

変革を駆動する先端物理・数学プログラム (FoPM)

国外連携機関長期研修 報告書

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受入先	The University of Edinburgh (Statistical Physics and Complexity Webinar Series) The University of Edinburgh / Friedrich Schiller University Jena (Population Dynamics Seminars)
日程	2022年 10月 4日 ~ 2022年 12月 6日

During this International Research Experience, I participated in a total of eight online seminars from two seminar series, the "Statistical Physics and Complexity Webinar Series" and "Population Dynamics Seminars" in real-time. The speakers and titles of the seminars are listed below. The seminar in "Population Dynamics Seminars" by Hildegard Uecker, scheduled for November 14, 2022, has been postponed, so I attended the seminar by Maxime Ardré in November 17, 2022, which was added to the schedule instead. I have not had much experience joining seminars hosted by an institute abroad, and I was a bit nervous. However, once I participated, it did not matter where I was from, and it was not so different from the usual online seminars in my laboratory or university.

"Statistical Physics and Complexity Webinar Series" was, as expected, a good opportunity to listen to talks on a wide range of topics around my research field, soft matter. Many of them were on theoretical research and more mathematical than I had imagined. It was not easy to keep up with the seminar topics with which I was unfamiliar. Nevertheless, even when I could not follow the details completely, I was able to maintain my interest thanks to the interesting and beautiful images and graphs, especially like Camille Scalliet's talk. Because the presentation kept me attracted throughout, I could understand more via the entire talks and a Q&A session. I felt this eye-catching was a key point to keep the audience interested. I can use this when I give a presentation. Moreover, the seminar by Francesca Colaiori was also interesting because of the interaction between infectious diseases, which is an issue in the real world (especially nowadays).

"Population Dynamics Seminars" was more familiar to me, as the two seminars were both related to experiments. Wolfram Möbius gave a fascinating talk on spatially growing front like an expanding bacterial colony. He studied what happens when there are spatial structures with different growth speeds. After his talk, I asked him a rough question, but he seemed to enjoy responding to them. As I am still not very good at asking questions, I was very impressed that he kindly answered my questions, which I had not fully sophisticated.

I strongly feel that the fact that it has been extremely difficult to go on business trips abroad and even in Japan in these two years is indeed a painful loss, as I have finally been able to participate in more domestic on-site workshops recently. Although online communication should be sufficient to share information, talking, listening, and discussing directly with others is still enjoyable. I also get to know more people. I still wish we could have traveled to various places for the past two years. Nevertheless, it is one of the few good things that seminars have become online or hybridized all at once. As shown in Fig. 1, it is convenient to easily participate in seminars held by institutions abroad from home via my laptop. Although it is not as good as visiting the site in person, it was a good experience for me to listen to research presentations in a foreign research community that may have different expertise or trends. Having this access to many talks from around the world makes it easier to listen to authors of interesting papers. Although I expected it in advance, it was not easy to concentrate when attending the UK afternoon conference in real-time from Japan at midnight. For that reason, I wanted to go there. Some online seminar series kindly allow us to view recordings of talks and materials afterward. Using these as needed, I will continue to keep up to date with the research progress abroad, even while in Japan.

Statistical Physics and Complexity Webinar Series

(Institute for Condensed Matter and Complex Systems, School of Physics and Astronomy, The University of Edinburgh)

3:00-4:00, BST/GMT, Tuesday

- ✓ 2022/10/4 Camille Scalliet (DAMTP, University of Cambridge), "Thirty milliseconds in the life of a supercooled liquid",
- ✓ 2022/10/18 Francesco Mori (University of Oxford), "The run-and-tumble particle: from universal properties



Fig.1 “Going” abroad from my room with the laptop.

to nonequilibrium phase transitions”

- ✓ 2022/10/25 Sarah Loos (DAMTP, University of Cambridge), “Time-reversal symmetry broken fluctuations of nonequilibrium systems”
- ✓ 2022/11/08 Ginestra Bianconi (Queen Mary University London), “The dynamics of higher-order networks”
- ✓ 2022/11/29 Francesca Colaiori (Sapienza Università, Rome.), “Interacting epidemics”
- ✓ 2022/12/06 Ada Altieri (Laboratoire Matière et Systèmes Complexes, Université Paris Cité), “Marginal stability of the generalized random Lotka-Volterra model: logistic growth case and beyond”

Population Dynamics Seminars

Seminars about Quantitative Life-Science and Biophysics hosted by the group of Rosalind Allen
School of Physics and Astronomy – The University of Edinburgh

Friedrich Schiller University Jena

14:30-, BST/GMT, Friday

- 2022/10/14 ~~Hildegard Uecker (Max Planck Institute for Evolutionary Biology Plön)~~
- ✓ 2022/10/17 Maxime Ardré (Laboratoire Génétique de l’Evolution - ESPCI Paris), “A leader cell triggers end of lag phase in populations of *Pseudomonas fluorescens*”
- ✓ 2022/11/4 Wolfram Möbius (University of Exeter), “Geometry as a predictor for evolutionary dynamics of populations undergoing range expansions in fragmented environments”