1060-05-33   **Eddie Cheng** (`echeng@oakland.edu`), Dept. of Mathematics and Statistics, Oakland University, Rochester, MI 48309, **Ke Qiu** (`kqiu@brocku.ca`), Dept. of Computer Science, Brock University, St. Catharines, Ontario L2S 3A1, and **Zhizhang Shen*** (`zshen@plymouth.edu`), Dept. of Computer Science and Technology, Plymouth State Univestiy, Plymouth, NH 03264. *The Number of Shortest Paths in the (n, k)-Star Graphs.* Preliminary report.

Given a graph G, a well-known problem is to find *the number of the shortest paths* between a pair of vertices in G. A solution to this counting problem can serve as an important topological property for an interconnection network in terms of strong connectivity, effective fault-tolerance, lower communication cost and desired routing flexibility.

It turns out that the number of the shortest paths between v and e_k in an (n, k)-star graph equals the number of minimum factorizations of v in terms of (n, k)-star transpositions, which we enumerate in this talk. (Received February 26, 2010)