1077-13-583　　　　　**Eddy Campbell** and **Jianjun Chuai*** (`jchuai@unb.ca`), Department of Mathematics and Statistics, University of New Brunswick, Fredericton, NB E3B 5A3, Canada. *Finding generators for the vanishing ideal of a finite set of points.*

Let k be a field of characteristic $p > 0$ and let W be a finite additive subgroup of k^n. Further, let $I(W) \subset k[x_1, x_2, \ldots, x_n]$ be the vanishing ideal of W. Then $I(W)$ is generated by n elements. Using Invariant Theory, we give an algorithm for finding these generators. Our result also shows that these generators are even linear combinations of powers of the variables. (Received September 07, 2011)