1046-11-311 **Adriana Julia Salerno*** (asalerno@math.utexas.edu), 3202 Grooms St Apt G, Austin, TX 78705. *Rational Points and Hypergeometric Functions.*

We study the number of $\mathbb{F}_q$-rational points $N(\lambda)$ of a hypersurface in $P^{n-1}_{\mathbb{F}_q}$ defined by the equation

$$x_1^d + \cdots + x_n^d = d\lambda x_1^{h_1} \cdots x_n^{h_n}$$

where $d|q-1$, $h_1 + \cdots + h_n = d$ and $g.c.d.(d, h_1, \ldots, h_n) = 1$. We find that $N(\lambda)$ is the finite field version of a hypergeometric function, and we explore the possibility that hypergeometric functions may always appear when counting points. (Received September 11, 2008)