1023-13-1309 **Mohammed Tesemma*** (mtesemma@spelman.edu), Spelman College, 350 Spelman Lane SW, Box 376, Atlanta, GA 30314, and **Haohao Wang**. *Monomial orders on certain ring of invariants.* Preliminary report.

Let G be a finite subgroup of $\mathrm{GL}_n(\mathbb{Z})$ acting *multiplicatively* on $k[\mathbf{x}^{\pm 1}]$ in n variables over a filed k. Consider the ring of multiplicative invariants, $k[\mathbf{x}^{\pm 1}]^G = \{f \in k[\mathbf{x}^{\pm 1}] \mid \sigma(f) = f, \ \forall \sigma \in G\}$. For each *monomial order*, $\succeq$, on $\mathbb{Z}^n$, the *initial algebra* of $k[\mathbf{x}^{\pm 1}]^G$ is the monomial algebra generated by the leading monomial of each invariant polynomial. We will show that any initial algebra of $k[\mathbf{x}^{\pm 1}]^G$ can be represented by certain archimedean orders provided that the group G is generated by a reflections. An example for the case of non-reflection groups will also be presented. (Received September 25, 2006)