifted. I learned from the German research stance and culture that I do not have in Japan, and at the same time, I was made aware of the good qualities of Japan and its laboratories that I had previously taken for granted. I hope to apply what I learned and felt this time to my remaining doctoral activities and future career choices.

■ Acknowledgements

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