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Rafael H. Villarreal* (vila@math.cinvestav.mx), CINVESTAV-IPN, Departamento de Matemáticas, Apartado Postal 14-740., 07000 Mexico D.F., Mexico. *Vanishing ideals of sets parametrized by monomials.*

Let $K = \mathbb{F}_q$ be a finite field and let X be a subset of a projective space \mathbb{P}^{s-1} , over the field K , which is parameterized by monomials. We study the degree and the regularity of $I(X)$, the vanishing ideal of X , and show that in certain cases one can give explicit formulas for these invariants. The main cases we consider are when X is parameterized by the edges of a graph or when X is parametrized by monomials of the form $t_1^{v_1}, \dots, t_n^{v_n}$ (in the second case, X is a degenerate torus and $I(X)$ turns out to be closely related to the toric ideal of a certain monomial curve that depends on the field K). The motivation to study these invariants comes from algebraic coding theory. (Received August 04, 2012)