



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week January 3rd – 7th, 2011

MONDAY, 4th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

TUESDAY, 5th

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:00PM, SURGE 284

TOPOLOGY (Philip Hackney, UCR)

“Operations from E-infinity chain algebras”

12:40-2:00PM, SURGE 268

INTERSECTION THEORY (Ziv Ran)

12:40-2:00PM, SURGE 284

LIE THEORY (Wee Liang Gan)

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

3:40-5:00PM, SURGE 268

FUNCTIONAL ANALYSIS (James Stafney, UCR)

“A commutative Banach algebra that is not a quotient of a uniform algebra”

WEDNESDAY, 6th

10:10-11:00AM, SURGE 268

COMBINATORIAL NUMBER THEORY (Mei-Chu Chang)

10:10-11:00AM, SURGE 277

OPERATOR ALGEBRAS & RELATED TOPICS (Asaeda/Xu)

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

TOPICS IN COMMUTATIVE ALGEBRA

Canceled this week

12:10-1:00PM, SURGE 284

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Kelliher/Zhang)

1:10-2:00PM, SURGE 284

RATIONAL HOMOTOPY THEORY (Julie Bergner, UCR)

“Introduction to model categories”

THURSDAY, 7th

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:30PM, SURGE 284

FRACTAL RESEARCH GROUP

Canceled this week

12:40-2:00PM, SURGE 284

LIE THEORY (Wee Liang Gan)

3:40-5:00PM, SURGE 268

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS

Canceled this week

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

FRIDAY, 8th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

DIFFERENTIAL GEOMETRY (Tian Jun Li, University of Minnesota)

“The Geometry of 4-Dimensional Almost Complex Structures”

3:10-4:00PM, SURGE 284

COMMUTATIVE ALGEBRA

Canceled this week



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week January 10th – 14th, 2011

MONDAY, 10th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

TUESDAY, 11th

*8:10-9:30AM, SURGE 268

INTERSECTION THEORY (Ziv Ran)

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:00PM, SURGE 284

TOPOLOGY (Stefano Vidussi, UCR)

TBA

12:40-2:00PM, SURGE 284

LIE THEORY (Wee Liang Gan)

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

3:40-5:00PM, SURGE 268

FUNCTIONAL ANALYSIS (James Stafney, UCR)

“A commutative Banach algebra that is not a quotient of a uniform algebra – cont’d”

WEDNESDAY, 12th

10:10-11:00AM, SURGE 268

COMBINATORIAL NUMBER THEORY (Mei-Chu Chang)

10:10-11:00AM, SURGE 277

OPERATOR ALGEBRAS & RELATED TOPICS (Dominick Scaletta, UCR)

“Principal Fiber Bundles and the Hopf Fibration in Quantum Theory 2: Connections on Principal Bundles and their Applications”

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

TOPICS IN COMMUTATIVE ALGEBRA (Jason McCullough)

12:10-1:00PM, SURGE 284

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Thomas Laurent, UCR)

“Characterization of radially symmetric finite time blowup in multidimensional aggregation equations”

1:10-2:00PM, SURGE 284

RATIONAL HOMOTOPY THEORY (Chris Rogers, UCR)

TBA

THURSDAY, 13th

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:30PM, SURGE 284

FRACTAL RESEARCH GROUP

Organizational Meeting

12:40-2:00PM, SURGE 284

LIE THEORY (Wee Liang Gan)

3:40-5:00PM, SURGE 268

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS

Organizational Meeting

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

FRIDAY, 14th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

DIFFERENTIAL GEOMETRY (Stephen Yau, UI Chicago)

“Explicit Construction of Moduli Space for Complete Reinhardt Domains via Bergman Functions”

3:10-4:00PM, SURGE 284

COMMUTATIVE ALGEBRA (David Rush)



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week January 17th – 21st, 2011

MONDAY, 17th – MLK Holiday

10:10-11:00AM, SURGE 284

TUESDAY, 18th

8:10-9:30AM, SURGE 268

9:40-11:00AM, SURGE 277

11:10-12:00PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 277

3:40-5:00PM, SURGE 268

WEDNESDAY, 19th

10:10-11:00AM, SURGE 268

10:10-11:00AM, SURGE 277

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

12:10-1:00PM, SURGE 284

1:10-2:00PM, SURGE 284

THURSDAY, 20th

9:40-11:00AM, SURGE 277

11:10-12:30PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 268

3:40-5:00PM, SURGE 277

FRIDAY, 21st

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

3:10-4:00PM, SURGE 284

TOPICS IN COMPARISON GEOMETRY

CANCELED

INTERSECTION THEORY (Ziv Ran)

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

TOPOLOGY (Stefano Vidussi, UCR)

"Minimal genus in dimension 4, Part 2"

LIE THEORY (Wee Liang Gan)

ALGEBRAIC GEOMETRY (Ziv Ran)

FUNCTIONAL ANALYSIS (James Kelliher, UCR)

"Continuous iteration groups"

COMBINATORIAL NUMBER THEORY (John Dusel, UCR)

"Multiplicative Translations of Subgroups of \mathbb{Z}_p^* "

OPERATOR ALGEBRAS & RELATED TOPICS (Dominick Scaletta, UCR)

"Principal fiber bundles and the Hopf fibration in Quantum Theory 3: Electromagnetism, Magnetic Monopoles and the Aharonov Bohm Effect"

