

Report on the Summer School in Finland

Dan Zhang

Department of Informatics
University of Bergen
Bergen, Norway

Dan.Zhang@uib.no

1 Information about the summer school

A summer school with the topic “Number Theory and Coding Theory: Contemporary Applications in Security” was organised by Åbo Akademi University, Turku, Finland from May 28 to June 1, 2018. There were four excellent mini courses and four special talks given by experts in the field. In addition, there were also some contributed talks by the summer school participants. To put it briefly, I really liked this summer school and had a great time in Turku.

More information about the summer school, including a detailed program and a full list of mini courses and talks, can be found on the summer school’s official website at <http://users.abo.fi/aernvall/summerschool2018>.

2 My experience at the summer school

The first thing that I would like to note about the summer school was that this was the first time that I attended an academic event supported by COINS that took place outside of Norway. I felt a great pleasure to attend the event with my COINS T-shirt, which I view as a symbol of Norway and of Norwegian universities. Compared with other participants who had a relatively hard process to get funding to travel for work, I felt much appreciation to COINS for giving me such a wonderful opportunity to freely travel for learning.

The second thing worth noting is that I really liked the topic of this summer school since it perfectly matched my research interests. I felt that I was both enjoying myself and learning at the same time. I also appreciate it that the organization did such a great job and made me feel really welcome there.

Finally, I gave my first talk as a PhD student in Turku. I spoke on the topic of “A construction of multiple optimal ZCZ sequence sets with good cross-correlation” where I presented some aspects of my research. It was a remarkable experience which encouraged me and made me think that I will do it even better in the future.

3 Some outcomes from the summer school

As already mentioned above, the topics of the summer school very closely matched my own research interests, and virtually of the talks and activities were very interesting for me. Below I highlight two talks and one mini course which I consider to have made the greatest impression on me.

One of my favourite talks was given by PD Dr. Karin Halupczok from the Heinrich-Heine-Universität. Her talk was about Number theory and touched on several topics, ranging from basic concepts, primes and algorithms to elliptic curves and cryptography. Thanks to her talk, I got an overview of number theory and learned about the latest progress on the application of number theory in cryptography.

Another fundamental mini course was on coding theory: it was a brief introduction to error control given by Marcus Greferath from Aalto University and University College Dublin. As the title suggests, it was a really nice brief introduction to the field which made coding theory much clearer for me.

The talk “Private information Retrieval: the coding theorems and fundamental limits” given by Qiwen Wang from KTH was also a very interesting and engaging and deserves to be mentioned. It was my first time to learn about the popular new topic of Private information Retrieval which is also related to coding theory.

