

# Program of the Sessions

Charlotte, North Carolina, October 15–17, 1999

## Friday, October 15

### Meeting Registration

12:30 PM – 6:00 PM Lobby, Fretwell Hall

### AMS Exhibit and Book Sale

12:30 PM – 6:00 PM Lobby, Fretwell Hall

### Invited Address

1:15 PM – 2:15 PM Room 110, Storrs Architecture Building

- 1:15PM Welcome and Opening Remarks  
(1) *Phase transitions in combinatorial structures.*  
**Béla Bollobás**, University of Memphis and  
Cambridge University (949-05-04)

### Special Session on Knot Theory and Its Applications, I

2:30 PM – 5:20 PM Room 106, Denny Hall

- Organizer: **Yuanan Diao**, University of North  
Carolina at Charlotte
- 2:30PM *Polygonal approximation and energy of smooth  
(2) knots.*  
**Eric Rawdon**, Chatham College, and **Jonathan  
Simon\***, University of Iowa (949-57-191)
- 3:00PM *Conformal Energy of Thick Knots.*  
(3) **Gregory Buck**, St. Anselm College, **Eric J Rawdon\***,  
Chatham College, and **Jonathan Simon**, University  
of Iowa (949-57-187)
- 3:30PM *The ropelength of knots and links.* Preliminary  
(4) report.  
**John M Sullivan\***, Univ. of Illinois, **Rob Kusner** and  
**Jason Cantarella**, Univ. of Massachusetts  
(949-53-128)
- 4:00PM *Multiple Minimal Energy Knots.* Preliminary report.  
► (5) **Louis H Kauffman**, Univ of Ill at Chicago  
(949-57-92)

- 4:30PM *Can one tie a knot with 8.58299... inches of 1 inch  
► (6) rope?* Preliminary report.  
**Robert B Kusner\***, **Jason H Cantarella**, University  
of Massachusetts at Amherst, and **John M Sullivan**,  
University of Illinois at Urbana-Champaign  
(949-53-43)
- 5:00PM *Global Knotting in Equilateral Random Polygons.*  
(7) Preliminary report.  
**John C Nardo\***, North Georgia College & State  
University, and **Yuanan Diao**, UNC Charlotte  
(949-57-232)

### Special Session on Commutative Algebra, I

2:30 PM – 5:50 PM Room 116, Fretwell Hall

- Organizers: **Sarah Glaz**, University of Connecticut  
**Evan G. Houston**, University of North  
Carolina at Charlotte  
**Thomas G. Lucas**, University of North  
Carolina at Charlotte
- 2:30PM *A class of Bezout overrings of group algebras.*  
(8) Preliminary report.  
**Silvana Bazzoni**, University of Padua, and **Alan  
Loper\***, university of North Carolina-Charlotte  
(949-13-203)
- 3:00PM *Finite Generation of Powers of Ideals.*  
(9) **Robert Gilmer\***, Florida State University, **William  
Heinzer**, Purdue University, and **Moshe Roitman**,  
University of Haifa (949-13-08)
- 3:30PM *Multiplication modules.*  
(10) **D. D. Anderson**, The University of Iowa (949-13-99)
- 4:00PM *Duality, stability and 2-generated ideals.*  
(11) **Bruce M Olberding**, Northeast Louisiana University  
(949-13-204)
- 4:30PM *Weakly integrally closed domains: minimum  
(12) polynomials of matrices.*  
**James Brewer\*** and **Fred Richman**, Florida Atlantic  
University (949-13-42)
- 5:00PM *Direct sums of modules over local rings.* Preliminary  
(13) report.  
**Roger A Wiegand**, University of Nebraska  
(949-13-145)

The time limit for each contributed paper in the sessions is ten minutes. In the Special Sessions the time limit varies from session to session and within sessions. To maintain the schedule, time limits will be strictly enforced.

For papers with more than one author, an asterisk follows the name of the author who plans to present the paper at the meeting.

Papers flagged with a solid triangle (►) have been designated by the author as being of possible interest to undergraduate students.