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

TOPICS IN COMMUTATIVE ALGEBRA (Jason McCullough, UCR)

"Hartsthorne-Lichtenbaum Vanishing Theorem"

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Kelliher/Zhang)

RATIONAL HOMOTOPY THEORY (Chris Rogers, UCR)

"The bar construction and A-infinity Morphisms"

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

FRACTAL RESEARCH GROUP (Scot Childress, UCR)

"Fractal strings and nature"

LIE THEORY (Wee Liang Gan)

MATHEMATICAL PHYSICS & DYNAMICAL SYSTEMS (Dominick Scaletta, UCR)

"Principal fiber bundles and Hopf fibration in quantum theory: connections on principal bundles"

ALGEBRAIC GEOMETRY (Ziv Ran)

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

DIFFERENTIAL GEOMETRY (Semar Sular, Univ. of Rochester)

"Manifolds with G2 Holonomy and Contract Structures"

COMMUTATIVE ALGEBRA (David Rush)



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Partial Differential Equations

Thomas Laurent
(UCR)

“Characterization of radially symmetric finite time blowup in multidimensional aggregation equations”

Abstract: We consider the transport of a mass μ in \mathbb{R}^d by a flow field $v = -\text{grad } K * \mu$. We focus on kernels $K = |x|^{-\alpha}$ for $2-d < \alpha < 2$. For this range we prove the existence for all time of radially symmetric measure solutions that are monotone decreasing as a function of the radius. The monotonicity is preserved for all time, in contrast to the case $\alpha > 2$ where radially symmetric solutions are known to lose monotonicity. We will also study the mechanism by which a smooth radially symmetric decreasing density become singular.

Wednesday, January 12th, 2011

Surge 284

12:10-1:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Stephen Yau
(University of Illinois at Chicago)

“Explicit Construction of Moduli Space for Complete Reinhardt Domains via Bergman Functions”

Abstract: We introduce higher order Bergman functions for complete Reinhardt domains in a variety with isolated singularities. These Bergman functions are invariant under biholomorphic maps. We use Bergman functions to determine all the biholomorphic maps between two such domains. We construct an infinite family of numerical invariants from the Bergman functions for such domains in a n -variety $\{(x, y, z) \in \mathbb{C}^3 : xy = z^{n+1}\}$. These infinite families of numerical invariants are actually a complete set of invariants for either the set of all strictly pseudoconvex domains or the set of all pseudoconvex domains with real analytic boundaries in A_n -variety. In particular the moduli space of these domains in A_n variety is constructed explicitly as the image of this complete family of numerical invariants.

Recall that A_n -variety is the quotient of cyclic group of order $n + 1$ on \mathbb{C}^2 . We prove that the moduli space of complete Reinhardt domains in A_n variety coincides with the moduli space of the corresponding complete Reinhardt domains in \mathbb{C}^2 . Since our complete family of numerical invariants are explicitly computable, we have solved the biholomorphically equivalent problem for large family of domains in \mathbb{C}^2 .

Friday, January 14th, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Combinatorial Number Theory

John Dusel
(UCR)

“Multiplicative Translations of Subgroups of \mathbb{Z}_p^{*n} ”

Abstract:

Let V be a subgroup of the unit group modulo p of index n and g be a primitive root modulo p . We consider the multiplicative translate $V_j = g^j V$, $1 \leq j \leq n$ and give upper bounds on the size of the largest interval which does not contain elements of V_j for some $j = 1, \dots, n$. This material is of an elementary nature and should be accessible to all graduate students.

Wednesday, January 19th, 2011

Surge 268

10:10-11:00am



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

COLLOQUIUM

Irena Swanson
(Reed College)

"Integral Closures"

Abstract:

Kummer introduced "ideal numbers" when it was realized that not all extensions of the ring of integers have a unique factorization of its elements. With that he started the theory of ideals in rings and a systematic study of the notion of the integral closure of rings. In particular, in integrally closed extensions of the ring of integers at least locally one still has unique factorization.

I will explain what integral closure accomplishes in commutative algebra and in algebraic geometry, how it is used, and how it is computed. Important ingredients and applications for this theory are valuations, multiplicities, adjoints of ideals, separability, and others. Due to Ratliff's work, integral closure behaves better in locally formally equidimensional rings. I will present my related work with various collaborators (Huebl, Huneke, Singh), especially regarding Rees valuations, adjoints of ideals, and a new algorithm for computing the integral closure. An illustrative example for all is the case of monomial algebras and monomial ideals, which can also be looked at combinatorially and geometrically.

Wednesday, January 19th, 2011

Surge 284

4:10-5:00pm

Tea Time at 3:40pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Semar Sular
(University of Rochester)

“Manifolds with G_2 Holonomy and Contact Structures”

Abstract:

A 7-dimensional Riemannian manifold (M, g) is called a G_2 manifold if the holonomy group of its Levi-Civita connection of g lies inside G_2 .

In this talk, I will first give brief introductions to G_2 manifolds, and then discuss relations between G_2 and contact structures. This is a joint work with Hyunjoo Cho and Firat Arıkan.

