MANY CHEERFUL FACTS

presents

Pattern Avoidance in Permutations

a talk by Cynthia Vinzant

12:10 – 13:00 on Wednesday, February 13, in room 1015.

We'll explore how a permutation can structurally contain or avoid another. For example, the permutation 456123 contains 231 (its 463 forms a copy) but avoids 132. This gives an equivalence relation on permutations, introduced by Herb Wilf in the 1980's. So we say two permutations are Wilf-equivalent if they are equally restrictive, that is, the same number of larger permutations avoid them. We'll go over some basic results and give combinatorial proofs to the first non-trivial Wilf-equivalence and its extension to a more general result.

I am the very model of a modern Major General,
I've information vegetable, animal, and mineral,
I know the kings of England, and I quote the fights historical
From Marathon to Waterloo, in order categorical;
I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse!

— Gilbert & Sullivan, $P \circ P$

The website for Many Cheerful Facts is
`http://math.berkeley.edu/~mcf/`