1089-20-170   **Eric Marberg*** (emarberg@math.mit.edu). *Combinatorics of the unipotent characters of a finite Coxeter system.*

To each finite, irreducible Coxeter system (W, S), Lusztig has associated a set of "unipotent characters" $\mathrm{Uch}(W)$. When (W, S) is crystallographic, $\mathrm{Uch}(W)$ arises from Lusztig's set of unipotent representations of a corresponding finite reductive group, though for non-crystallographic Coxeter groups the definition of $\mathrm{Uch}(W)$ is heuristic. By construction, $\mathrm{Uch}(W)$ always contains as a subset the set $\mathrm{Irr}(W)$ of complex irreducible characters of W. However, we typically view the elements $\mathrm{Uch}(W)$ not as characters but simply as formal objects with a few defining attributes. In this short talk I will give Lusztig's definition of the set $\mathrm{Uch}(W)$ for each finite Coxeter system, and review the combinatorial indexing sets for these objects which generalize the better known sets of partitions and bipartitions labeling the irreducible characters of the classical Weyl groups. As motivation for why one should care (more) about these things, I'll outline a surprising way in which several different types of heuristic data attached to $\mathrm{Uch}(W)$ interact to describe the irreducible multiplicities of a natural W-representation. (Received February 13, 2013)