

University of Georgia
Department of Mathematics

Seminar Schedule
April 24– 28, 2006

All Seminars are held in Boyd Graduate Studies Bldg. unless otherwise noted.

MONDAY April 24, 2006

Geometry-Topology Seminar

2:30pm, Room 222

No meeting this week

Algebra

2:30pm, Room 410

Speaker: Nadia Mazza, University of Georgia

Title: *Endotrivial modules for symmetric and alternating groups*

Abstract: Endotrivial modules are known to play an important role in the modular representation theory of finite groups. Three years ago, we (i.e. Jon Carlson, Nadia Mazza and Daniel Nakano) started a project to classify the endotrivial modules over families of finite simple groups and related groups. In this talk, we will give an account of the endotrivial modules and report on the status of our advances in the classification in the case of the symmetric and alternating groups.

Faculty and Graduate Student Social

3:00pm, Room 409

Coffee, Cookies, Tea

VIGRE-Algebraic Geometry

3:30pm, Room 304

TUESDAY, April 25, 2006

VIGRE-Graduate Student Seminar

2:00p.m., Room 304

Speaker: Adrian Jenkins, Purdue University

Title of talk: *Local classification problems in complex analysis*

Abstract: We will look at germs of holomorphic functions f which fix the origin (and in fact, most of our interest will be in those functions so that $f(0)=1$), and consider the question of local classification under certain changes of variable. The goal here will be to understand the local dynamics of such functions by relating them to certain "good" model functions (e.g. linear functions, Mobius transforms, and in general, functions which are easy to iterate). This talk will serve as an introduction to the analysis seminar to be given

later in the day. All definitions will be given, and the talk should be of an introductory nature (really, the only prerequisite is a good first course in complex analysis).

WEDNESDAY, April 26, 2006

Geometry in the Curriculum Seminar

1:25pm, Aderhold, Room 111

Speaker: Tom Banchoff, University of Georgia

Title of talk: *Seminar wrap-up and plans for the future*

Algebraic Geometry

2:30pm, Room 410

Speaker: Gavril Farkas (University of Texas, Austin)

Title of talk: *Effective divisors on moduli spaces.*

Abstract: One of the fundamental invariants of any variety is its cone of effective divisors. In the case of the moduli space of curves the shape of the cone was predicted by the Slope Conjecture of Harris and Morrison which singled out the classical Brill-Noether divisors as being extremal. I will present a general method of constructing "exceptional" divisors on a large class of moduli spaces using the syzygies of the parametrized objects. This construction provides among other things a doubly infinite sequence of counterexamples to the Slope Conjecture and shows that the moduli space of Prym varieties of dimension g is of general type for $g > 12$.

Analysis

2:30pm, Room 302

Speaker: Adrian Jenkins (Perdue)

Title of talk: *Smooth Conjugacies of Holomorphic Germs in $\{\mathbb{C}\}$*

Abstract: We consider holomorphic functions f , defined in a small neighborhood of the origin, of the form $f(z) = z + az^2 + \dots$, where a is not zero. Such functions are always locally conjugated via a homeomorphism to the time-one map $f_{\{0\}}$ of the vector field $V(z) = z^2$. However, if one requires that the homeomorphism H be \mathbb{C}^1 in a neighborhood of the origin, then immediately, one can show that in fact H is necessarily holomorphic or antiholomorphic, and thus such a classification is very restrictive.

VIGRE- Algebra

2:30pm, Room 303

Speaker: Brian Boe, University of Georgia

Title of talk: *Existence of extra cohomology in degree $p+r$*

Arithmetic Geometry/Number Theory

3:30pm, Room 304

Speaker: Steve Winburn, University of Georgia

Title of talk: *Newman's short proof of the prime number theorem*

THURSDAY, April 27, 2006

VIGRE – Feynman Diagrams

2:00pm, Room 326

VIGRE – Cardiac Physiology

2:00pm, Room 640

VIGRE- Zeta Functions

2:15pm, Room 303

VIGRE-Algebraic Geometry

2:00pm, Room 304

Faculty and Graduate Social

3:00pm., Room 409

Coffee, Tea, Cookies

Colloquium

3:30pm, Room 304

Speaker: Gavril Farkas, University of Texas, Austin

Title of talk: *The global geometry of the moduli space of curves.*

Abstract: The moduli space of curves M_g is the universal parameter space for Riemann surfaces of given genus. Its study has been initiated by Riemann in 1857 and it has been a long-standing problem to describe the nature of the moduli space as an algebraic variety. I will survey the history of the problem starting with Severi's conjecture from 1915 predicting that M_g is always unirational, continuing with the work of Harris and Mumford spectacularly disproving Severi's conjecture and finally discussing a recent result which settles this problem in one of the most interesting remaining cases, that of genus 22.