

Abstract

Canonization of linear Codes over \mathbb{Z}_4

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Two linear codes $C, C' \leq \mathbb{Z}_4^n$ are equivalent if there is a permutation $\pi \in S_n$ of the coordinates and a vector $\varphi \in \{1, 3\}^n$ of column multiplications such that $(\varphi; \pi)C = C'$.

We will present a new algorithm that is able to calculate a uniquely defined representative within the equivalence class of a given code. The method is based on the partition and refinement idea (see B. McKay's famous program *nauty* for the calculation of canonically labeled graphs). A byproduct of this algorithm will be the automorphism group of the given code.