

# Stembridge codes and Permutohedral varieties

Hsin-Chieh Liao

*University of Miami*

The Eulerian polynomial is a classic and important polynomial in combinatorics. It is well known that the Eulerian polynomial has a geometric connection in terms of the Hilbert series of the cohomology of the permutohedral variety. In this talk, we answer a question of Stembridge on finding a geometric explanation of the permutation representation this cohomology carries. Our explanation involves an  $\mathfrak{S}_n$ -equivariant bijection between a basis for the Chow ring of the Boolean matroid and codes introduced by Stembridge. If there is enough time, I will briefly describe a parallel story of the stellohedral variety.