1002-52-171 **Jim Lawrence*** (`lawrence@gmu.edu`), Department of Mathematical Sciences, 4400 University Drive, Fairfax, VA 22030-4444. *Multiplication in the Polytope Groups.*

There are several ways to introduce binary operations on the additive group of simple functions generated by indicator functions of polyhedra in R^d, giving the group the structure of a commutative ring. Some of these rings carry a strong geometrical flavor. As evidence of this we consider several, sometimes well-known, geometrical decompositions which arise from identities in the rings. (Received September 13, 2004)