

Abstract

Generalized quasi-cyclic (GQC) codes are an important class of linear codes in coding theory. In this paper, we study some structural properties of GQC codes over \mathbb{Z}_4 including the normalized generating set, the minimum generating set and the normalized generating set of their dual codes. As an application, some new \mathbb{Z}_4 -linear codes and good binary nonlinear codes are constructed from GQC codes over \mathbb{Z}_4 .