Friday, January 21st, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week January 24th – 28th, 2011

MONDAY, 24th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Curtis Pro, UCR)
"Dual Foliations and Nonnegative Curvature"

TUESDAY, 25th

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:00PM, SURGE 284

TOPOLOGY (Stefano Vidussi, UCR)
"Minimal genus in dimension 4, part 3"

12:40-2:00PM, SURGE 268

INTERSECTION THEORY (Ziv Ran)

12:40-2:00PM, SURGE 284

LIE THEORY (Konstantina Christodouloupoulou, UCR)
"Quantized enveloping algebras"

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

3:40-5:00PM, SURGE 268

FUNCTIONAL ANALYSIS (M. M. Rao)

WEDNESDAY, 26th

10:10-11:00AM, SURGE 268

COMBINATORIAL NUMBER THEORY (John Dusel, UCR)
"Multiplicative translations of subgroups of the units of modulo p "

10:10-11:00AM, SURGE 277

OPERATOR ALGEBRAS & RELATED TOPICS (Feng Xu, UCR)

10:10-11:00AM, SURGE 284

"Introductions to operator algebraic aspects of conformal field theory II"
TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

TOPICS IN COMMUTATIVE ALGEBRA (Jason McCullough, UCR)
"Falting's Connectedness Theorem"

12:10-1:00PM, SURGE 284

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Kelliher/Zhang)
TBA

1:10-2:00PM, SURGE 284

RATIONAL HOMOTOPY THEORY (Bergner/Hackney)
TBA

THURSDAY, 27th

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:30PM, SURGE 284

FRACTAL RESEARCH GROUP (Robert Niemeyer, UCR)
"Stabilizing orbits of the Kotch snowflake billiard"

12:40-2:00PM, SURGE 284

LIE THEORY (Nathan Manning, UCR)
"Lusztig's braid group action on $U_{\mathfrak{g}}(\mathfrak{g})$ "

3:40-5:00PM, SURGE 268

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS (Hafedh Herichi, UCR)

3:40-5:00PM, SURGE 277

"On the convergence of the Euler product of the spectral operator in the critical strip"
ALGEBRAIC GEOMETRY (Ziv Ran)

FRIDAY, 28th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

DIFFERENTIAL GEOMETRY (Gueo Grantcharov, Florida International Univ.)
"Complex Surfaces and Indefinite Metrics"

3:10-4:00PM, SURGE 284

COMMUTATIVE ALGEBRA (David Rush)



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Combinatorial Number Theory

John Dusel
(UCR)

“Multiplicative translations of subgroups of the units modulo p ”

Abstract:

Let V be a subgroup of the unit group modulo p of index n . and g be a primitive root modulo p . We consider the multiplicative translate $g^j V$, for $j = 1, \dots, n$ and give upper bounds on the size of the largest interval which does not contain elements of $g^j V$ for some fixed j .

Wednesday, January 26th, 2011

Surge 268

10:10-11:00am



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Gueo Grantcharov
(Florida International University)

“Complex Surfaces and Indefinite Metrics”

Abstract:

The split quaternions are an analog of the quaternions with three independent anti-commuting imaginary units, two of which have square equal to one. In the talk will be considered indefinite Hermitian metrics on compact complex surfaces which are associated with structures defined via the split quaternions. Such metrics will be called para-hyperhermitian. An explanation of the rough classification of compact complex surfaces admitting para-hyperhermitian metrics will be provided. The relations with generalized complex structures and a reduction procedure for the higher dimensional para-hyperhermitian manifolds will be mentioned.

Friday, January 28th, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week January 31st – February 4th, 2011

MONDAY, 31st

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

*10:10-11:00AM, SURGE 268

COMBINATORIAL NUMBER THEORY (Mei-Chu Chang)

TUESDAY, 1st

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:00PM, SURGE 284

TOPOLOGY (Julie Bergner, UCR)

“Algebraic theories”

12:40-2:00PM, SURGE 268

INTERSECTION THEORY (Ziv Ran)

12:40-2:00PM, SURGE 284

LIE THEORY (Jacob Greenstein, UCR)

“Poincaré-Birkhoff-Witt bases of $U-q$ of finite type”

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

3:40-5:00PM, SURGE 268

FUNCTIONAL ANALYSIS (Victor Shapiro, UCR)

“Functions Analytic on the Unit Disk”

WEDNESDAY, 2nd

10:10-11:00AM, SURGE 277

OPERATOR ALGEBRAS & RELATED TOPICS (Feng Xu, UCR)

“Introductions to algebraic aspects of conformal field theory II”

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

TOPICS IN COMMUTATIVE ALGEBRA (Ines Henriques, UCR)

“Study of Finite Free Resolutions: Basic Constructions”

12:10-1:00PM, SURGE 284

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Kelliher/Zhang)

1:10-2:00PM, SURGE 284

RATIONAL HOMOTOPY THEORY (Philip Hackney, UCR)

TBA

THURSDAY, 3rd

9:40-11:00AM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

11:10-12:30PM, SURGE 284

FRACTAL RESEARCH GROUP (Robert G. Niemeyer, UCR)

“Fractal enrichment”

12:40-2:00PM, SURGE 284

LIE THEORY (Sam Chamberlin, UCR)

“Lusztig's bilinear form on $U-q$ ”

3:40-5:00PM, SURGE 268

MATHEMATICAL PHYSICS & DYNAMICAL SYSTEMS (Dominick Scaletta, UCR)

“Principal fiber bundles and the Hopf fibration in quantum theory: applications of connections”

3:40-5:00PM, SURGE 277

ALGEBRAIC GEOMETRY (Ziv Ran)

FRIDAY, 4th

10:10-11:00AM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm)

11:10-12:00PM, SURGE 268

DIFFERENTIAL GEOMETRY (Brian Rolle, UCR)

“Construction of Weak Mirror Pairs by Deformations, I”

3:10-4:00PM, SURGE 284

COMMUTATIVE ALGEBRA (Lars W. Christensen, Texas Tech.)

