Complex motion in fluids 2019 Summer School, Gilleleje, Denmark

The Queen Mary University of London Expeditions Fund 2018/19, allowed me to attend to the Complex motion in Fluids 2019 Summer School in Gilleleje, Denmark. The summer school was one week long and it left me with invaluable knowledge, memories and friends.

The summer School was held in Kysthusene (Fig. 1a), a resort 2 km outside the fishing village of Gilleleje situated at the north coast of Zealand, 60 km from Copenhagen. Kysthusene, had enough space to allow all the attendees to sleep in-site on small houses (Fig. 1b), while having a big conference room for the presentations and lectures. Moreover, the resort had very nice paths along the coast, a football pitch, volleyball court and a game room. This made everything very comfortable, giving time for discussion, presentations and having a good time from the start to the end of the day.

![Figure 1. a) Coast of Kysthusene; b) Accommodation in Kysthusene.](image)

The Summer School Started on Sunday, the day that most people arrived. After registration and some time to settle, the summer school started with an overview of the program and everyone signing “What a Wonderful World”. Afterwards there was an opening lecture of Christophe Clanet on the physics of sports. The lecture was on the performance of cyclists during the Tour de France and Olympic Swimming and how physics can help athletes to improve their competition times. Afterwards there was a poster session, where I had the opportunity to present my research. It was a very beneficial experience as I had very insightful discussions with prominent researchers and PhD students. The poster discussion extended for a couple of hours and that marked the end of the day.

The next day started with a 5 km morning group run along the coast of Gilleleje. At the end of the run some of us went in the sea to have a swim. After the run we were ready to start with a lecture from Prof. Francois Gallaire on instabilities and second order solutions to the equations commonly found in fluid dynamics. Later on the day a few contributed talks from PhD students. After lunch, we had two lectures, one from Prof. Doris Vollmer and Prof. Anders Andersen. In the former we learnt about the basics of wettability or how a droplet “sticks” into a solid surface. In the later we learnt about different strategies of feeding and swimming of microorganisms in water.
The activities of Tuesday were on the same tone as the ones of Monday. This day we learnt from Prof. Michael Baudoin the theoretical explanations on how to levitate and trap objects with acoustic waves; from Prof. Julia Yeomans we learnt how bacteria can form different structures similar to vorticity formed by turbulent flows; and from Prof. Thomas Laurer we learnt some applications of acoustofluidics in medicine. The day finished with a conference dinner, where I got to know more informally the people attending the conference.

On Wednesday we had a free day, therefore some of us decided to go to Hillerod, a town along the coast and not too far from the resort. There was the beautiful castle Frederiksborg Slotskirke (Fig. 2), and we walked around its gardens.

![Frederiksborg Slotskirke](image)

Figure 2.- Frederiksborg Slotskirke castle.

The next day we restarted with the lectures. The best lecture we had was given by Prof. David Queré, on superhydrophobicity. In his lecture he explained why some materials like the lotus leaf are able to repel water. That night there was another poster session. In this session I got the opportunity to see research done by other PhD students and ask questions and discuss.

On Friday Profs. David Queré, Michael Baudoin and Francois Gallaire, gave a second lecture continuing on the same topics that had presented before. The final day was Saturday closing with a very inspiring lecture from Eric Lauga on the description of physical and engineering systems with mathematical models.

Overall, attending the to the Complex motion in Fluids 2019 Summer School in Gilleleje, Denmark was one of the most rewarding activities that I have done during my studies. I learnt many useful tools for my PhD and I did some networking, while making a lot of friends in the process.