

Internship at Massachusetts Institute of Technology

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1. Research and life in Jeffrey van Humbeck group

I worked at Jeffrey van Humbeck group from Oct 3rd to Dec 23rd 2016. Since Jeff just began his independent career in July 2014, the group was not so big compared with other famous MIT labs and at that time we had only 9 members: Jeff, two Post-Docs, five graduate students and me!

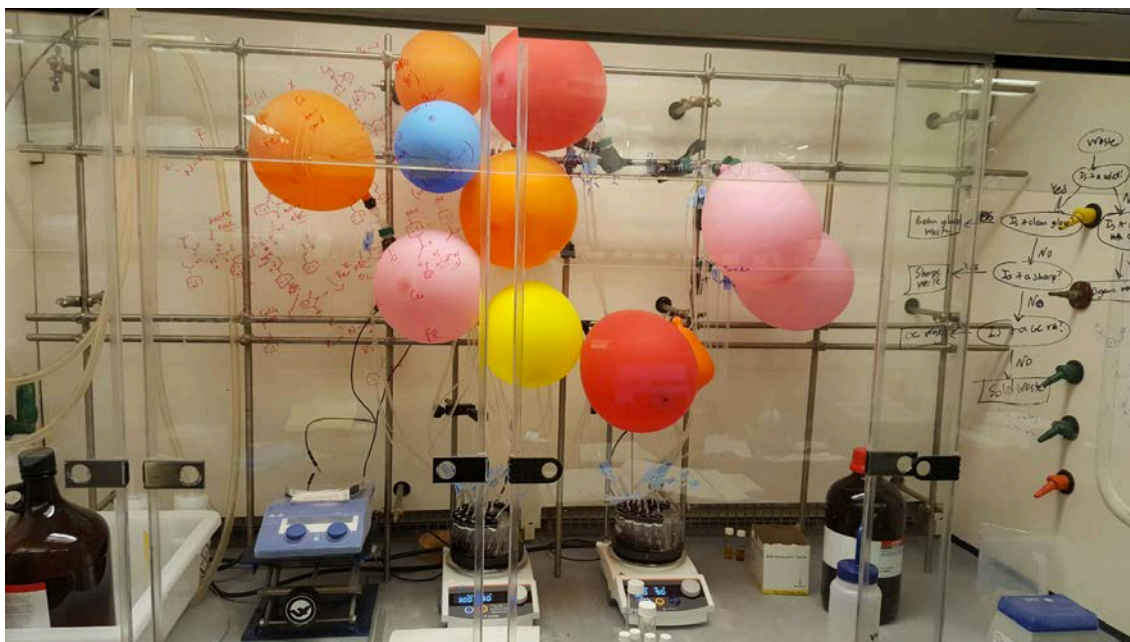


Pic 1. JVH group members at building 18, 1st floor

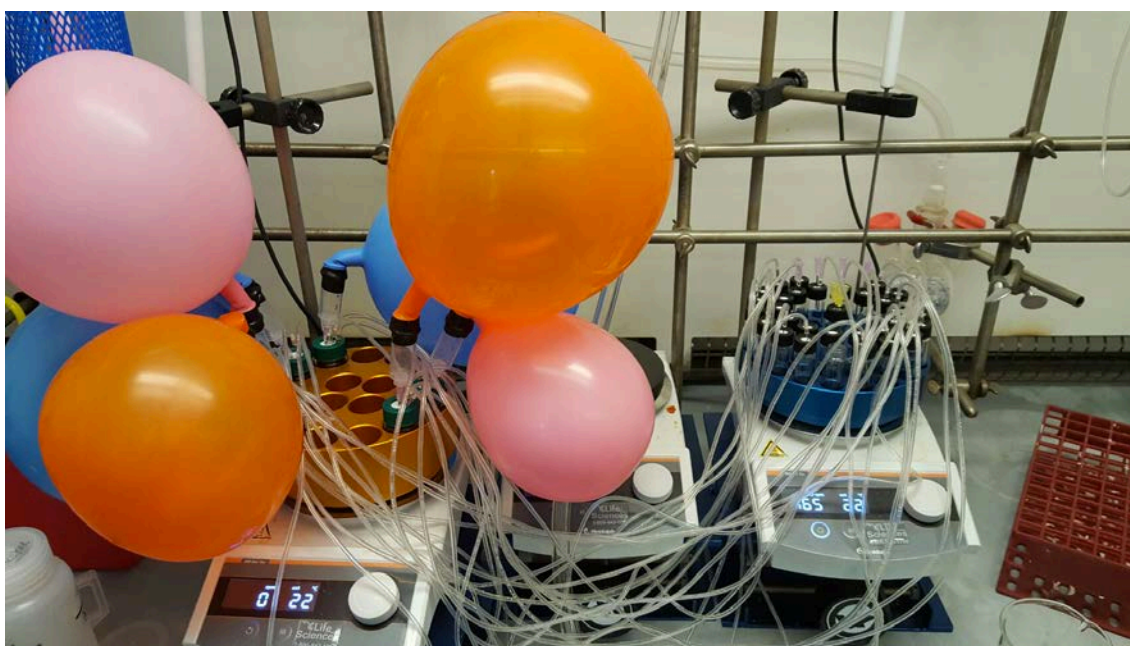
Jeff's group has several lab meetings, sub-group meeting (on every Tuesday morning) and group meeting (once in two weeks). In sub-group meeting, all of labmates briefly report their previous week's experimental results. This weekly reports/discussions were very good opportunity to touch various styles for conducting researches. In each group meeting, one lab mate gives presentation for one topic from organic chemistry field. In Japan, our group also has similar meeting system, but one notable difference between them is that group meeting in JVH's group was held with dinner. Every two weeks we listen and discuss about chemistry with burrito and beverages.

In Japan, I have worked for reductive cross-coupling with hydrogen as a reducing reagent. In contrast, during these three months in Jeff's group I worked for development

of selective C–H oxidation reactions with dioxygen. During my internship at MIT, almost every workday I inflated a lot of colorful balloons with dioxygen for the experiments. Sometimes Jeff also did experimental works in his free time, his fume hood was kept tidy and his experiments were very efficient. This is shown in pictures 2a and 2b how Jeff and I set up the parallel oxidation reactions.



