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AL: Today in our organic seminar, I presented your paper on electrochemically driven sp^3 - sp^3 cross-electrophile coupling, which I found very interesting. Do you see this reaction ever going to industry to replace transition metal catalysed cross-coupling?

Yes, I could see it, especially for fine chemicals in pharmaceutical industry, which are produced on a smaller scale. On a big scale I do not think it is very realistic, because I do not think the scale up would work really well. But right now nothing is really planned, so we will see what happens in the future.

AL: Did you always want to study chemistry or were there other subjects you were interested in when you were in high school?

I was always very interested in science in general. The thing that made me want to go into the direction of chemistry was a so called Chemistry Olympiad (I am not sure if you have that in Germany), which I really liked. I also took part in a Maths Olympiad, but I liked the chemistry Olympiad better, which is why I chose Chemistry.

ID: There is obviously a huge competition in sustainable chemistry, how do you stay motivated to keep inventing new things that no one has tried before? Because it must be demotivating to find out someone has found something just before you.

Actually, the competition is what keeps me motivated, because you really have to think about new stuff because of it. However, I would say that Chemistry is not as competitive as it used to be. Back in the day, there was a big pressure to be the first to publish something new. Nowadays you do not have such a large time pressure, because it is more important that the paper is good (especially when it comes to proving your mechanism and results). But also, I don't think you should really see it as too much of a competition, because then you stress yourself out way too much. Also, I have very good connections to a lot of people working in a similar field, so I would say it is a very friendly environment instead of a super competitive one.

ID: When you interview students to potentially join your group, what are you looking for?

The main thing really is motivation, I want my students to be engaged and excited about chemistry. Knowledge and lab experience is really not that important, because you can learn that, but you can't really teach motivation and passion. However, for potential postdocs, knowledge is obviously more important to me.

ID: How much do industrial applications play a role in your research motivation? Do you think about if a reaction can be implemented in industry when you before you decide to work on that project?

For me, chemistry is mostly about discovering something cool, industrially applicability is usually not my main goal. However, obviously, you still want to do useful projects, not reactions that are never going to be used because the application is just not useful. We actually have different partnerships with companies, so in some cases it might be different. We have two types of partnerships. In the first one, which is also the more common one, companies give us money for our research but don't tell us what to do specifically. For example, the cross-electrophile you mentioned before was a project that originated from this type of partnership with Merck. However, in some cases companies pay us to invent or optimize a specific reaction. In this case, the applicability is obviously the main goal since the reaction has to work for them.

AL: Even though I am not sure yet if I want to go in this direction in the future, what would be your advice for us as Master's students to prepare for an academic career?

The most important thing is do not stress yourself out too much. Nowadays, students who want to go the academic route start to think about their CV earlier and earlier and wonder whether it is good enough. Just focus on learning and once you graduated and finished your PhD, you can really start thinking about it. For example, I really wanted to go back to China to be a professor after I finished my PhD. Now I don't know if you guys know this but you need a lot of publications to be a professor in China and it is a really competitive environment. During my Postdoc I realized that I did not really want to put myself under such a big amount of pressure to publish so much, so I just stayed in the US. So just do not stress yourself out too much, you will find a way if you are passionate about it. So I would say the most important things for you right now are learning and finding out a field of Chemistry that you are really interested in and passionate about.

AL: If you had the chance to decide again, would you still choose the academic career path?

Yes, I definitely think so. It was always very interesting for me and I would say that I made the right decision. I really love the freedom you have when you are a professor, you can choose your own projects that you are really interested in.

AL: How do stay motivated when chemistry does not work? And how do you motivate your students to not lose hope after a project does not work in the beginning?

Obviously, it can be a tough balance sometimes. Because even though you want every project to work, sometimes projects just do not work out in the end and then it is best to stop this project before you waste even more time. However, this actually happens very rarely because most projects really do work out in the end. The thing I often tell my students is "You take care of the chemistry while I manage the project", so when I still have hope for the project, I really encourage my students to stick with it instead of giving them another project. And I think this method really works, because almost all of my PhD students have at least two or three publications when they leave our group. I also think it is important that I now have the freedom to give my students a long amount of time for a project. Back when I was a Postdoc and had more pressure to publish, I was quicker to give up on a project.

Dr. Joshua Barham: I have a question regarding your previous answer. If a project really does not work out in the end, do you give the student(s) that were working on this project some sort of consolation prize? For example, do you let them work on a project that works and is going to be published soon?

Luckily, this has not happened to me very often because as I said, most projects really do work out in the end. However, if something really turns out to be unsuccessful after a long time, I try to give these students something which is still related to their work but we already know works. So you are right, I try to give them some kind of a consolation prize because I understand that they are really frustrated that their project did not work.

AL: In the end, I would have a question in personal interest. For our Master's course, we have to do an external module, which is a 2-3 month long research internship abroad. Since I think your chemistry is really interesting, I wanted to ask if you would be open to potentially take students for such a short amount of time?

Yes definitely, if you are interested in potentially joining our group for this internship, just apply! The time factor is really not a problem, we just had a student from Canada in our group for only three months, so it is absolutely possible. Whenever students ask me something like this, I always encourage them to apply because we are always looking for motivated young people and the worst thing that can happen is that you do not get accepted.