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Dennis M Roseman* (roseman@math.uiowa.edu), B1J MacLean Hall, Department of Mathematics, University of Iowa, Iowa City, IA 52242-1419. *Geometric generation of permutation sequences*. Preliminary report.

We discuss certain methods of geometrically generating sequences of permutations and families of such sequences based on the geometry of the n -dimensional permutahedron. The basic idea is to discretize generic polygonal paths using the real braid arrangement. Focus of the talk will be on certain polygonal paths which might be described as bouncing a light beam inside a mirrored (high-dimensional) permutahedron. Calculations can be done very fast even for permutations of high order. We also discuss ways of visualizing this process. (Received January 22, 2009)