“Vanishing of Comohology; What Does it Mean?”



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Brian Rolle
(UCR)

“Construction of Weak Mirror Pairs by Deformations, II”

Abstract:

Mirror symmetry and mirror pairs are studied by mathematicians and physicists who study string theory. Weak mirror pairs are a pair of a complex manifold and a symplectic manifold, which are quasi isomorphic. Both of the manifolds are generalized complex manifolds, so it is natural work in that framework. In this talk, we examine the use of deformations of generalized complex structures to deform a complex manifold into a symplectic one. We also define a compatible pair of objects that will make these objects quasi isomorphic.

Friday, February 4th, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Commutative Algebra

Lars W. Christensen
(Texas Tech. University)

“Vanishing Cohomology; what does it mean?”

Abstract: Late in his career, Auslander conjectured that every finitely generated module M over an Artin algebra would have a “latent projective dimension.” That is, a number $a(M)$ such that if the cohomology of M with coefficients in a finitely generated R -module N —i.e. $\mathrm{Ext}^*(M, N)$ —vanishes in high degrees, then it vanishes from degree $a(M)$.

The conjecture was disproved some years ago. However, we know that modules over several classes of algebras do have such a latent projective dimension, and I will discuss recent work with H.~Holm that aims to improve our understanding of this ring theoretical property. My focus will be on local rings, and in the course of the talk, I will explain why this question, rooted in the representation theory of Artin algebras, has attracted much attention in local algebra.

Friday, February 4th, 2011

Surge 284

3:10-4:00pm



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week February 7th – 11th, 2011

MONDAY, 7th

10:10-11:00AM, SURGE 284

10:10-11:00AM, SURGE 268

TUESDAY, 8th

9:40-11:00AM, SURGE 277

11:10-12:00PM, SURGE 284

12:40-2:00PM, SURGE 268

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 277

3:40-5:00PM, SURGE 268

WEDNESDAY, 9th

10:10-11:00AM, SURGE 277

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

12:10-1:00PM, SURGE 284

1:10-2:00PM, SURGE 284

THURSDAY, 10th

9:40-11:00AM, SURGE 277

11:10-12:30PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 268

3:40-5:00PM, SURGE 277

FRIDAY, 11th

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

3:10-4:00PM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Mike Sill, UCR)

“Gromov’s Precompactness Theorem”

COMBINATORIAL NUMBER THEORY (Mei-Chu Chang)

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

TOPOLOGY (Julie Bergner, UCR)

“Algebraic Theories, Part 2”

INTERSECTION THEORY (Ziv Ran)

LIE THEORY (Samuel Chamberlin, UCR)

“Lusztig’s bilinear form on $U_{\mathfrak{g}}$ ”

ALGEBRAIC GEOMETRY (Ziv Ran)

FUNCTIONAL ANALYSIS (Victor Shapiro, UCR)

“Fourier series and generalized analyticity”

OPERATOR ALGEBRAS & RELATED TOPICS (Asaeda/Xu)

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm, UCR)

“Manifolds with Almost Maximum Volume, Part 1”

TOPICS IN COMMUTATIVE ALGEBRA (Ines Henriques, UCR)

“Minimal free resolutions and Syzygies”

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Gung-Min Gie, UCR)

“Boundary layers for the Navier-Stokes equations with the Navier friction boundary Conditions”

RATIONAL HOMOTOPY THEORY (Philip Hackney, UCR)

“Minimal Models, Part 2”

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

FRACTAL RESEARCH GROUP (Nishu Lal, UCR)

“Blow-up the Sierpinski Gasket, Part I”

LIE THEORY (Eliana Zoque, UCR)

“The canonical basis of $U_{\mathfrak{g}}$ of the finite type”

MATHEMATICAL PHYSICS & DYNAMICAL SYSTEMS (Juhi Jang, UCR)

“Stability theory of polytropic gaseous stars”

ALGEBRAIC GEOMETRY (Ziv Ran)

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm, UCR)

“Manifolds with Almost Maximum Volume, Part 2”

DIFFERENTIAL GEOMETRY (Brian Rolle, UCR)

“Construction of Weak Mirror Pairs by Deformations, II”

COMMUTATIVE ALGEBRA (Kuei-Nuan Lin, UCR)

“Rees Algebras of Modules”



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Partial Differential Equations and Applied Math

Gung-Min Gie
(UCR)

“Boundary layers for the Navier-Stokes equations with the Navier friction boundary conditions”

Abstract: We study the weak boundary layer phenomenon of the Navier-Stokes equations, supplemented with the Navier friction boundary conditions, in a general (curved) domain in \mathbb{R}^3 when the viscosity is small. By constructing a corrector, whose tangential components are exponentially decaying functions from the boundary, we prove the convergence, as the viscosity parameter tends to zero, of the Navier-Stokes solutions to the Euler solution in the norm of L^∞ in time and L^2 in space, as well as in that of L^2 in time and H^1 in space. This is a joint work with James P. Kelliher.

