

Abstract

In an effort to search for a new binary two-level autocorrelation sequence, the decimation-Hadamard transform (DHT) based on special classes of known binary sequences with two-level autocorrelation is investigated. It is theoretically proved that some realizations of a binary generalized Gordon-Mills-Welch (GMW) sequence can be predicted from the structure of subfield factorization and the realization in its subfield. Furthermore, it is shown that the realization of any binary two-level autocorrelation sequence with respect to a quadratic residue (QR) sequence is either a QR sequence or the sequence itself.