1106-20-2597 **Briana Foster-Greenwood*** (fostbria@isu.edu) and **Cathy Kriloff** (krilcath@isu.edu).
Distance Spectra of Cayley Graphs of Complex Reflection Groups.

We consider Cayley graphs of complex reflection groups with vertices labeled by group elements and edges corresponding to multiplication by any reflection in the group. Extending the work of P. Renteln for real reflection groups to all finite complex reflection groups, we show the distance matrix (recording lengths of shortest paths between any two group elements) has all integer eigenvalues. The key representation theoretic perspective from the real case persists, but in the general complex case, a discrepancy between geometry (codimension of fixed point spaces) and group structure (reflection length) prompts an analysis of reflection-preserving group automorphisms, and, in a finite number of cases, computer calculations with the software GAP. (Received September 16, 2014)