

**University of Georgia
Department of Mathematics**

**Seminar Schedule
January 9, 2006 - January 13, 2006**

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

MONDAY, January 9, 2006

Algebraic Geometry

1:25-2:25pm, Room 410

Speaker: Kalle Karu (University of British Columbia)

Title of talk: *On the Ehrhart analogue of the h-vector.*

Abstract: In 1992 R. Stanley described a combinatorial analogue between the Ehrhart polynomial and the h-vector of a toric variety. Now we can say that Stanley's result is really a computation in the orbifold cohomology of a toric variety. The analogy goes as follows: counting lattice points in a polyhedral complex is related to the orbifold cohomology the same way as counting faces of the complex is related to the ordinary (or intersection) cohomology.

In this talk I will describe this analogue from the sheaf-theoretic point of view, explain the non-negativity of certain numbers found in Stanley's paper, and describe other results related to this analogy.

Algebra

2:30pm, Room 410

Organizational Meeting

Ed Azoff Tea Social

3:00pm, Room 409

Coffee, Cookies, Tea

TUESDAY, January 10, 2006

VIGRE-Graduate Student Seminar

2:00p.m., Room 304

Speaker: Jerry Hower, University of Georgia

Title of talk: TBA

Ed Azoff Tea Social

3:00pm, Room 409

Coffee, Cookies, Tea

Colloquium

3:30pm, Room 302

Speaker: Pete Clark, McGill

Title of talk: *Acquisition of rational points on algebraic varieties*

Abstract: A fundamental problem in arithmetic geometry is to understand the set of \mathbb{Q} -rational points on an algebraic variety. It would seem that if there are no rational points at all, we have a perfect understanding. But in fact there is interesting geometry in "pointless varieties." Especially, given such a variety V , over which field extensions K/\mathbb{Q} does V acquire K -rational points? In this talk we concentrate on the case of algebraic curves, presenting -- via results and conjectures -- the beginnings of a general theory.

WEDNESDAY, January 11, 2006

Arithmetic Geometry/Number Theory

3:30pm, Room 304

Speaker: Pete Clark, McGill

Title of talk: TBA

VIGRE- Algebra

3:45pm, Room 303

Speaker: Brian Boe, University of Georgia

Title of talk: *Proof of Kostant's Theorem*

THURSDAY, January 12, 2006

Ed Azoff Tea Social

3:00pm, Room 409

Coffee, Cookies, Tea

Colloquium

3:30pm, Room 302

Speaker: Xiang Tang, UC Davis

Title of talk: *Foliations, Hopf algebras and modular forms*

Abstract: Recently Hopf algebras have played a role in several areas of mathematics and

physics. The fact that the same Hopf algebra was useful in the study of foliations, renormalization in quantum field theory, and number theory has led to interesting discoveries. Inspired by the Rankin-Cohen brackets on modular forms, Connes and Moscovici constructed a universal deformation formula for the Hopf algebra associated to a codimension one foliation. In this talk, we will explain how to use differential geometry to understand their deformation and various structures involved. In particular, we will show that the Rankin-Cohen deformation is closely related to the Weyl-Moyal product.