1064-05-145   **Kari Ragnarsson*** (`kragnars@math.depaul.edu`), 2320 N Kenmore Avenue, Chicago, IL 60614, and **Bridget E. Tenner**. *The boolean complex of a Coxeter system.*

In joint work with Bridget Tenner we have investigated the topological and combinatorial properties of the boolean complex of a Coxeter system. The boolean complex of a Coxeter system is a regular cell complex which can be constructed using just the (unlabeled) Coxeter graph. We show that the complex is homotopy equivalent to a wedge of spheres, each of dimension one less than the Coxeter system. The number of spheres can be calculated recursively using edge operations on the Coxeter graph and can be regarded as a graph invariant, called the boolean number. We obtain a bijective correspondence between a basis for the homology of the boolean complex and a certain set of derangements of the generators in the Coxeter system. This gives a combinatorial meaning to the spheres in the wedge sum representing the homotopy type of the Boolean complex and explains an enumerative result previously obtained by Reiner and Webb. (Received September 05, 2010)