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Aba Mbirika* (ambirika@bowdoin.edu) and **Julianna Tymoczko**. *Truncated symmetric functions with an application to generalized Springer theory.*

Symmetric functions are polynomials in the ring $\mathbb{Z}[x_1, x_2, \dots, x_n]$ that are fixed by a natural action of the symmetric group \mathfrak{S}_n on the variables $\{x_1, x_2, \dots, x_n\}$. Truncated symmetric functions, on the other hand, are polynomials symmetric in a subset of these variables. The main objects of our interest are truncated elementary symmetric functions (TESF) and truncated complete symmetric functions (TCSF). In this talk, we give a number of identities involving these functions and a remarkable identity relating TESF to TCSF. From the family of TESF, we construct ideals that generalize the Tanisaki ideal which arises in Springer theory. From the family of TCSF, we build Gröbner bases for this family of generalized Tanisaki ideals. The corresponding polynomial quotient rings easily yield the Betti numbers for the cohomology rings of an important generalization of the Springer variety, called regular nilpotent Hessenberg varieties. (Received July 31, 2011)