Abstracts of papers presented in the sessions at this meeting will be

found in Volume 20, Issue 4 of *Abstracts of papers presented to the American Mathematical Society*, ordered according to the numbers in parentheses following the listings. The middle two digits, e.g., 897-20-1136, refer to the Mathematical Reviews subject classification assigned by the individual author. Groups of papers for each subject are listed chronologically in the *Abstracts*. The last one to four digits, e.g., 897-20-1136, refer to the receipt number of the abstract; abstracts are further sorted by the receipt number within each classification.

5:30PM *m*-Canonical Ideals In Integral Domains, II.  
 (14) Preliminary report.  
**Valentina Barucci**, Universita di Roma, **Evan G Houston**, **Thomas G Lucas**, University of North Carolina at Charlotte, and **Ira J Papick\***, University of Missouri-Columbia (949-13-139)

5:00PM *Augmented Lagrangian Method for Non-smooth Optimizations.*  
 (27) **Kazufumi Ito**, North Carolina State University (949-93-205)  
 5:30PM Discussion

**Special Session on Spectral Theory of Differential Operators and Applications, I**

2:30 PM – 5:50 PM Room 102, Denny Hall

Organizers: **Boris R. Vainberg**, University of North Carolina at Charlotte  
**Stanislav Molchanov**, University of North Carolina at Charlotte

2:30PM *Dynamical bounds for Fibonacci operator.*  
 (15) **Rowan Killip**, Caltech, **Alexander Kiselev\***, University of Chicago, and **Yoram Last**, Caltech (949-81-102)  
 3:00PM *Pulse propagation in Nonlinear Photonic Crystals.*  
 (16) Preliminary report.  
**Alexander Figotin**, University of California at Irvine (949-78-12)  
 3:30PM *The limiting equation of the Neumann Laplacians on shrinking domains.*  
 (17) **Yoshimi Saito**, University of Alabama at Birmingham (949-35-66)  
 4:00PM *Convergence of spectra of mesoscopic systems collapsing onto a graph.* Preliminary report.  
 ► (18) **Peter Kuchment\*** and **Hongbiao Zeng**, Wichita State University (949-35-64)  
 4:30PM *Spectral Decomposition Methods for the Incompressible Navier-Stokes Equation on Bounded Domains.*  
 (19) **Joel D Avrin**, UNC Charlotte (949-35-82)  
 5:00PM *The Feshbach formula and Fermi's golden rule.*  
 (20) **Jan Dereziński**, Warsaw University, and **Vojkan Jaksic\***, University of Ottawa (949-47-49)  
 5:30PM *Extended and Localized states for the quantum Hall systems.*  
 (21) **Peter Hislop**, University of Kentucky (949-47-96)

**Special Session on Optimal Control and Computational Optimization, I**

2:30 PM – 5:50 PM Room 122, Denny Hall

Organizers: **Mohammed A. Kazemi**, University of North Carolina at Charlotte  
**Gamal N. Elnagar**, University of South Carolina Spartanburg

2:30PM *New results on the Bellman equation for exit time control problems with critical growth dynamics.*  
 ► (22) **Michael Malisoff**, Rutgers University (949-49-25)  
 3:00PM *Uniform stabilization of systems of nonlinear PDE's coupled at the interface of two regions.*  
 ► (23) **Irena M Lasiecka**, University of Virginia (949-35-31)  
 3:30PM *Inverse type inequalities for multi-dimensional hyperbolic and Schrodinger equations with variable coefficients.* Preliminary report.  
 (24) **Roberto Triggiani**, University of Virginia (949-35-192)  
 4:00PM *Principles of the dynamics of wealth.*  
 (25) **Ethelbert N. Chukwu**, North Carolina State University (949-49-196)  
 4:30PM *A Complete Numerical Theory for Constrained Problems in the Calculus of Variations/Optimal Control Theory.*  
 ► (26) **John Gregory**, Southern Illinois University (949-49-199)

**Special Session on Stochastic PDEs and Turbulence, I**

2:30 PM – 4:50 PM Room 121, Fretwell Hall

Organizer: **Weinan E**, Courant Institute, New York University

2:30PM *Stochastic PDEs and Geophysical Fluid Dynamics.*  
 ► (28) Preliminary report.  
**Jinqiao Duan**, Clemson University (949-76-81)  
 3:00PM *Stochastic Burgers equation.*  
 (29) **Weinan E\***, Princeton University and New York University, and **Eric Vanden Eijnden**, New York University (949-82-158)  
 3:30PM *Recent results on the 2D Stochastic Navier-Stokes equations.*  
 (30) **Jonathan C. Mattingly**, Stanford University (949-76-157)  
 4:00PM *Infinite dimensional Hamilton-Jacobi-Bellman equations and control of stochastic PDE.* Preliminary report.  
 (31) **Andrzej J. Swiech**, Georgia Institute of Technology (949-35-189)  
 4:30PM Discussion

