

Archived Colloquia

2006/07

October 24, 2006: Herbert Wilf (University of Pennsylvania)

Title: *Mathematics: An Experimental Science* ([Flyer](#))

Abstract: We'll discuss some recent results that were conjectured via computer experiments and then proved. The examples will be drawn from number theory, Young tableaux, determinant evaluation, theory of matrices of 0's and 1's, etc. Several unsolved problems that also resulted from these studies will be presented.

November 3, 2006: John Stillwell (University of San Francisco)

Title: *Yearning for the Impossible* ([Flyer](#))

Abstract: Many of the most important concepts in mathematics were once thought to be impossible; for example, irrational and imaginary numbers, infinitesimals, points at infinity, the fourth dimension, and curved space. Thus it seems that "yearning for the impossible" can be fruitful, but why? Kolmogorov once wrote (in his diary, 14 September, 1943):

At a given moment there is only a fine layer between the "trivial" and the impossible. Mathematical discoveries are made in this layer.

This talk will review some of the close encounters with the impossible on which mathematics thrives, with illustrations of the "impossible" in the art of Escher, Magritte, and others.

February 26, 2007: Carl Pomerance (Dartmouth College)

Title: *Prime Time for Primes* ([Flyer](#))

Abstract: As old as Euclid, prime numbers have recently started to yield their secrets. Mathematicians from California to India and elsewhere have shown us that primes regularly fall into strict patterns, they display unusual "clumping," and they are computationally easy to detect. While many mysteries remain, it does seem that this first decade of the new millennium is indeed a prime time for primes.

March 16, 2007: Michael Orrison (Harvey Mudd College)

Title: *Voting from an Algebraic Perspective* ([Flyer](#))

Abstract: If the results of your election procedure can be realized as a matrix-vector product, then linear algebra can probably say something interesting about the way you are voting. In this talk, I'll describe some of the recent work that my students and I have been doing to better understand voting and voting paradoxes from an algebraic perspective. In particular, I'll talk about the interesting (and very natural) role that the symmetric group has played in our work to date.

This is joint work with Zajt Daugherty, Alex Eustis, Marie Jameson, and Greg Minton.

April 13, 2007: Donald Saari (UC Irvine)

Title: *Mathematics of Voting Rules; Why Your Last Election Outcome Was So Lousy!* (Flyer)

Abstract: During the French revolutionary days of the late eighteenth century, the mathematicians Borda and Condorcet discovered that the choice of a voting rule can significantly change the election outcome; this was the birth of the mathematics of voting. The issue for the last couple of centuries is to understand why all of those paradoxes can occur and to use this information to determine which rule is the "best". This problem has only recently been solved by use of mathematics. During this lecture, where some people will leave worrying whether the "wrong person", or "calculus book," was selected during their last election, I will indicate what was done and what it means.