1067-12-1494   **Paul Baginski*** (`baginski@gmail.com`), Institut Camille Jordan, Batiment Braconnier, Universite Claude Bernard Lyon 1, 69622 Villeurbanne, France, and **K. Grace Kennedy** (`kgracekennedy@gmail.com`), University of California, Santa Barbara, Santa Barbara, CA 93106. *Factorization Techniques for Numerical Semigroup Rings.*

Given a ring, $(R, +, \cdot)$, and a semigroup, $(S, +)$, one can construct a new ring, $R[S]$, called the semigroup ring. This ring generalizes the standard polynomial ring $R[X]$. Semigroup rings have been studied extensively, especially in the case where R is the integers or a field. The semigroup ring, in an intuitive sense, carries some of the factorization structure of S, but due to the interaction with R, one often gets new behavior for factorization. We will be concerned with the particular case where S is a numerical monoid. In this case, the factorization properties of the semigroup ring can be viewed as a combination of the factorization properties of the numerical monoid S and those of another monoid B, the block monoid over a particular abelian group. We will discuss the utility of this viewpoint, by considering how longest factorizations of elements can be estimated in terms of factorizations performed within B and S separately. (Received September 21, 2010)