**Special Session on Set-Theoretic Topology, I**

2:30 PM – 5:50 PM Room 113, Fretwell Hall

Organizer: **Ronald F. Levy**, George Mason University

2:30PM *An Irrational Problem.* Preliminary report.  
 (32) **Franklin D. Tall**, University of Toronto (949-04-68)  
 3:00PM *A generalized version of Tukey's Lemma that is equivalent to the PIT.* Preliminary report.  
 (33) **Richard Hodel**, Duke University (949-54-190)  
 3:30PM *Ultrafilter Spaces on the Semilattice of Partitions.*  
 (34) Preliminary report.  
**Lorenz J. Halbeisen\***, Swiss National Science Foundation Scholar, and **Benedikt Löwe**, University of Bonn, Germany (949-04-133)  
 4:00PM *Weakly Uniform Bases.*  
 (35) **Sheldon W Davis**, Miami University (949-54-138)  
 4:30PM *Cleavability and Divisibility in Ordered Spaces.*  
 (36) Preliminary report.  
**Harold R Bennett\***, **Robert E Byerly**, Texas Tech University, and **David J Lutzer**, College of William and Mary (949-54-65)  
 5:00PM *The continuous Urysohn property in generalized ordered spaces.* Preliminary report.  
 ► (37) **David J Lutzer\***, College of William and Mary, and **Harold R Bennett**, Texas Tech University (949-54-50)  
 5:30PM *Trichotomies and tetrachotomies on locally compact spaces.* Preliminary report.  
 (38) **Peter J Nyikos**, University of South Carolina (949-54-245)

**Special Session on Geometric Function Theory, I**

2:30 PM – 5:50 PM Room 203, Denny Hall

Organizers: **David A. Herron**, University of Cincinnati  
**Shanshuang Yang**, Emory University

- (39) *Norm Order and Geometric Properties of Holomorphic Mappings in  $C^n$* .  
**John A Pfaltzgraff\***, University of North Carolina at Chapel Hill, and **Ted J Suffridge**, University of Kentucky (949-32-210)
- 2:30PM (40) *On Korenblum's maximum principle in Bergman space*.  
**Aimo Hinkkanen**, University of Illinois (949-30-09)
- 3:00PM (41) *Circle preserving maps*. Preliminary report.  
**Alan F. Beardon**, University of Cambridge, and **David Minda\***, University of Cincinnati (949-30-163)
- 3:30PM (42) *Hyperbolically convex functions*. Preliminary report.  
**William Ma\***, Pennsylvania College of Technology, and **David Minda**, University of Cincinnati (949-30-113)
- 4:00PM (43) *Best approximation by analytic and harmonic functions in the supremum norm*. Preliminary report.  
**Dmitry Khavinson\***, University of Arkansas, and **Harold S. Shapiro**, Royal Institute of Technology, Stockholm (949-41-35)
- 4:30PM (44) *Banach space-valued classes of Sobolev functions*.  
**Juha Heinonen**, University of Michigan, **Pekka Koskela**, University of Jyväskylä, **Nageswari Shanmugalingam**, National University of Ireland, and **Jeremy Tyson\***, SUNY-Stony Brook (949-46-160)
- 5:00PM (45) *Hausdorff dimension and limit sets of quasiconformal groups*.  
**Petra Bonfert-Taylor\***, Wesleyan University, and **Edward C. Taylor**, University of Connecticut (949-30-54)
- 5:30PM (46) *Quasisymmetries, Quasicircles, and Circle Packing*.  
**G Brock Williams**, Texas Tech University (949-30-171)

