（別紙様式２）

フォトンサイエンス国際卓越大学院プログラム（XPS）

光科学特別実習　報告書

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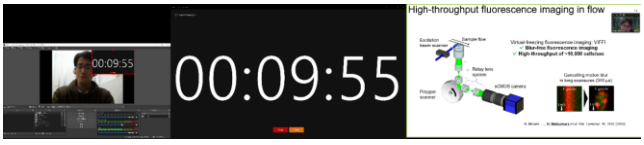
研究機関・企業名	The International Chemical Congress of Pacific Basin Societies 2021
日程	西暦 2021 年 12 月 16 日　～　西暦 2021 年 12 月 21 日

The purpose of Pacifichem is to promote information exchange and networking among researchers from the chemical societies of the Pacific Rim nations. Since the first meeting in 1984, Pacifichem has been held about every five years. Each chemical society of those countries hosts the meeting in turn. Specifically, the congress was hosted by the Chemical Society of Japan in 2005, the Canadian Society for Chemistry in 2010, the American Chemical Society in 2015, and the CSJ again in 2021. What is interesting about Pacifichem is that symposia from various research fields in chemistry are held together. The congress consists of 8 core topic areas such as analytical and inorganic chemistry and 7 application-oriented fields such as chemical biological and biomedical engineering. This time, 419 symposia were approved. All participants were allowed to join any of those symposia during the conference period, hence were expected to interact with people in fields they are not usually involved with.

The symposium where I gave my presentation was #38 “Next-Generation Cytometry: Technologies & Applications” in the Analytical section. I gave my oral presentation on my research titled “High-throughput on-chip imaging of diverse cancer cells in blood” (see Figures). In fact, in the preparation for this, it was already a good opportunity for me to wrap up my research result. Specifically, the significance of my study has become clear by structuring the storyline including the background of the research and discriminating my research from conventional ones. Furthermore, I improved my presentation in a mock talk that I gave with the help of my colleagues in the lab. I could refine the way to describe the research so that others could understand it easier.

In the actual presentation, I realized that discussing research topics with researchers from outside the lab is important because I got questions from the audience based on perspectives that I usually do not have. My report was about an imaging technique for cancer cells, and I received questions about basic knowledge related to the background rather than my experimental results themselves, and suggestions about experimental methods that I had never thought of. This experience was something that I could not have had during the preparation or during the mock talk in front of the lab members. Additionally, it was also interesting to compare my own research with those of others in the session. Although we basically discussed cell measurement technologies in the session (since it is a symposium about cytometry), those techniques were different from each other. Researchers had their own unique methods and extended the utility to various applications.

However, these experiences might have been more valuable if the conference had been held onsite. In fact, Pacifichem 2020 was scheduled to be hosted by CSJ but postponed for one year to prevent the spread of COVID-19. Originally, it was planned to be held in a



Figures. Top: The screenshot of tweet and quote-retweet on the participation to the Pacifichem session. Bottom: The screenshot I took during my own presentation.

hybrid format of onsite and online. However, in October 2021, it was suddenly decided to be held in a fully online format. As a result, the conference was an international conference with live participation. The biggest problem with this case is the setting of the time zone. This time all the presentations were scheduled based on Hawaii Standard Time (HST), so all participants around the Pacific Rim had to adjust their schedule to it. Specifically, those sessions were scheduled from 8:00 a.m. to 10:00 p.m. on each of six days. This corresponded to 3:00 a.m. to 5:00 p.m. in Japan Standard Time (JST) and 1:00 p.m. to 3:00 a.m. in the Eastern Standard Time (EST). With such a time schedule, it was very difficult to promote information exchange and networking and many adverse effects occurred.

My own presentation was no exception, and I gave it at a time that was inconceivable to my normal circadian rhythm. As a session host, I had to get prepared in the Zoom online room from 2:30 in the morning to chair the session I joined. The presentation and discussion started at 3:00 a.m. and I gave my own presentation at 4:00 a.m. The number of participants was very small, no more than 10 at most. If you search for Pacifichem on Twitter, you will find many tweets such as “I had to re-record my presentation and upload the video on Youtube because the audience was too small,” “I couldn’t attend the session that I was interested in because of the time shift. They have been all done overnight,” and so on. Thus, for the purpose of Pacifichem, which is to promote communication and networking among researchers, the online international conference format based on live participation was not appropriate.

Through these experiences, I knew that face-to-face discussions are irreplaceably important. However, if we can build some platform that solves this type of time zone problem, it will be a great innovation as a place to present and discuss science. The traditional format for attending an international conference is like this: obtaining a research grant to cover travel expenses, getting research results, applying to the conference, getting accepted, and finally, you can attend. If international conferences could be completed with only the Internet and participation fees, it is going to be much easier to join such conferences. In other words, what used to be a place where only researchers could have discussions would become a place where virtually anyone around the world could join, and science discussions would be available for everyone.