Fall 2009
University of Michigan-Department of Mathematics
http://www.math.lsa.umich.edu/seminars/index.shtml
Ann Arbor, MI 48109-1043
November 23rd – November 29th

Monday, November 23

2:10-3:00pm **Topics in Algebraic Geometry** --- TBA --- 3866 EH
3:10-5:00pm **Group Theory/Lie Theory/Number Theory Seminar** --- Alexei Oblomkov (UMass Amherst) *Gromov-Witten/Donaldson-Thomas correspondence with descendants* --- 4096 EH
4:10-5:00pm **Several Complex Variables and Complex Dynamics Seminar** --- Dennis Eriksson (University of Gothenburg) *Hilbert polynomials in line bundles* --- 3096 EH
4:10-5:00pm **Student Combinatorics** --- Not meeting this week --- 3866 EH
4:10-6:00pm **Geometry & Physics** --- (Joint seminar with GLNT. See 3:00-5:00pm listing above)
5:15-6:30pm **Teaching Mathematics** --- Keith Weber (Rutgers University) *Understanding Mathematical Proofs* --- 3096 EH

Tuesday, November 24

2:10-3:00pm "**What is … " Seminar** --- Not meeting this week --- 3096 EH
3:10-4:00pm **Algebra Seminar** --- Thomas Lam (UM) TBA --- 3096 EH
3:10-4:00pm **Student Geometry/Topology** --- Robin Lassonde (UM) *Groups acting on Trees* --- 4096 EH
4:10-5:00pm **Colloquium ---** Not meeting this week --- 1360 EH

Wednesday, November 25

3:10-4:00pm **Student Arithmetic Seminar** --- Not meeting this week --- 3866 EH
3:10-4:00pm **Geometric Function Theory Seminar** --- TBA --- 4096 EH
4:10-6:00pm **RTG Study Seminar** --- TBA --- 4096 EH
4:10-6:00pm **Algebraic Geometry Seminar** --- Not meeting this week --- 3088 EH
4:10-5:00pm **Student AIM Seminar** --- TBA --- 3866 EH
4:30-6:00pm **Logic Seminar** --- Not meeting this week --- 3096 EH

Thursday, November 26

12:00-1:00pm **Mathematical Biology Seminar** --- Not meeting this week --- 4096 EH
3:10-4:00pm **Commutative Algebra Seminar** --- Not meeting this week --- 3096 EH
3:10-4:00pm **Topology Seminar** --- Not meeting this week --- 4096 EH
4:10-5:00pm **Financial/Actuarial Mathematics Seminar** --- Not meeting this week --- 3088 EH
4:10-5:00pm **Differential Equations** --- Not meeting this week --- 4088 EH
4:10-5:00pm **Math Club** --- Not meeting this week --- 2nd floor Nesbitt Common Room

Friday, November 27

10:30-11:30am **Theoretical Computer Science Seminar** – Not meeting this week --- 3941 CSE
3:10-4:00pm **Applied and Interdisciplinary Mathematics Seminar** --- Not meeting this week --- 1084 EH
3:10-4:00pm **Intersection Theory Study Seminar** --- Not meeting this week --- 3866 EH
3:10-4:00pm **Geometry Seminar** --- Not meeting this week --- 3096 EH
4:10-5:00pm **Combinatorics** --- Not meeting this week --- 3866 EH

UPCOMING EVENTS

Marjorie Lee Browne Colloquium

January 18, 2010
Rodrigo Bañuelos
Purdue University

Michigan Conference on Topology and Physics

Feb 6-7, 2010

Rainich Lectures

March 16, 17, 18, 2010
Terence Tao
UCLA

2010 Distinguished University Professorship Lecture

Tuesday, April 6, 2010 – 4:00-5:00pm
Rackham Amphitheatre
William Fulton
Professor of Mathematics

ABSTRACTS FOR THE WEEK OF NOVEMBER 23 – NOVEMBER 29, 2009

Group Theory/Lie Theory/Number Theory Seminar
Monday, November 23, 3:10-5:00pm
4096 EH
Alexei Oblomkov (UMass Amherst)
Gromov-Witten/Donaldson-Thomas correspondence with descendants

In my talk I will state an exact conjecture relating Gromov-Witten invariants with descendants to Donaldson-Thomas invariants with descendants. The conjecture is proven in the case of P^1 fibrations over K3 surfaces. I will also discuss interesting representation-theoretic structures which appear in the correspondence. The talk is based on joint paper with Okounkov and Pandharipande.

Several Complex Variables and Complex Dynamics Seminar
Monday, November 23, 4:10-5:00pm
3096 EH
Dennis Eriksson (University of Gothenburg)
Hilbert polynomials in line bundles

The determinant of the cohomology of smooth varieties is known by Knudsen-Mumford to satisfy certain Hilbert-polynomial type behaviour. I will discuss the "coefficients" of the Hilbert polynomial in line bundles and describe them in terms of generalized Deligne products as well as how they can be metrized, giving a relation to the Quillen metric. Parts of this talk will be work in progress.

Teaching Mathematics
Monday, November 23, 5:15-6:30pm
3096 EH
Keith Weber (Rutgers University)
Understanding Mathematical Proofs

Proof is widely recognized as a central activity in mathematical practice that should play an important role throughout the mathematics curriculum. Although there is a great deal of research on proof, most of this work examines either students' beliefs about proof or their construction of proof. There has been almost no research on how students understand the arguments and proofs of others. This presentation has two parts. The first will present an analysis of what it means to understand a proof. This analysis is based on readings from the mathematics education, philosophical, and reading comprehension literature, as well as interviews with 17 mathematicians. The second will present data from a study in which undergraduate mathematics majors were observed reading proofs.

Student Geometry/Topology
Tuesday, November 24, 3:10-4:00pm
4096 EH
Robin Lassonde (UM)
Groups acting on Trees

Group actions on trees is a fundamental tool in geometric group theory. First I will show how a splitting of a group corresponds to an action of the group on a tree. Next I will define the number of ends of a group. Finally I will present Stallings' theorem, an application of these two concepts. The only prerequisite for this talk is basic covering space theory.