1024-13-33 **Mohammed Tesemma** and **Haohao Wang*** (hwang@semo.edu), Math Department, MS6700, One University Plaza, Cape Girardeau, MO. *Archimedean Orders on Certain Ring of Invariants.*

Using the classification of *admissible orders* on Z^n by Robbiano, we study *initial algebras* of the ring of *multiplicative invariants*, $k[x_1^{\pm 1}, \ldots, x_n^{\pm 1}]^G, k$ a field, and $G \leq GL_n(Z)$. We show that, if G is a reflection group then the initial algebra of the invariant ring $k[x_1^{\pm 1}, \ldots, x_n^{\pm 1}]^G$ w.r.t. any admissible order, $\succeq$, can be represented by an Archimedean order, " $\succeq_{\mathbf{u}}$ ", for some $\mathbf{u} \in R^n$ of rational dimension n. Finally, we will give an example of non-reflection group where the above result does not hold. (Received December 18, 2006)