1078-94-216   **Fabian Y.C. Lim*** (`flim@mit.edu`) and **Manabu Hagiwara**. *Towards Delserte-type upper bounds on permutation code sizes for the Kendall-Tau distance metric.* Preliminary report.

In this talk, I will discuss Delserte-type upper bounds for permutation code sizes with respect to the Kendall-Tau distance, i.e. the minimum number of adjacent transpositions needed to go between permutations. We look at the coherent configurations that result from symmetries of this particular distance metric. By stipulating a set of possible distances between permutations, these coherent configurations lead to optimization problems that deliver upper bounds on code sizes. In general, computing these upper bounds requires consideration of optimization constraints that enforce positive semidefinitness on certain related matrices. As compared with optimization problems considered by Delserte (in his seminal work on binary codes), the problems here are harder to deal with. I will talk about a particular simplification of these problems that lead to weaker upper bounds; this simplification modifies the positive semidefiniteness constraints into more manageable linear constraints. I will discuss the strength of this particular technique, as well as directions for future improvements. (Received December 10, 2011)