**Special Session on Contemporary Methods in Dynamics and Differential Equations, I**

2:30 PM – 5:50 PM Room 200, Denny Hall

- Organizers: **Robert W. Ghrist**, Georgia Institute of Technology  
**Konstantin M. Mischaikow**, Georgia Institute of Technology
- 2:30PM (47) *The Extended Morse Complex*.  
**Octav Cornea**, Universite de Lille 1 (949-37-38)
- 3:00PM (48) *Deterministic Central Limit Theorems in Dynamical Systems with Symmetry*.  
**Matthew Nicol**, UMIST, **Ian Melbourne\***, University of Houston, and **Peter Ashwin**, University of Surrey (949-37-51)
- 3:30PM (49) *Stochastic Dynamical Systems and Applications to Geophysical Flow Modeling*.  
**Jinqiao Duan**, Clemson University (949-37-74)
- 4:00PM (50) *Euler flows and the Weinstein conjecture for solid tori*.  
**John Etnyre**, Stanford University, and **Robert Ghrist\***, Georgia Institute of Technology (949-58-78)
- 4:30PM (51) *Periodic orbits for fourth order conservative systems and a Morse type theory*.  
**Robert C Vandervorst\***, GA Tech, and **Jan-Bouwe Van den Berg**, University of Leiden (949-37-79)
- 5:00PM (52) *Separatrix Crossing for Multi-Dimensional Hamiltonian Systems*.  
**Norman Lebovitz**, University of Chicago, and **Todd Young\***, Ohio University (949-34-80)

- 5:30PM (53) *Positivity of Nonnegative solutions for cooperative semipositone systems*.  
**Alfonso Castro**, University of Texas at San Antonio, **Maya Chhetri**, University of North Carolina at Greensboro, and **Ratnasingham Shivaji\***, Mississippi State University (949-35-90)

**Special Session on Algebraic Geometry, I**

2:30 PM – 5:50 PM Room 107, Fretwell Hall

- Organizers: **Valery Alexev**, University of Georgia  
**William Graham**, University of Georgia  
**Roy C. Smith**, University of Georgia  
**Robert Varley**, University of Georgia
- 2:30PM (54) *The Separation Conjecture in Real Algebraic Geometry*. Preliminary report.  
**James J Madden**, Louisiana State University (949-14-172)
- 3:00PM Discussion
- 3:30PM (55) *Fundamental groups of real algebraic varieties*.  
**Eriko Hironaka**, Florida State University (949-14-127)
- 4:00PM (56) *Representations of polynomials positive on semi-algebraic sets*.  
**Victoria Powers**, Emory University (949-14-161)
- 4:30PM (57) *Polygons with Prescribed Edges and Special Lagrangians in Calabi-Yau Manifolds*.  
**Ciprian S Borcea**, Rider University (949-14-137)
- 5:00PM (58) *An application of commutative algebra to tiling theory*.  
**Kevin P Keating**, University of Florida (949-52-148)
- 5:30PM (59) *Generalized Newton Puiseux Expansions and a conjecture of D. Daigle and G. Freudenberg*. Preliminary report.  
**Avinash Sathaye**, University of Kentucky (949-14-197)

**Special Session on Gauge Theory and Low-Dimensional Topology, I**

2:30 PM – 5:00 PM Room 118, Fretwell Hall

- Organizers: **Eric P. Klassen**, Florida State University  
**Paul A. Kirk**, Indiana University
- 2:30PM (60) *Floer Homology and Dehn surgeries along knots in  $S^3$  with non-trivial cyclic fundamental group*. Preliminary report.  
**Olivier Collin**, Harvard University (949-57-200)
- 3:10PM (61) *Quantized Flat Connections on Spines of Three-Manifolds*. Preliminary report.  
**Charles D Frohman**, The University of Iowa (949-57-186)
- 3:50PM (62) *The Theta Divisor and Three-Manifold Invariants*.  
**Peter S Ozsvath\***, Michigan State University, and **Zoltan Szabo**, University of Michigan (949-57-220)
- 4:30PM (63) *Immersed symplectic spheres in symplectic four manifolds*. Preliminary report.  
**Tian-Jun Li**, Princeton University (949-57-55)

**Special Session on Stochastic Processes and Control, I**

2:30 PM – 5:20 PM Room 305, Fretwell Hall

- Organizers: **Volker Wihstutz**, University of North Carolina at Charlotte  
**Alexander A. Yushkevich**, University of North Carolina at Charlotte
- 2:30PM (64) *Optimal switching of a Markov chain*. Preliminary report.  
**Alexander A Yushkevich**, UNC, Charlotte (949-60-22)

