
GUANG GONG, University of Waterloo
Polynomials, Sequences and Complementary Codes

In this talk, I will present our recent results on how to recursively construct Golay complementary sequences (GCS) and complete complementary codes (CCC) using unitary matrices with polynomial entries (the so-called PU matrix method) and how to retrieve their multi-linear multivariate polynomial representation. In this way, we have constructed abundant new GCS/CCC and include all the known cases as our special cases. Especially, we have discovered an extremely fascinating hidden connection between these sequences and sequences with 2-level autocorrelation, which are two completely separate fields in the literature for more than 7 decades.