Wednesday, February 9th, 2011

Surge 284

12:10-1:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Brian Rolle
(UCR)

“Construction of Weak Mirror Pairs by Deformations, II”

Abstract:

In this talk, we use the theory developed in the previous talk (Feb 4, 2011) to build weak mirror pairs of complex symplectic manifolds. We will discuss a theorem that says when a complex symplectic manifold will have a mirror pair that can be built by a deformation. We will also look at some low dimensional examples as applications.

Friday, February 11th, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Commutative Algebra

Kuei-Nuan Lin
(UCR)

“Rees Algebras of Modules”

Abstract:

We would like to talk about Rees algebras of modules over a Noetherian ring. Geometrically, these algebras correspond to the concept of blowing up in algebraic geometry. They provide the rings of functions on the blow up of a scheme along several subschemes. Another important instance when Rees algebras of modules appear in algebraic geometry is when the module is the module of differentials or the module of top differential forms of the homogeneous coordinate ring of a projective k -variety X ; in this case the Rees ring tensored with k is the homogeneous coordinate ring of the tangential variety or the Gauss image of X , respectively. Furthermore Rees algebras of modules include multi Rees rings, which correspond to the case where the module is a direct sum of ideals. We will prove for Rees algebras of modules many of the results that have been obtained in the case of ideals, including estimates on analytic spreads and reduction numbers, and the Cohen-Macaulayness of Rees rings. It turns out the generalization from ideals to modules is not just a routine generalization, but requires a great deal of technical development.

Friday, February 11th, 2011

Surge 284

3:10-4:00pm



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week February 14th – 18th, 2011

MONDAY, 14th

10:10-11:00AM, SURGE 284

10:10-11:00AM, SURGE 268

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm, UCR)
"Manifolds with almost maximum volume, part 1"
COMBINATORIAL NUMBER THEORY (Mei-Chu Chang)

TUESDAY, 15th

9:40-11:00AM, SURGE 277

11:10-12:00PM, SURGE 284

12:40-2:00PM, SURGE 268

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 277

3:40-5:00PM, SURGE 268

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

TOPOLOGY (Jim Hoste, Pitzer College)
"The Ohtsuki-Riley-Sakuma partial order on 2-bridge knots"
INTERSECTION THEORY (Ziv Ran)

LIE THEORY (Wee Liang Gan)

ALGEBRAIC GEOMETRY (Ziv Ran)

FUNCTIONAL ANALYSIS (Yuichiro Kakihara, UCR)
"Topological properties of the set of information channels"

WEDNESDAY, 16th

10:10-11:00AM, SURGE 277

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

12:10-1:00PM, SURGE 284

1:10-2:00PM, SURGE 284

OPERATOR ALGEBRAS & RELATED TOPICS (Asaeda/Xu)

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm, UCR)
"Manifolds with almost maximum volume, part 2"
TOPICS IN COMMUTATIVE ALGEBRA (Ines Henriques, UCR)
"Minimal Resolutions and Syzgies"

PARTIAL DIFFERENTIAL EQUATIONS/APPLIED MATH (Myoungjen Bae, Northwestern)
"Transonic Shocks in Multidimensional Divergent Nozzles"

RATIONAL HOMOTOPY THEORY (Bergner/Hackney)
TBA

THURSDAY, 17th

9:40-11:00AM, SURGE 277

11:10-12:30PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 268

3:40-5:00PM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

FRACTAL RESEARCH GROUP (Hafedh Herichi, UCR)
"On the convergence of Euler product of the spectral operator in the critical strip"
LIE THEORY (Wee Liang Gan)

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS (John Quinn, UCR)
"Fractal Measures"

ALGEBRAIC GEOMETRY (Ziv Ran)

FRIDAY, 18th

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

3:10-4:00PM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm, UCR)
"Manifolds with almost maximum volume, part 3"

DIFFERENTIAL GEOMETRY (Shengmao Zhu, UCLA & Zhejiang Univ.)
"Perturbative computation of color Jones polynomial and $SL(2, \mathbb{C})$ Chern-Simons Theory"

COMMUTATIVE ALGEBRA (David Rush)

CANCELED FOR THIS WEEK



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Partial Differential Equations & Applied Math

Myoungjean Bae
(Northwestern University)

“Transonic Shocks Multidimensional Divergent Nozzles”

Abstract:

In this talk, I will discuss about transonic flow in divergent nozzle of any smooth cross-section. Depending on the exit pressure, various flow patterns may occur. If the exit pressure is higher than a critical value, then a transonic shock appears. I will introduce a non-isentropic potential flow model, which allows a jump of the entropy across a shock, and use this model to establish the unique existence and the stability of transonic shocks in divergent nozzles. This is joint work with Mikhail Feldman.

Wednesday, February 16th, 2011

Surge 284

12:10-1:00pm

UCR

Mathematics

Department

Special Colloquium in Applied Math

SPEAKER: DR. STEVEN BUTLER OF UC LOS ANGELES

“Hat Guessing Games and Orienting Hypercubes”

Abstract:

In a hat guessing game, n players have one of two types of hats placed on their heads. Based on what they see on the other players they then all guess (simultaneously and without communication) what type of hat they are wearing. Before players begin they are allowed to form a strategy in how the players will guess, usually with a specific goal in the outcome. For example, forming a strategy where the number of correct guesses will be a and or b . It is easy to show that a necessary condition for this is that there are nonnegative integers s and t so that $s+t=2^n$ and $as+bt=n^{n-1}$. We show that the necessary conditions are also sufficient by translating the problem into an orientation of the edges of the hypercube so that each vertex has indegree a or b and showing how to find such an orientation.

