

MATHEMATICS DEPARTMENT SEMINAR SCHEDULE

October 21 – October 25, 2002

All seminars are held in Boyd Graduate Studies unless otherwise noted

MONDAY, October 21, 2002

Group Representation & Cohomology

2:30pm, Room 410

Speaker: Kenyon Platt, University of Georgia

Title of talk: *“Blocks of Modular Representations”, continued*

Topology

2:30p.m.Room 326

Speaker: Nancy Wrinkle, University of Georgia

Title of talk: *“An introduction to Ozsvath-Szabo invariants of 3-manifolds”, continued*

Faculty and Graduate Social

3:00 p.m., Room 409

Coffee, Tea, Cookies

Analysis

3:30pm, Room 222

No Meeting this week

Cats

4:40 p.m., Room 306

Speaker: Jianping Zhu, UGA Computer Science graduate student

Title of talk: *“Top-down View of Fast Dominators in Digraphs Algorithm”*

Abstract: We start by reviewing the definition of dominators and explaining why we are interested in finding them in relation to recognizing minimally strong digraphs (MSDs). Then the algorithm is presented from the top down.

A vertex v dominates another vertex w in a digraph D with root vertex r if every path from r to w contains v . An immediate dominator for w is a vertex $v \neq w$ which is dominated by every vertex $u \neq w$ dominating w . It can be seen that for each (D,r) the domination relation is simply the reflexive and transitive closure of the immediate domination relation. It is immediate domination which is directly relevant to recognizing MSDs.

A simple implementation of the algorithm runs in $O(m \log n)$ time, where m is the number of edges and n is number of vertices in the digraph.

TUESDAY, October 22, 2002

VIGRE

2:00 p.m.-3:15 p.m., Room 304

Speaker: Janice Wethington, University of Georgia

Title of talk: “*Constructing monomial ideals with a desired Thom-Boardman invariant*”

Abstract: My thesis work involves computing a particular invariant, the Thom-Boardman invariant, for a particular set of maps. One of the questions that naturally arose was, "Can we construct ideals with the same invariant as the one predicted for one of these maps?" And the answer is yes. I will define and show how to compute the invariant, then give an algorithm for constructing monomial ideals with desired TB-invariants.

Algebraic Geometry

3:30 p.m., Room 326

Speaker: Valery Alexeev, University of Georgia

Title of talk: “*Introduction to spherical varieties*”, *continued*

Student Number Theory

3:30 p.m., Room 303

Speaker: Eric Pine, University of Georgia

Title of talk: “*Segmentation Fault. What Happened and Could it be worse?*”

Abstract: I'll begin with a basic (short) introduction about what happens inside a computer when you run a program. I'll discuss buffer overflow problems which are a common source of Segmentation Faults. Finally I'll show how such "mistakes" can be used for amusement and also how they can cause widespread panic.

WEDNESDAY, October 23, 2002

Wavelet Analysis

10:10 – 11:00 a.m., Room 410

Speaker: Kyunglim Nam, University of Georgia

Title of talk: “*Construction of Sibling frames*”, *continued*

Graduate Teaching Seminar

2:30 p.m., Room 303

No Meeting this week

Faculty and Graduate Social

3:00 p.m., Room 409

Coffee, Tea, Cookies

Numerical Analysis

3:30pm, Room 410

Speaker: MingJun Lai , University of Georgia

Title of talk: *"The estimates of K_0 and K_1 ", continued*

Lie Theory

3:30 p.m., Room 302

No Meeting this week

Number Theory

3:30 p.m., Room 304

Speaker: Daeshik Park, University of Georgia

Title of talk: *"An overview of Kolyvagin's theorem" (continued)*

THURSDAY, October 24, 2002**Faculty and Graduate Social**

3:00 p.m., Room 409

Coffee, Tea, Cookies

Colloquium

3:30 p.m., Room 304

Speaker: Michael Lacey (Georgia Tech)

Title of talk: *"Convergence of Fourier Series: Past, Present, Future"*

Abstract: One of Lennart Carleson's famous theorems states that the Fourier series of square integrable functions on the circle converge pointwise. Its method of proof requires techniques of analysis of functions in both time and frequency variables, methods which in recent years have found a range of applications to other difficult areas of harmonic analysis. This talk will survey the developments associated to Carleson's theorem, and some of the challenging questions that remain unresolved.

FRIDAY, October 25, 2002**Geometry**

2:30 p.m., Room 322

Speaker: Jason Cantarella, University of Georgia

Title of Talk: *3rd order link integrals, or "Why are the Borromean rings linked?"*

Abstract: The Borromean rings are a collection of 3 unknots, which are pairwise unlinked. However, as a 3-component link, everyone "knows" that the Borromean rings are inseparable.

How do you prove this? The answer depends on constructing a version of the linking number which operates on 3-component links whose pairwise linking numbers are zero. This is a good first example of a lifting construction in algebraic topology.

We'll show that this "Massey product" construction has a natural interpretation in terms of a version of the Gauss integral. (Despite all this terminology, this expository talk will be appropriate for first-year grad students.)