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Skew Generalized Quasi-Cyclic Codes

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In this article we introduce skew generalized quasi-cyclic codes over finite field F with Galois automorphism θ . This is a generalization of quasi-cyclic codes and skew polynomial codes.

These codes have an added advantage over quasi-cyclic codes, since the length of the code C need not be a multiple of the index of C . After a brief description of the skew polynomial ring $F[x; \theta]$, it is shown that a skew generalized quasi-cyclic code C is a left submodule of $R_1 \times R_2 \times \cdots \times R_l$, where $R_i = F[x; \theta]/(x^{m_i} - 1)$, $|\langle \theta \rangle| = m$ and $m | m_i$ for all $i = 1, \dots, l$. This method provides a direct construction of many codes with best known parameters over $GF(4)$.

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