- 3:00PM *Levy-like Continuity Theorems for Convergence in Distribution*. Preliminary report.  
(65) **Theodore P. Hill**, Georgia Institute of Technology (949-60-23)
- 3:30PM *Mixed and Isoperimetric Estimates on the Log-Sobolev Constants of Graphs and Markov Chains*.  
(66) **Christian Houdre**, Georgia Tech (949-60-24)
- 4:00PM *Characterization of stabilizing stochastic processes*.  
(67) **Volker Wihstutz**, UNC Charlotte (949-93-36)
- 4:30PM *Branching Particle Systems on Brownian Flows*. Preliminary report.  
(68) **Erhan Cınlar\***, Princeton University, and **Christopher C. Finger**, J. P. Morgan (949-60-37)
- 5:00PM *Simple robust control problems in queueing theory*.  
(69) **Martin V Day**, Virginia Tech (949-93-57)

### Special Session on Applied Probabilistic Combinatorics, I

2:30 PM – 6:20 PM Room 105, Denny Hall

Organizers: **Bela Bollobás**, University of Memphis  
**Gregory Sorkin**, IBM T. J. Watson Research Center

- 2:30PM *Coalescent trees and the age of a mutation*.  
▶ (70) **Robert C Griffiths**, University of Oxford, and **Simon Tavaré\***, University of Southern California (949-60-71)
- 3:00PM *Random Three-Dimensional Tilings of Aztec Octahedra and Tetrahedra: An Extension of Domino Tilings*. Preliminary report.  
▶ (71) **Dana Randall\*** and **Gary Yngve**, Georgia Institute of Technology (949-05-182)
- 3:30PM *The sizes and speeds of properties of graphs*.  
(72) **David Weinreich\***, The University of Memphis, **Bela Bollobas**, The University of Memphis and Cambridge University, and **Jozsef Balog**, The University of Memphis (949-05-227)
- 4:00PM *Graphical Representations of the Potts Model in a Magnetic Field*.  
(73) **Marek Biskup**, **Christian Borgs\***, **Jennifer T Chayes**, Microsoft Research, and **Roman Kotecky**, Center for Theoretical Study (949-82-226)
- 4:30PM *Discounted Reward Markov Decision Process is Undecidable*.  
(74) **Anne E Condon**, University of British Columbia (949-68-109)
- 5:00PM *Random matchings which induce Hamilton cycles, and Hamiltonian decompositions of random regular graphs*.  
▶ (75) **Jeong Han Kim\***, Microsoft Research, and **Nick C. Wormald**, University of Melbourne (949-05-84)
- 5:30PM *0-1 Laws for Single Molecules*.  
(76) **Bud Mishra**, Courant Institute, NYU (949-05-67)
- 6:00PM Discussion

## Saturday, October 16

### Meeting Registration

8:00 AM – 5:00 PM Lobby, Fretwell Hall

### AMS Exhibit and Book Sale

8:00 AM – 5:00 PM Lobby, Fretwell Hall

### Special Session on Gauge Theory and Low-Dimensional Topology, II

8:20 AM – 10:50 AM Room 118, Fretwell Hall

Organizers: **Eric P. Klassen**, Florida State University  
**Paul A. Kirk**, Indiana University

- 8:20AM *Finite Type Link Homotopy Invariants*.  
▶ (77) **Blake Mellor**, Florida Atlantic University, Honors College (949-57-97)
- 9:00AM *Surgery Presentations of 3-dim Framed Relative Cobordisms, and applications to topological quantum field theories with corners*.  
(78) **Thomas Kerler\***, The Ohio State University, and **Volodimir Lyubashenko**, Kiev University (949-57-167)
- 9:40AM *Groups of concordant mutants*. Preliminary report.  
(79) **Paul A. Kirk\*** and **Charles Livingston**, Indiana University (949-57-134)
- 10:20AM *Four dimensional manifolds that become diffeomorphic after one stabilization*. Preliminary report.  
(80) **David R.r Auckly**, Kansas State University (949-57-77)

