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**Title:** Toric permutations and pattern avoidance

**Abstract:** Usually when one studies pattern avoidance of permutations one fixes a particular pattern and counts the permutations that avoid the pattern. In this talk we will study the same counting problem when permutations are placed into equivalence classes with respect to toric equivalence. Then the sizes of the classes that entirely avoid a pattern are added up. This leads to some new and interesting counts.

We will focus on two bivincular versions of the classical pattern 213. The permutations that lie in avoiding classes are counted with Euler's  $\phi$  function and  $d(n)$  — the number-of-divisors function. This gives some interesting connections between pattern avoidance and number theory.