

PARAMETERIZED CODES AND VANISHING IDEALS OVER GRAPHS

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ABSTRACT

Let X be an algebraic toric set in a projective space over a finite field. We study the vanishing ideal $I(X)$ and give an explicit combinatorial description of a set of generators of $I(X)$, when X is the algebraic toric set associated to an even cycle. We also introduce to notion of a parameterized code arising from connected graph. We are able to show a formula for the length of the parameterized linear code associated with any graph, in terms of the number of bipartite and non-bipartite components.