

Abstract

In this talk, we present the structural properties of skew constacyclic codes over a composite ring. A Gray map preserving Hermitian orthogonality is defined from the composite ring to the corresponding finite field. Furthermore, we derive a necessary and sufficient condition for skew constacyclic codes over this composite ring to be linear complementary dual (LCD). Some LCD codes are then obtained via the Gray images of Hermitian LCD skew constacyclic codes. We also enumerate such Hermitian LCD skew constacyclic codes over the finite non-chain ring. Finally, using the above results on these Hermitian LCD skew constacyclic codes, we utilize the Gray map to construct entanglement-assisted quantum error-correcting codes (EAQECCs) with maximum entanglement.