

Report for MERIT Errantry

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In this lecture trip, I visited Richard F. Jordan's group in the University of Chicago and Matthew S. Sigman's group in the University of Utah and presented reported works or current project. In addition, I had an opportunity to discuss their current research with students or postdocs in their groups during the stay in the laboratories. This lecture trip have motivated me to think how to progress my research and learn another approach from the different background.

The University of Chicago

Jordan's group has been involved in organometallic chemistry, especially in polymerization catalyst. They and I investigated the palladium catalyst bearing phosphine-sulfonate ligand. During one day stay, I gave the presentation of my recent research and talk with his students about their research. We discussed deeply about the steric effect of the ligand, based on the mechanism of polymerization. In addition, discussion with students after my presentation was also helpful for me, because they were also interested in the design of ligands to improve the molecular weight of polymer.

The University of Utah

Sigman's group has not only investigated new catalyst or catalytic reaction but also evaluate steric and electronic effects of their catalyst to improve regio- or enantioselectivity. I have also evaluated steric effects of the catalyst on polymerization to find the strong correlation between molecular weights and steric parameter. Now, we have been trying to establish the way to evaluate steric effects in more general way, which motivated me to visit his group to study their way to evaluate them and find the possible collaboration.

My lecture was covering not only my reported work but also my ongoing research. This was because he had mainly focused on the asymmetric reaction and I had been interested in stereoselective polymerization to improve my research. Thus, this was good situation for me to talk about my current research because he would give me a good advice to progress my research. After the lecture, we could deeply talk about the way to improve the stereoselectivity of polymerization that I was involved in. Additionally, I talked with students and postdocs about their research in the stay and learn their way to quantify steric or electronic effects of substituents. After the trip, I have been involved in quantification of the steric effect of the substituents on the ligand upon the stereoselectivity to improve and elucidate the origin of it. It was great experience for me to stay the laboratory in the United States for about 1 week to study, research, and join the meeting, in which the discussion was held frankly and actively.

Lastly, I am grateful to MERIT program giving me a chance to study through MERIT errantry, and to Professor R. F. Jordan, Professor M. S. Sigman, and their students welcoming me with their warm hospitality.