### Special Session on Knot Theory and Its Applications, II

8:30 AM – 10:50 AM Room 106, Denny Hall

Organizer: **Yuanan Diao**, University of North Carolina at Charlotte

- 8:30AM *A Family of Ropelength-Minimizing Links*. Preliminary report.  
▶ (81) **Jason H Cantarella\***, UMASS and UGA, **Robert B Kusner**, UMASS, and **John M Sullivan**, UIUC (949-53-159)
- 9:00AM *Some numerical results on random linking*.  
(82) **Tetsuo Deguchi**, Ochanomizu University (949-65-154)
- 9:30AM *Nearby Knots in Knot Space*. Preliminary report.  
▶ (83) **Kenneth C Millett**, University of California (949-57-129)
- 10:00AM *Configuration spaces and knot spaces*. Preliminary report.  
(84) **Richard Randell**, University of Iowa (949-57-114)
- 10:30AM Discussion

### Special Session on Commutative Algebra, II

8:30 AM – 10:50 AM Room 116, Fretwell Hall

Organizers: **Sarah Glaz**, University of Connecticut  
**Evan G. Houston**, University of North Carolina at Charlotte  
**Thomas G. Lucas**, University of North Carolina at Charlotte

- 8:30AM *On the Asymptotic Behavior of Irreducible Elements in Dedekind Domains*. Preliminary report.  
(85) **Scott T Chapman**, Trinity University (949-13-88)
- 9:00AM *Generalized Sets of Lengths*. Preliminary report.  
(86) **William W. Smith\***, University of North Carolina at Chapel Hill, **Scott T Chapman**, Trinity University, and **Michael Freeze**, University of North Carolina at Wilmington (949-13-94)
- 9:30AM *On the integral closure of a half-factorial domain*.  
(87) **James B Coykendall, IV**, North Dakota State University (949-13-166)
- 10:00AM *Integer-valued polynomials on subsets of a rank-one valuation domain*. Preliminary report.  
(88) **Paul-jean Cahen\***, Université d'Aix-Marseille III, and **Jean-Luc Chabert**, Université de Picardie (949-13-58)

- 10:30AM *Versions of Hilbert's Nullstellensatz for integer-valued polynomials (preliminary report).*  
 ▶ (89) Preliminary report.  
**Sophie Frisch**, Technische Universität Graz (949-13-230)

### **Special Session on Spectral Theory of Differential Operators and Applications, II**

8:30 AM – 10:50 AM **Room 102, Denny Hall**

Organizers: **Boris R. Vainberg**, University of North Carolina at Charlotte  
**Stanislav Molchanov**, University of North Carolina at Charlotte

- 8:30AM *Finite-volume Criteria for Anderson Localization.*  
 (90) **Michael Aizenman\***, **Dirk Hundertmark**, Princeton University, **Roland Friedrich**, ETH-Zurich, and **Jeffrey Schenker**, Princeton University (949-47-175)
- 9:00AM *On The Surface Spectrum.*  
 (91) **Stanislav A Molchanov\***, UNC Charlotte, and **Vojkan Jaksic**, University of Ottawa (949-35-194)
- 9:30AM *Localization and Delocalization in Media with Sparse Scatterers.*  
 (92) **Stanislav A. Molchanov** and **Boris R. Vainberg\***, UNC at Charlotte (949-35-15)
- 10:00AM *Non-Monotoneous Random Operators: The Anderson Model.*  
 (93) **Günter Stolz**, UAB (949-81-44)
- 10:30AM *Localization: A Scattering Theoretic Approach.*  
 (94) **Robert Sims\*** and **Gunter Stolz**, UAB (949-81-63)

### **Special Session on Optimal Control and Computational Optimization, II**

8:30 AM – 10:50 AM **Room 122, Denny Hall**

Organizers: **Mohammed A. Kazemi**, University of North Carolina at Charlotte  
**Gamal N. Elnagar**, University of South Carolina Spartanburg