Wednesday, February 16th, 2011

Surge Building, Room 284

Tea, Coffee and Cookies @ 3:40pm

Talk begins @ 4:00pm - Ends @ 5:00pm

UC Riverside

900 University Ave,
Surge Building Second Floor
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92521

Phone: 951-827-3113

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UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Shengmao Zhu
(UCLA & Zhejian Univ.)

“Perturbative computation of color Jones polynomial and
 $SL(2, \mathbb{C})$ Chern-Simons theory”

Abstract: Color Jones polynomial is one of the most important quantum invariants in knot theory. Finding the geometric information from the color Jones polynomial is an interesting topic. The volume conjecture gives the geometric interpretation of the leading term in perturbative expansion of color Jones polynomial. In this talk, we will explore the general expansion of color Jones polynomial. We review some basic notations firstly. Then, we study the perturbative computation of color Jones polynomial and $SL(2, \mathbb{C})$ Chern-Simons theory based on recent approaches developed by K. Hakima, T. Dimofte, S. Gukov, J. Lendells, D. Zagier, R. Dijkgraaf, H. Fuji and M. Manabe etc. Moreover, we give some new examples for the perturbative computations. Some related problems will also be discussed.

Friday, February 18th, 2011

Surge 268

11:10-12:00pm

UCR

Mathematics

Department

Special Colloquium in Applied Math

SPEAKER: DR. BIN DONG OF UC SAN DIEGO

“Mathematics in Medical Imaging and Image Analysis”

Abstract:

Variational models and tight wavelet frame based models for image processing have been extensively studied for the past 15 years. However, it was only in recent years did people start to seriously apply these models to medical imaging and related problems. In my talk, I will explain how we did fashion these known models in image processing properly to solve problems in medical imaging and image analysis. Furthermore, I will draw connections between variational models and one of frame based model. Such connections not only grant geometrical insights to the frame based model, but also provide us a new viewpoint of frame transform that leads to frame based models for medical image segmentations and surface reconstruction from scattered data. In addition, we also combined the idea of multiresolution analysis with that of set method, and developed a new multiscale representation for surfaces, and then applied it to surface in painting problems that help doctors quantify plaque formation of blood vessels.

Friday, February 18th, 2011

Surge Building, Room 284

Tea, Coffee and Cookies @ 3:40pm

Talk begins @ 4:00pm - Ends @ 5:00pm

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UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week February 21st – 25th, 2011

MONDAY – Pres. Day

10:10-11:00AM, SURGE 284

*10:10-11:00AM, SURGE 268

TUESDAY, 22nd

9:40-11:00AM, SURGE 277

11:10-12:00PM, SURGE 284

12:40-2:00PM, SURGE 268

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 277

3:40-5:00PM, SURGE 268

WEDNESDAY, 23rd

10:10-11:00AM, SURGE 277

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

12:10-1:00PM, SURGE 284

1:10-2:00PM, SURGE 284

THURSDAY, 24th

9:40-11:00AM, SURGE 277

11:10-12:30PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 268

3:40-5:00PM, SURGE 277

FRIDAY, 25th

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

3:10-4:00PM, SURGE 284

TOPICS IN COMPARISON GEOMETRY

Canceled Holiday

COMBINATORIAL NUMBER THEORY

Canceled Holiday

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

TOPOLOGY (Ko Honda, USC)

“HF=ECH via open book decompositions”

INTERSECTION THEORY (Ziv Ran)

LIE THEORY (Wee Liang Gan)

ALGEBRAIC GEOMETRY (Ziv Ran)

FUNCTIONAL ANALYSIS (Yuichiro Kakihara, UCR)

“Topological Properties of the set of information channels, part 2”

OPERATOR ALGEBRAS & RELATED TOPICS (Asaeda/Xu)

TOPICS IN COMPARISON GEOMETRY (Fred Wilhelm, UCR)

“Manifolds with almost maximal volume”

TOPICS IN COMMUTATIVE ALGEBRA

Canceled

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Kelliher/Zhang)

TBA

RATIONAL HOMOTOPY THEORY (Julie Bergner, UCR)

“Function spaces and homotopies of DGAs”

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

FRACTAL RESEARCH GROUP (Scot Childress, UCR)

“The Feynmann integral and fractal strings”

LIE THEORY (Wee Liang Gan)

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS (Richard Niemeyer)

“Toward a Heuristic framework for understanding the relationship between graphs and dynamical systems in several applied contexts”

ALGEBRAIC GEOMETRY (Ziv Ran)

TOPICS IN COMPARISON GEOMETRY (Barbara Herzog, UCR)

“Gromov’s Betti Number Theorem”

DIFFERENTIAL GEOMETRY (Mihail Bailesteanu, Cornell Univ.)

“Heat equation under the Ricci-flow – Old and new”

COMMUTATIVE ALGEBRA (David Rush)

UCR

Mathematics

Department

Special Colloquium in Applied Math

SPEAKER: DR. KEVIN COSTELLO OF G.I.T.

