

Meeting: 1001, Evanston, Illinois, SS 5A, Special Session on Codes and Applications

1001-05-103 **Xiang-dong Hou*** (xhou@math.usf.edu), Department of Mathematics, University of South Florida, Tampa, FL 33620. *Enumeration of $\text{AGL}(\frac{m}{3}, \mathbb{F}_{p^3})$ -Invariant Extended Cyclic Codes.*

Let p be a prime and let r, e, m be positive integers such that $r|e$ and $e|m$. The enumeration of linear codes of length p^m over \mathbb{F}_{p^r} which are invariant under the affine linear group $\text{AGL}(\frac{m}{e}, \mathbb{F}_{p^e})$ is equivalent to the enumeration of certain ideals in a partially ordered set (\mathcal{U}, \prec) where $\mathcal{U} = \{0, 1, \dots, \frac{m}{e}(p-1)\}^e$ and \prec is defined by an e -dimensional simplicial cone. When $e = 2$, the enumeration problem was solved in an earlier paper. In this talk, we consider the cases $e = 3$. We describe methods for enumerating all $\text{AGL}(\frac{m}{3}, \mathbb{F}_{p^3})$ -invariant linear codes of length p^m over \mathbb{F}_{p^r} . (Received August 17, 2004)