Abstract

Due to their ideal aperiodic correlation properties, Complementary Codes (CC) have found applications in multicarrier CDMA communication, PAPR control in OFDM system, orthogonal design, digital watermarking, and radar. In order to support more users in CC-CDMA communication, we have proposed a class of quasi-complementary codes (Q-CC) whose correlations take non-zero but low values within a window called low-correlation zone (LCZ). In this talk, I will introduce the constructions and correlation lower bounds for Q-CC. I will also discuss the modern applications of CC and Q-CC, as well as a few open problems.

Biography

Zilong LIU received B.Sc in School of Information and Electronic Engineering from Huazhong University of Science and Technology (HUST), and M.Sc in School of Electronic Engineering from Tsinghua University, China, in 2004 and 2007, respectively. Since July 2008, he has been with the School of Electrical and Electronic Engineering, Nanyang Technological University (NTU), Singapore, as a Research Associate. Before joining NTU, He worked as a digital IC design engineer in KTMicro (Beijing) for one year. He has also been pursuing PHD since August 2009 with Prof Yong Liang Guan. His research interests include sequence design with good correlation properties, error-correction codes, and physical layer design for wireless communication system. He has practical physical layer design experiences in OFDM, FM-RDS, and ZCZ-CDMA systems.