

MATHEMATICS DEPARTMENT SEMINAR SCHEDULE
February 18 – February 22, 2002

All seminars are held in Boyd Graduate Studies unless otherwise noted.

MONDAY, February 18, 2002

Faculty and Graduate Social

3:00 p.m., Room 409

Coffee, Tea and Cookies

Group Representation & Cohomology

*(joint meeting with *Lie Theory Seminar)*

2:30-3:30p.m., Room 302

Speaker: Dan Nakano, University of Georgia

Title of talk: “*Lie algebra cohomology and nilpotent orbits IV*”

Topology

3:00 p.m., Room 322

No Meeting this week

Number Theory

3:30 p.m., Room 304

Speaker: Jim Blair, University of Georgia

Title of talk: “*Montgomery’s paper on the Pair Correlation conjecture*”

Numerical Analysis

3:30 p.m., Room 410

Speaker: Okkyung Cho, University of Georgia

Title of talk: “*Biorthogonal Wavelets*” (*cont.*)

CATS

4:40 p.m., Room 306

Speaker: Jonathan Myers, recent MS graduate in Computer Science

Title of talk: “*The FASTA Heuristic*”

Abstract: Sequence queries on Biological Databases have become a major problem in bioinformatics. Due to the diversity of biological systems and the number of different researchers pursuing bioinformatic problems, biological databases have come under intense pressure from problems that produce impractical workloads. To compensate for these problems, FASTA, and heuristics that follow similar fundamental methods, has been introduced as a standard for approximating sequence similarity. This talk will clearly present the FASTA algorithm and discuss the estimated time and space bounds.

TUESDAY, February 19, 2002

VIGRE

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

No Meeting this week

Algebraic Geometry

3:30 p.m., Room 326

Speaker: Daniele Arcara, University of Georgia

Title of talk: *"Rank two vector bundles on singular curves", cont."*

Analysis

3:30 p.m., Room 304

Speaker: Dr. Magyar, University of Georgia

Title of talk: *"Oscillatory integrals and the Newton polyhedron"*

Abstract: We'll discuss the relation between L^p bounds on basic operators in harmonic analysis (oscillatory integral and Fourier restriction operators) and the so-called Newton polyhedron. These are relatively recent attempts to go beyond the usual non-degeneracy (curvature) conditions.

Student Number Theory

3:30 p.m., Room 302

No Meeting this week

WEDNESDAY, February 20, 2002

Teacher Education Seminar

2:30 - 3:30 pm, Room 326

Speakers: Denise Mewborn, Paola Sztajn, and Dorothy White, Department of Mathematics Education

Subject of talk: Speakers will talk about the mathematics methods courses for prospective elementary school teachers, EMAT 3400 and 3410.

Group Representation and Cohomology

2:30 - 3:20, Room 410

Speaker: Dave Hemmer, University of Georgia

Title of talk: *"Erdmann's proof of the Grabmeier correspondence for Young modules of the symmetric group, II"*

UGA Math Club Problem Solving Group

2:30 p.m., Room 302

Faculty and Graduate Social

3:00 p.m., Room 409

Coffee, Tea, Cookies

Arithmetic Geometry

3:30 p.m., Room 304

No Meeting this week

THURSDAY, February 21, 2002

Lie Theory

2:30 p.m., Room 304

Speaker: Vyacheslav Futorny, University of San Paulo

Title of talk: "*Weight modules for the Weyl algebra*"

Faculty and Graduate Social

3:00 p.m., Room 409

Coffee, Tea, Cookies

Colloquium

3:30, room 304

Speaker: Rob Ghrist, Georgia Institute of Technology

Title of talk: "*An Introduction to Topological Robotics*"

Abstract: One of the best techniques in mathematics is to exchange a complicated mathematical object (e.g., an ODE, a PDE, a group) for a topological space (resp. a phase diagram, a moduli space, a Cayley graph) and then trade information. This philosophy has important implications in robotics. Both classical and contemporary problems in robotics entail complex coordination tasks which often have a natural interpretation on a space of configurations: coordinations map to paths or loops; kinematic constraints map to distributions; and control algorithms map to vector fields.

This talk will quickly survey three contemporary challenges in robotics: network AGV coordination, metamorphic robot shape planning, and self-assembly; for each, a mathematical approach will be outlined using a combination of ideas from topology, geometry, and dynamical systems.

The talk is geared towards a general audience: no background in robotics required.

FRIDAY, FEBRUARY 22, 2002

Geometry

2:30 p.m., Room 322

Speaker: Chad Mullikin, University of Georgia

Title of talk: "*Link, Twist, and Writhe*"

Upcoming Seminars

Tuesday, February 26, 2002

Teacher Education Seminar

2:30 - 3:30 pm, Room 326

Speakers: Martha Allexsaht-Snider, Department of Elementary Education,

Subject of talk: Will talk about the preparation of elementary school teachers

Thursday, February 28, 2002

Faculty and Graduate Social

3:00 p.m., Room 409

Coffee, Cookies and Tea

Colloquium

3:30 p. m., Room 304

Speaker: Carl Pomerance (formerly a UGA faculty member, now at Lucent Technologies)

Title of talk: *"Primitive roots"*

Abstract: Are there infinitely many primes p (such as $p=7$) where $p-1$ is the length of the repeat for the periodic decimal for $1/p$? That there are is a special case of Artin's primitive root conjecture: For any integer g not equal to -1 or a square, there are infinitely many primes p with g generating the multiplicative group modulo p . This talk will review some of the very intriguing partial results concerning Artin's conjecture, discuss some new problems about primitive roots, and discuss a natural generalization of the concept of primitive roots to composite moduli. Various parts of this talk represent joint work with Shuguang Li (of the University of Hawaii and a former UGA graduate student) and Mari Campbell (a current Berkeley graduate student).

MONDAY, March 11, 2002

Joint Group Cohomology/Lie Theory Seminar

2:30 p.m., Room 302

Speaker: Georgia Benkart, University of Wisconsin, Madison

Title of talk: *"The Ups and Downs of Quantum Groups"*