1007-16-124 **Martin Lorenz*** (`lorenz@math.temple.edu`), Department of Mathematics, Temple University, Philadelphia, PA 19122. *On the Cohen-Macaulay property of multiplicative invariants.*

Multiplicative actions of a finite group G, by definition, are G-actions on Laurent polynomial algebras $k[x_1^{\pm 1}, \ldots, x_n^{\pm 1}]$ that stabilize the multiplicative group consisting of all monomials in the variables x_i. We will concentrate on the case where the base ring k is $\mathbb{Z}$. Our main result states that if G acts non-trivially and the invariant ring $\mathbb{Z}[x_1^{\pm 1}, \ldots, x_n^{\pm 1}]^G$ is Cohen-Macaulay then the abelianized isotropy groups of all monomials are generated by the bireflections and at least one of these groups is non-trivial. As an application, we prove the multiplicative version of Kemper's 3-copies conjecture. Various open problems will also be discussed. (Received February 15, 2005)