1030-05-184 **William J Martin*** (`martin@wpi.edu`), Department of Mathematical Sciences, 100 Institute Road, Worcester Polytechnic Institute, Worcester, MA 01609. *Cometric association schemes with the Q-antipodal property.* Preliminary report.

Let $(X, \mathcal{R})$ be a *cometric association scheme* with basis relations $\mathcal{R} = \{R_0, R_1, \ldots, R_d\}$, minimal idempotents $\{E_0, \ldots, E_d\}$, and *Krein parameters* $q_{i,j}^k$ $(0 \le i, j, k \le d)$ defined by the equations

$$E_i \circ E_j = \frac{1}{|X|} \sum_{k=0}^{d} q_{i,j}^k E_k$$

($\circ$ denotes the entrywise product of matrices) and satisfying the Q-polynomial condition:

- $q_{i,j}^k = 0$ whenever $k > i + j$, and
- $q_{i,j}^k > 0$ whenever $k = i + j \le d$.

Such a cometric scheme is *Q-antipodal* if $q_{1,j+1}^{j} = q_{1,d-j-1}^{d-j}$ except possibly for $j = \lfloor \frac{d}{2} \rfloor$. Examples include bipartite Q-polynomial distance-regular graphs as well as linked systems of symmetric designs. In this talk, I will survey further examples of Q-antipodal schemes and give an update on the study of their parameters. In particular, I will present an infinite family of 4-class schemes discovered by D. Higman as well as schemes arising in work of van Dam and Muzychuk such as those coming from some hemisystems in generalized quadrangles which were recently discovered by Cossidente and Penttila. (Received August 01, 2007)