1003-13-729 **Moira A. McDermott*** (`mmcdermo@gac.edu`), **Craig Huneke** and **Paul Monsky**.
Hilbert-Kunz functions of normal local rings.

This talk will report on work, joint with Craig Huneke and Paul Monsky, regarding the existence of a second coefficient in the Hilbert-Kunz function of an m-primary ideal in a normal local ring of positive characteristic. In particular, let (R, m, k) be an excellent, local, normal ring of characteristic p with a perfect residue field and $\dim R = d$. We let n be a varying non-negative integer and let $q = p^n$. If I is an m-primary ideal of R, and M is a finitely generated R-module, then there exists a real number b such that the length of $M/I^{[q]}M$ can be written as $aq^d + bq^{d-1} + O(q^{d-2})$. (Received September 28, 2004)