1018-17-101 **Fernando Levstein***, FaMAF-Ciudad Universitaria, Medina Allende y Haya de la Torre, 5000 Cordoba, Cordoba, Argentina, and **Carolina Maldonado** and **Daniel Penazzi**. *Norton algebras attached to Weyl group quotients.* Preliminary report.

Let W be a Weyl group and S a set of fundamental reflections of W. Let $X \subseteq S$ be a maximal proper subset of S, $W_X \subseteq W$ the subgroup generated by X. Then $\Omega = W/W_X$ carries a W-invariant distance $d : \Omega \times \Omega \mapsto \mathbb{Z}$ that takes on all the values $m \in \{0, ..., |W_X \backslash W/W_X|\}$. We consider the operator $\Delta : L^2(\Omega) \mapsto L^2(\Omega)$ given by $(\Delta f)(x) = \sum_{y:d(x,y)=1} f(y)$. Then $L^2(\Omega) = \oplus_\lambda V_\lambda$, where the V_λ's are the eigenspaces of Δ. Each V_λ carries a Norton algebra structure as follows: $f \star g = \pi_\lambda(fg)$ where $\pi_\lambda : L^2(\Omega) \mapsto V_\lambda$ is the orthogonal projection and $fg(x) = f(x)g(x)$.

Paul Terwilliger suggested us to consider the problem of finding a "nice" basis for $(V_\lambda, \star)$. He had done this for $W = S_n$. In that case the product of two basis elements is extremely easy to compute. In the case $W = S_n \propto \mathbb{Z}_2^n$ we find a linearly generating set B for V_λ whose products are easily computable and behaves like an orthogonal basis for projections onto V_λ, that is, $\pi_\lambda(v) = c \sum_{x \in B} < v, x > x$ for some constant c. (Received March 01, 2006)