

## **RISE Program Final Summary / Reflections**

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I was quite eager to participate in the RISE program as soon as I learned that I'd have the ability to host a student for the summer. I'd participated in these types of programs myself as an undergraduate and I very much liked the idea of being able to teach a student about our science while simultaneously working on my own mentoring and supervising skills. My advisor was fully supportive of proposing a project so, not long after learning about the program, I embarked on my RISE odyssey.

Writing a project offer that was simultaneously interesting and concise was surprisingly difficult. Having only a page to make a visually attractive "advertisement" that also conveyed some amount of science meant that everything had to be distilled down to only the essentials. Coupling this to trying to anticipate how projects would have progressed in the six months before a student would arrive made the offer quite challenging to create. In the end I decided to make the offer intentionally rather vague, allowing it to accommodate the many possible directions the project could take between November and June.

After submitting the offer I was worried that no one would be interested in it and that I wouldn't get any applications; well, my fears turned out not to be entirely justified because I ended up with 17(!) applicants for the project. This was something of a relief but also presented a new challenge: how to select a single student from such a large pool of talented applicants? I was surprised by how similar people could appear on paper so, to help select my top three students, I sought out advice from my advisor and also conducted Skype "interviews" with the leading candidates to narrow the field. Being on the side of interviewer instead of interviewee was a fun role reversal from what I was used to and will certainly be valuable experience if I'm ever in the position to "hire" someone again. Actually talking to the students was quite helpful and enabled me to finalize the rankings of my top three.

After waiting a few weeks for the DAAD to make its pairings I was fortunate to be matched with my first choice student, a second year undergraduate from Oxford in the UK, and we quickly got in touch and sorted out the logistics for her stay at the institute. This process was really easy and I thought everything would be smooth sailing afterward but, only a few weeks before our student was scheduled to arrive, we ran into a little bit of an obstacle when I learned from our collaborators that the instrument we needed for our planned project was no longer available; suddenly I needed to (quickly!) plan a new project! Fortunately, there's not usually a shortage of fun ideas bouncing around our group and we were able to cobble together another interesting project that we had been wanting to investigate. Not long after we had everything finalized for this new project our student arrived for the summer.

I wasn't entirely sure what to expect from our RISE student—her application was quite impressive, but I didn't know exactly what that would translate to in practice. This question was answered almost immediately as my student turned out to be incredibly bright and eager to dive into her project; by the second day in our lab she was already working independently to prepare samples. She had a strong chemistry background and quickly grasped the fundamentals of our research; it wasn't long before she was working more like a graduate student than a second year undergraduate. Because of this, I found that I needed to devote a fair amount of time to thinking about all of the implicit assumptions we make and the "why" behind what we do so I could have clear and helpful explanations / answers for her questions. I found this really beneficial because it compelled me understand our experiment on a deeper level and also gave me valuable teaching experience.

As part of the RISE experience I wanted our student to get an accurate idea of what life in a research group is really like. For the most part this was easy—naturally, working alongside grad students and post docs everyday has a way of revealing what an academic lab is like. However, as x-ray spectroscopists, we do research a little differently from many chemistry groups in that most of our data collection happens at synchrotron lightsources. In practice this means that we spend only a few intense weeks each year collecting data and the rest of our time performing analysis and calculations to try to understand the experimental results. This experimental time is a critical component of what we do and I wanted our student to experience what a “beamtime” was like. With some planning and a little bit of luck we actually managed to have six days of beamtime (in Grenoble, France no less) during the second week of our student’s stay, giving her the opportunity to see how our experiments work and to actually collect the data that she’d be analyzing for the rest of the summer. Beamtime was a success and we managed to collect (almost) all of the data we wanted. Moreover, it gave a realistic snapshot—complete with its share of malfunctioning equipment and experimental tribulations—of what life in our group is like and rounded out the more pedestrian everyday jobs of calculations and data analysis.

Looking back over my participation as a RISE host I can say unequivocally that it was an all-around fantastic experience, both for me and (hopefully) for my student as well. Playing the role of supervisor taught me a lot about how to be an effective teacher and mentor, such as how to strike a balance between being hands-on yet also letting my student explore and try things for herself. Scientifically, we had a very productive nine weeks—my colleagues would often comment that she accomplished more in her summer than most graduate students do!—and with only a little more data the work will be ready for publication. Beyond the science, I also very much enjoyed getting to know—and, I dare say, become friends with—our student and learn about culture and life in England. Probably the best indication of how well things went this past summer is that, not only am I planning on participating again next year, but a post doc in our group is also already planning a project for RISE 2013!