JOSEPH FELS RITT LECTURES

BENSON FARB
UNIVERSITY OF CHICAGO

"Permutations and Polynomiality in Algebra and Topology"

Thursday, December 15, 2011 at 4:30 pm; 312 Mathematics Hall

In this talk I will consider sequences of integers a_n arising from various parts of mathematics: from configuration spaces to Lie algebras to spaces of polynomials and more. My goal will be to describe a single underlying structure from which one can deduce that for each of these sequences (and many more) there is a polynomial P with $a_n = P(n)$ for all n big enough. This structure is the "second generation" of my previous work with Church on "representation stability." This is joint work with Tom Church and Jordan Ellenberg.

"Hidden Symmetry"

Friday, December 16, 2011 at 4:30 pm; 312 Mathematics Hall

Which closed Riemannian manifolds M have symmetry? Any symmetry of M lifts to its universal cover, so a more general question is: which covers have a nontrivial amount of symmetry? The first goal of this talk will be to describe my theorem with Shmuel Weinberger which classifies all such aspherical manifolds. The second goal of this talk will be to explain how this classification theorem can be used to solve seemingly unrelated questions in Riemannian geometry, complex geometry, and Teichmuller theory.