

Report for BFA 2019

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The 4rd International Workshop on Boolean Functions and their Applications (BFA) organized by Selmer Center, University of Bergen, was taken place in Florence, Italy during June 16-21, 2019. This workshop was dedicated to the 70th birthday of Claude Carlet and provided a forum for researchers who are working on discrete functions and structures, particularly on Boolean functions, to exchange ideas and interests in open problems, and to explore their applications in cryptography, error correcting codes and communications. More information about the BFA conference, including a detailed program and a full list of talks, can be found on the BFA's official website at <https://boolean.w.uib.no/bfa-workshops/bfa2019/>.

The conference was started by Tor Helleseth, who gave a talk about “Differential Spectrum of Non-binary Kasami Power Functions and Related Topics”. Functions with low differential uniformity have been extensively studied in recent years. These functions are of interest in cryptography, coding theory and sequence designs. Finding the complete differential spectra of permutation power functions is in general a much harder problem than just finding their differential uniformity. His talk gave the complete differential spectra of the well known Kasami functions over GF_{p^n} .

Later, more recent uses and problems on Boolean and vectorial functions were introduced by Claude Carlet. He talked about physical attacks and related problems on functions and codes, as well as fully homomorphic encryption and related questions on Boolean functions.

Another interesting talk was about planar functions and commutative semifields which was given by Robert Coulter. He gave an overview of where the classification of planar functions stands. After expanding on their connection with projective planes, he talked about commutative semifields, which leads to an examination of the strong isotopy problem, and other things.

I would like to thank COINS for supporting my travelling to this conference. I felt a great pleasure to attend the event with my COINS T-shirt. The topics of BFA conference are very close to my research interests. So the talks and activities were very interesting to me. It was a great conference and I had learned something new related with my own research.