- 8:30AM *Aerospace Trajectory Optimization Methods.*  
 ▶ (95) **Eugene M. Cliff**, Virginia Polytechnic Institute and State University (949-49-206)
- 9:00AM *A pointwise maximum principle for optimal control problems with state inequality constraints.*  
 (96) **Nohammad A Kazemi**, University of North Carolina at Charlotte (949-49-239)
- 9:30AM *Nonlinear periodic optimal control: A pseudospectral fourier approach.*  
 (97) **G N Elnagar**, University of South Carolina Spartanburg (949-49-242)
- 10:00AM *Max-Plus Linearity Based Methods in Nonlinear Control Computation.*  
 (98) **William M McEneaney**, North Carolina State University (949-93-246)
- 10:30AM *On the solution of optimal control problems with pointwise state and control constraints.*  
 (99) **Joseph C Dunn**, North Carolina State University (949-49-250)

### **Special Session on Operator Theory, Including Applications in Operator Algebras and Wavelets, I**

8:30 AM – 10:50 AM **Room 114, Fretwell Hall**

Organizers: **Alan L. Lambert**, University of North Carolina at Charlotte  
**Xingde Dai**, University of North Carolina at Charlotte

- 8:30AM *Solution of the singular quartic moment problem.*  
 ▶ (100) **Raúl E Curto**, The University of Iowa (949-47-231)

- 9:00AM *Wavelets with Higher Order Translation Invariance.*  
 (101) Preliminary report.  
**Eric Weber**, Texas A&M University (949-42-219)
- 9:30AM *Convergence of the cascade algorithm at irregular scaling functions.*  
 (102) **Ola Bratteli**, University of Oslo, and **Palle E.T. Jorgensen\***, The University Of Iowa (949-46-152)
- 10:00AM Discussion
- 10:30AM *Frame Sets.* Preliminary report.  
 ▶ (103) **Xingde Dai**, **Yuanan Diao\*** and **Qing Gu**, University of North Carolina at Charlotte (949-46-255)

### **Special Session on Set-Theoretic Topology, II**

8:30 AM – 10:50 AM **Room 113, Fretwell Hall**

Organizer: **Ronald F. Levy**, George Mason University

- 8:30AM *Modified compactness conditions.* Preliminary report.  
 (104) **Robert M. Stephenson, Jr.**, University of South Carolina, Columbia (949-54-61)
- 9:00AM *On the decomposition of order-separable posets of countable width into chains.*  
 (105) **Gary Gruenhage\***, Auburn University, and **Joe Mashburn**, University of Dayton (949-06-162)
- 9:30AM *On  $\lambda$ -metacompact subspaces of the product of finitely many ordinals, preliminary report.*  
 (106) Preliminary report.  
**William G Fleissner**, University of Kansas (949-54-156)
- 10:00AM *An  $N$ -compact metric space of positive covering dimension for which all closed sets are clopen Borel.*  
 (107) Preliminary report.  
**John S Kulesza**, George Mason University (949-54-136)
- 10:30AM *Von Neumann regular rings of functions on topological spaces.* Preliminary report.  
 (108) **Melvin Henriksen**, Harvey Mudd College (949-54-258)

### **Special Session on Geometric Function Theory, II**

8:30 AM – 10:50 AM **Room 203, Denny Hall**

Organizers: **David A. Herron**, University of Cincinnati  
**Shanshuang Yang**, Emory University

- 8:30AM *The Schwarzian Derivative of Harmonic Mappings.*  
 (109) Preliminary report.  
**Martin S. Chuaqui\***, P. Universidad Catolica de Chile, **Peter L. Duren**, University of Michigan, and **Brad G. Osgood**, Stanford University (949-53-207)
- 9:00AM *The Riemann Router: An approach to fast IP address lookups via conformal mapping.* Preliminary report.  
 (110) **Brad Osgood**, Stanford University (949-30-140)
- 9:30AM *A conjecture about integrals of stretches of Lipschitz functions in a disk.* Preliminary report.  
 (111) **Albert Baernstein, II\***, Washington University, and **Stephen J. Montgomery-Smith**, University of Missouri - Columbia (949-30-132)
- 10:00AM *The Loewner differential equation and slit discs.*  
 (112) Preliminary report.  
**Steffen Rohde**, University of Washington (949-30-234)
- 10:30AM *Hyperbolic symmetrization and an inequality of Dyn'kin.*  
 (113) **John F Rossi\***, Virginia Tech, and **Alexandre Fryntov**, Institute for Low Temperature, Kharkov, Ukraine (949-30-93)