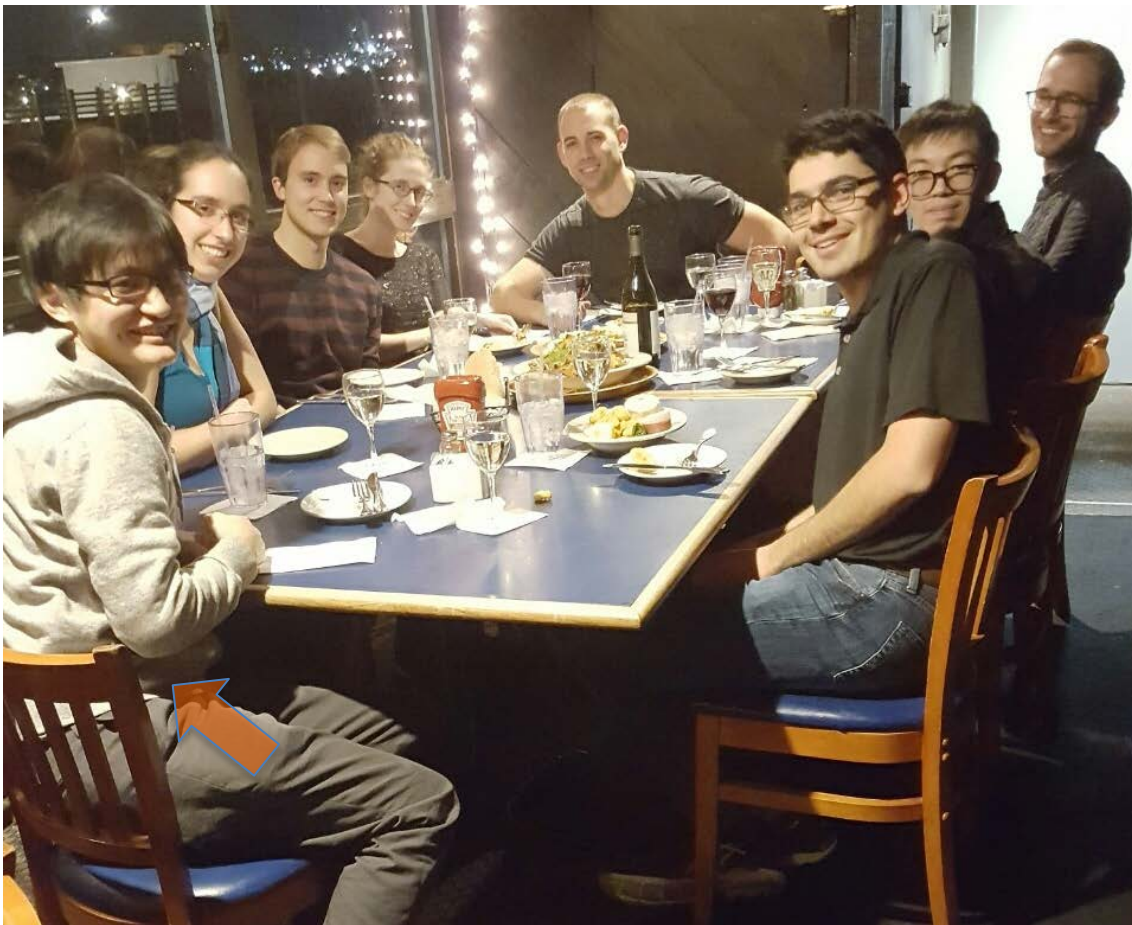
Pic 2a. Oxidation reactions by Jeff (2016/10/15)



Pic 2a. Oxidation reactions by me (2016/10/7)

In JVH lab, basically members take day off whenever they need. Sometimes Jeff took day off for taking care of his wife or child when they were sick. Other group members also work efficiently, and sometimes have random day off for their own reason. These working styles were impressive for me. For good balance between efficient research and private, I should learn much from Jeff and his laboratory.

The most surprising event for me was the United States presidential election 2016. As far as I know, all students and people I talked with in Boston were Hillary Clinton supporters. Consequently, the next day of Trump's victory, most labmates were depressed and when we gathered for watching Hillary's concession speech on PC, one student even shed tears. Through this election, I realized how huge the American's enthusiasm for election was, and the MIT and Boston community is only a part of the US.



Pic 3 Farewell party with JVH lab

2. Sweet home and family in Boston

During my internship, I stayed at a house in Watertown, Massachusetts. Amy Cook was the owner of the room and her family was very kind to me and we had several parties for Halloween, Thanksgiving, farewell and so on.



Pic 4 Farewell party with the Cooks

Her father, Richard also works at MIT's biopolymer lab as a staff for various high-performance liquid chromatography(HPLC) and mass spectrometers(MS), peptide synthesizers, etc. He is very proud of his laboratory. When I met him, every time he said, "We have great equipment such as A, B, C... I think there is something that can help with your project!" Unluckily, the day didn't come true, because I didn't need HPLC and MS instruments for research in MIT. However his lab tour and talks were really enjoyable and good experience.

3. Acknowledgement

Here, I would like to express my appreciation to Prof. Jeffrey van Humbeck for accepting my visit at MIT and also JVH lab members for their kind support and having productive discussions. Also I greatly appreciate JGP-CPIER program and JASSO for the financial support.