

1112-94-651

Jay A. Wood* (jay.wood@wmich.edu), Department of Mathematics, Western Michigan University, 1903 W. Michigan Ave., Kalamazoo, MI 49008. *Isometry Groups of Additive Codes.*

A classical result of MacWilliams says that any linear isometry with respect to the Hamming weight of a linear code over a finite field must extend to a monomial transformation. This result fails to hold for additive codes over non-prime finite fields.

Given two subgroups $H_1 \subseteq H_2$ of $GL(m, \mathbb{F}_p)$ (subject to some natural necessary conditions), there exists an additive code C over \mathbb{F}_q , $q = p^\ell$, $\ell \geq 2$, with $\dim_{\mathbb{F}_p} C = m$, such that the group of Hamming isometries of C is H_2 , but only those isometries belonging to H_1 extend to monomial transformations. For example, the result applies to the minimal possible $H_1 = \{\alpha \cdot I_m : \alpha \in \mathbb{F}_p^\times\}$ and maximal $H_2 = GL(m, \mathbb{F}_p)$. (Received August 11, 2015)