MATHEMATICS DEPARTMENT SEMINAR SCHEDULE
January 13 – January 17, 2003
All seminars are held in Boyd Graduate Studies unless otherwise noted

MONDAY, January 13, 2003

Group Representation & Cohomology
2:30 p.m., Room 302
Organizational Meeting

Topology
2:30 p.m., Room 326
Speaker: Vincent Colin (Univerisity of Nantes)
Title: *Reeb vector fields and 3-dimensional topology*
Abstract: We'll explain how to construct a Reeb vector field without contractible periodic orbit on any irreducible 3-manifold bounded by a non empty family of tori (such as the exterior of a knot in S^3). We'll also explain how this can lead to new results in 3-dimensional topology, in the spirit of Gabai's work on taut foliations.

Faculty and Graduate Social
3:00 p.m., Room 409
Coffee, Tea, Cookies

CATS
Room 306, 4:40 PM
Speaker: Jonathan Myers, Graduate student in Computer Science
Title of talk: *Counting Pairs of Sequences by Size of Longest Common Subsequence*
Abstract: A polynomial time algorithm is presented for calculating the number of pairs of sequences of given lengths m and n (over a fixed alphabet) having a given length k for their longest common subsequence. The intended application is finding the most significant overlaps among DNA fragments as a first step in assembly.

TUESDAY, January 14, 2003

VIGRE
2:00-3:15 p.m., Room 304
Speaker: Sandy (Sanford) Ganzell, Pomona College
Title of talk: *4-manifolds: From beginning to ends*
Abstract: This talk will be a gentle introduction to the topology of 4-manifolds. In low dimensional topology (dim<4), one often studies embeddings of circles and surfaces to try to classify objects. This is pretty easy in dimensions 1 and 2, somewhat harder in dimension 3, and basically impossible beyond that. In high dimensional topology (dim>4), algebraic information can be transformed into geometric information, thus providing algebraic answers to everything.

Four dimensional topology is a mix of the best and worst of both worlds. We will show how one would try to apply the techniques of low and high dimensional theory to dimension 4, what goes wrong, and how progress has been made. In particular, we will look at some of the strangest objects in all topology -- the so-called exotic R^4's, manifolds homeomorphic but not diffeomorphic to Euclidean 4-space.

Student Number Theory
3:30 p.m., Room 303
Speaker: Charles Pooh , University of Georgia
Title of talk: *It's as easy as ABC*

WEDNESDAY, January 15, 2002

Wavelet Analysis
10:10-11:10 a.m., Room 542
Speaker: Haipeng Liu, UGA Graduate student
Title of talk: *Orthogonal Wavelets in Sobolev space*

Graduate Student Seminar
2:30 p.m., Room 302
No meeting this week

Algebraic Geometry
2:30 p.m., Room 303
Speaker: Michel Brion, Institut Fourier, Grenoble
Title of talk: *Moduli of affine varieties with reductive group action.*
Abstract: The Hilbert scheme, a fundamental object in projective algebraic geometry, parametrizes closed subschemes of a fixed projective space, with fixed numerical invariants. In this talk (based on joint work with Valery Alexeev), I shall discuss a version of the Hilbert scheme in affine geometry: it parametrizes subschemes of a fixed module over a reductive group G, that are G-stable and afford a fixed representation of G in their coordinate rings. This "invariant Hilbert scheme" generalizes the multigraded Hilbert scheme introduced by Haiman and Sturmfels.

Faculty and Graduate Social
3:00 p.m., Room 409
Coffee, Tea, Cookies

Numerical Analysis
3:30 p.m., Room 410
Speaker: TBA
Title of talk: TBA

Lie Theory
3:30 p.m., Room 303
No Meeting this week

THURSDAY, January 16, 2003

Faculty and Graduate Social
3:00 p.m., Room 409
Coffee, Tea, Cookies

Colloquium
3:30 p.m., Room 304
Speaker: Vincent Colin (Univerisity of Nantes)
Title: *On the coarse classification of contact structures in dimension 3*
Abstract: In dimension 3, contact structures and foliations are the only plane fields which are locally homogeneous. This means that their study should reflect the geometry of the ambient manifold. We'll give a classification result for the most interesting class of contact structures: the tight ones. A closed, orientable, irreducible 3-manifold carries infinitely many tight contact structures if and only if it contains a π_1-injected 2 torus. This is a joint work with Emmanuel Giroux and Ko Honda.

FRIDAY, January 17, 2003

Geometry
2:30 p.m., Room 322
Organizational Meeting