"Polynomial Littlewood-Offord Problems"

Abstract:

Consider a polynomial $f(x_1, x_2, \dots, x_n)$ which depends "non-trivially" on a large number of independent random inputs. We would intuitively expect this polynomial to become more dispersed as the number of inputs increases, and would like to quantify this dispersion. For example, if we independently set each input to either 1 or -1, what is the maximum concentration of f on one value (or in one small interval), and what polynomials come close to achieving this bound? When f is a linear polynomial, this is a question raised by Littlewood and Offord and answered by Erdos: The maximum concentration of $O(n^{-1/2})$ is achieved when all of the coefficients of f are equal in magnitude. Here we will consider the question where f is a bilinear or quadratic form, along with conjectured answers for higher degree polynomials and alternative definitions of "non-trivially".

Tuesday, February 22nd, 2011

Surge Building, Room 284

Tea, Coffee and Cookies @ 3:40pm

Talk begins @ 4:00pm - Ends @ 5:00pm

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UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Mihai Bailesteanu
(Cornell University)

“Heat equation under the Ricci flow – Old and new”

Abstract:

We will discuss various Li-Yau type gradient estimates of the solution of the heat equation on a manifold evolving under Ricci flow. We consider both the case where the manifold is a complete manifold without boundary and the case where M is a closed manifold. We will also present some lower bounds for the heat kernel, involving Sobolev imbedding constants.

Friday, February 25th, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week February 28th – March 4th, 2011

MONDAY

10:10-11:00AM, SURGE 284

*10:10-11:00AM, SURGE 268

TUESDAY

9:40-11:00AM, SURGE 277

11:10-12:00PM, SURGE 284

12:40-2:00PM, SURGE 268

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 277

3:40-5:00PM, SURGE 268

WEDNESDAY

10:10-11:00AM, SURGE 277

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

12:10-1:00PM, SURGE 284

1:10-2:00PM, SURGE 284

THURSDAY

9:40-11:00AM, SURGE 277

11:10-12:30PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 268

3:40-5:00PM, SURGE 277

FRIDAY

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

3:10-4:00PM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Barbara Herzog, UCR)

“Gromov’s Betti Number Theorem”

COMBINATORIAL NUMBER THEORY (John Dusel, UCR)

“Rational Fractions in Subgroups of the Units Mod n ”

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

TOPOLOGY (Chris Carlson, UCR)

“Contact Structures, foliations, and group actions on 3-manifolds”

INTERSECTION THEORY (Ziv Ran)

LIE THEORY (Wee Liang Gan)

ALGEBRAIC GEOMETRY (Ziv Ran)

FUNCTIONAL ANALYSIS (James Stafney, UCR)

“The F. and M. Riesz Theorem – analytic measures are absolutely continuous”

OPERATOR ALGEBRAS & RELATED TOPICS (Asaeda/Xu)

TOPICS IN COMPARISON GEOMETRY (Barbara Herzog, UCR)

“Gromov’s Betti Number Theorem”

TOPICS IN COMMUTATIVE ALGEBRA

Canceled this week

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Jacob Bedrossian, UCLA)

“Aggregation Equations and Patlak-Keller-Segel Models with Nonlinear Diffusion”

RATIONAL HOMOTOPY THEORY (Bergner/Hackney)

TBA

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

FRACTAL RESEARCH GROUP (Sean Townsend)

“Fractal Cryptography”

LIE THEORY (Wee Liang Gan)

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS (Mike Maroon)

“Generalized functions, Gelfand triples and the imaginary resolvent theorem”

ALGEBRAIC GEOMETRY (Ziv Ran)

TOPICS IN COMPARISON GEOMETRY (Barbara Herzog, UCR)

“Gromov’s Betti Number Theorem”

DIFFERENTIAL GEOMETRY (Zhiqin Lu, UC Irvine)

“On the fundamental gap”

COMMUTATIVE ALGEBRA (Jason McCullough, UCR)

“Ideals with Larger Projective Dimension”



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Partial Differential Equations & Applied Math

Jacob Bedrossian
(UCLA)

“Aggregation Equations and Patlak-Keller-Segel Models with
Nonlinear Diffusion”

Abstract: There is wide interest in aggregation phenomenon modeling the competition between dispersal and nonlocal self-attraction. The most well-studied examples are the parabolic-elliptic Patlak-Keller-Segel (PKS) models, originally proposed to model the chemotaxis of micro-organisms, however, many other models exist for group formation in ecology which incorporate a wide variety of nonlinear diffusions and interaction potentials. Similar to the unstable thin film equations and the nonlinear Schrodinger equations, these models have a number of different possible long-term behaviors, including decay to self-similarity, critical mass phenomena and global stationary solutions. In my talk, I will discuss some recent analysis of this global behavior and how it is related to the dissipated free energy. I will mostly be discussing joint work with A. Bertozzi and N. Rodriguez.

Wednesday, March 2nd, 2011

Surge 284

12:10-1:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Differential Geometry

Zhiqin Lu
(UC Irvine)

“On the fundamental gap”

Abstract:

Bakry and Emery introduced a weight function to the Laplace operator to define the so-called "drift Laplacian" and study diffusion processes. We proved that, given a Bakry-Emery manifold, there is a naturally associated family of graphs whose eigenvalues converge to the eigenvalues of the drift Laplacian as the graphs collapse to the manifold. Applications of this result include a new relationship between Dirichlet eigenvalues of domains in \mathbb{R}^n and Neumann eigenvalues of domains in \mathbb{R}^{n+1} , variational principles, and a maximum principle.

Friday, March 4th, 2011

Surge 268

11:10-12:00pm



UNIVERSITY OF CALIFORNIA, RIVERSIDE

Department of Mathematics

Calendar of Events For the Week March 7th – 11th, 2011

MONDAY, 7th

10:10-11:00AM, SURGE 284

10:10-11:00AM, SURGE 268

TOPICS IN COMPARISON GEOMETRY (Curtis Pro, UCR)
"Dual Foliations and the Soul Theorem"
COMBINATORIAL NUMBER THEORY (Mei-Chu Chang)

TUESDAY, 8th

9:40-11:00AM, SURGE 277

11:10-12:00PM, SURGE 284

12:40-2:00PM, SURGE 268

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 277

3:40-5:00PM, SURGE 268

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

TOPOLOGY (Azadeh Rafizadeh, UCR)
"Reidemeister-Schreier algorithm and some of its applications to low-dimensional topology"
INTERSECTION THEORY (Ziv Ran)

LIE THEORY (Wee Liang Gan)

ALGEBRAIC GEOMETRY (Ziv Ran)

FUNCTIONAL ANALYSIS (James Stafney, UCR)
"The F. and M. Riesz Theorem – analytic measures are absolutely continuous"

WEDNESDAY, 9th

10:10-11:00AM, SURGE 277

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

12:10-1:00PM, SURGE 284

1:10-2:00PM, SURGE 284

OPERATOR ALGEBRAS & RELATED TOPICS (Asaeda/Xu)

TOPICS IN COMPARISON GEOMETRY (Curtis Pro, UCR)
"Dual Foliations and the Soul Theorem"
TOPICS IN COMMUTATIVE ALGEBRA (Jason McCullough)

PARTIAL DIFFERENTIAL EQUATIONS & APPLIED MATH (Kelliher/Zhang)
TBA

RATIONAL HOMOTOPY THEORY (Philip Hackney, UCR)
TBA

THURSDAY, 10th

9:40-11:00AM, SURGE 277

11:10-12:30PM, SURGE 284

12:40-2:00PM, SURGE 284

3:40-5:00PM, SURGE 268

3:40-5:00PM, SURGE 277

REPRESENTATION THEORY OF FINITE GROUPS (Wee Liang Gan)

FRACTAL RESEARCH GROUP (Jonathan Sarhad)
"Reaction diffusion and transport in quantum star graphs"

LIE THEORY (Dmytro Chebotarov, USC)
"Vertex algebroids and localization of $\hat{\mathfrak{g}}$ -modules"

MATHEMITCAL PHYSICS & DYNAMICAL SYSTEMS (Robert Niemeyer, UCR)
"The flat surface of the pre-fractal snowflake billiard $\Omega(KS_n)$ "

ALGEBRAIC GEOMETRY (Ziv Ran)

FRIDAY

10:10-11:00AM, SURGE 284

11:10-12:00PM, SURGE 268

3:10-4:00PM, SURGE 284

TOPICS IN COMPARISON GEOMETRY (Curtis Pro, UCR)
"Dual Foliations and the Soul Theorem"

DIFFERENTIAL GEOMETRY (Yat Sun Poon)

COMMUTATIVE ALGEBRA (David Rush)



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

COLLOQUIUM

Prof. Dietmar Bisch
(University of Vanderbilt)

"Subfactors with composite Jones index"

Abstract:

The classification program of finite depth subfactors has recently been pushed to include subfactors up to Jones index 5. We have understood all subfactors with composite index 4 for some time, and we know that those with index 6 are "wild" by work of Popa, Nicoara and myself. The situation at composite index 5.236... is still open. I will discuss some of these results and illustrate the beauty of subfactors with examples.

Wednesday, March 9th, 2011

Surge 284

4:10-5:00pm

Tea Time at 3:40pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Lie Theory

Dmytro Chebotarov
(USC)

“Vertex algebroids and localization of $\hat{\mathfrak{g}}$ -modules”

Abstract:

Vertex algebroids can be regarded as distant relatives of rings of twisted differential operators (TDO) on smooth varieties. The latter are employed in the classical Beilinson-Bernstein equivalence result that relates \mathfrak{g} -modules to twisted D -modules on the flag variety of \mathfrak{g} . I will make a quick introduction to vertex algebroids and show how they can be used to construct a version of Beilinson-Bernstein localization for a class of modules over affine Lie algebras at the critical level.

Thursday, March 10th, 2011

Surge 284

12:40-2:00pm



UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

Topics in Commutative Algebra

Javid Validashti
(University of Kansas)

“A numerical condition for equisingularity”

Abstract:

Multiplicity-based criteria for integral dependence play a significant role in equisingularity theory, where one would like to use numerical invariants to distinguish between members of a given family of singularities. These criteria are based on the Hilbert-Samuel or Buchsbaum-Rim multiplicity and their variations, which rely on some kind of finiteness conditions. To explore this problem, we introduce a few notions of multiplicity without any finiteness assumption and we show that these invariants can be used in detecting integral dependence of modules and characterizing equisingularity conditions numerically. Parts of this talk are based on joint works with Bernd Ulrich and Steven L. Kleiman.

Wednesday, March 16th, 2011

Surge 268

11:10-12:00pm