**Special Session on Contemporary Methods in Dynamics and Differential Equations, II**

8:30 AM – 10:50 AM Room 200, Denny Hall

Organizers: **Robert W. Ghrist**, Georgia Institute of Technology  
**Konstantin M. Mischaikow**, Georgia Institute of Technology

- 8:30AM (114) *An existence result for a class of superlinear  $p$ -laplacian semipositone systems.*  
**Hai Dang**, Mississippi State University, **Maya Chhetri\***, University of North Carolina at Greensboro, and **Ratnasingham Shivaji**, Mississippi State University (949-35-91)
- 9:00AM (115) *Jacobians from time series.*  
**Timothy D. Sauer**, George Mason University (949-58-147)
- 9:30AM (116) *Morse Conley index for Braid solutions in Lagrangian systems on  $S^1$ .* Preliminary report.  
**Sigurd B Angenent**, UW Madison (949-34-169)
- 10:00AM (117) *Partially hyperbolic KAM theorem and homoclinic splitting.*  
**Michael Rudnev**, UT at Austin (949-37-170)
- 10:30AM (118) *Discontinuous Changes in the Chain Recurrent Set.* Preliminary report.  
**Evelyn Sander**, George Mason University (949-58-178)

**Special Session on Algebraic Geometry, II**

8:30 AM – 10:50 AM Room 107, Fretwell Hall

Organizers: **Valery Aleeev**, University of Georgia  
**William Graham**, University of Georgia  
**Roy C. Smith**, University of Georgia  
**Robert Varley**, University of Georgia

- 8:30AM (119) *The special subvariety of divisors associated to an étale double cover of curves: a factorization of the Prym map.* Preliminary report.  
**Roy C Smith** and **Robert Varley\***, University of Georgia (949-14-244)
- 9:00AM (120) *Polarizations of Varieties and Constructions of Moduli Spaces.* Preliminary report.  
**Amassa C Fautleroy**, North Carolina State University (949-14-126)
- 9:30AM (121) *Birational rigidity fo hypersurfaces on degree  $n$  in  $p^n$ .*  
**Ivan Cheltsov**, JHU (949-14-202)
- 10:00AM (122) *An inductive approach to log flips.*  
**Vyacheslav V Shokurov**, Johns Hopkins University (949-14-185)
- 10:30AM Discussion

**Special Session on Applied Probabilistic Combinatorics, II**

8:30 AM – 10:50 AM Room 105, Denny Hall

Organizers: **Bela Bollobás**, University of Memphis  
**Gregory Sorkin**, IBM T. J. Watson Research Center

- 8:30AM (123) *DNA sequencing, Euler circuits, and graph polynomials.*  
**Richard Arratia**, U.S.C., **Bela Bollobas**, Univ. of Cambridge / Memphis Univ., **Don Coppersmith** and **Gregory B Sorkin\***, IBM Watson Research Ctr. (949-05-83)

- 9:00AM (124) *The interlace polynomial: a new graph polynomial.* Preliminary report.  
**Richard Arratia**, University of Southern California, Los Angeles CA, **Béla Bollobás\***, University of Memphis, Memphis TN, and **Gregory B Sorkin**, IBM T. J. Watson Research Center (949-05-218)
- 9:30AM (125) *On the impossibility of closed-form partition functions for the 3D Ising model across lattices.* Preliminary report.  
**Sorin I Istrail**, Sandia National Laboratories (949-82-153)
- 10:00AM (126) *A Survey of Subshifts of Finite Type and Measures of Maximal Entropy.*  
**Jeffrey E Steif**, Georgia Institute of Technology (949-05-69)
- 10:30AM (127) *Phylogeny needs more probability for sure.* Preliminary report.  
**Laszlo A Szekely**, University of South Carolina (949-92-122)

**Invited Address**

11:00 AM – 11:50 AM Room 200, Denny Hall

- (128) *From Experimental Time Series to Symbolic Dynamics.*  
**Konstantin Mischaikow**, Georgia Institute of Technology (949-37-253)

**Invited Address**

1:25 PM – 2:15 PM Room 200, Denny Hall

- (129) *Stable maps between varieties with group action.*  
**Valery Alexeev**, University of Georgia (949-14-120)

**Special Session on Knot Theory and Its Applications, III**

2:30 PM – 5:20 PM Room 106, Denny Hall

Organizer: **Yuanan Diao**, University of North Carolina at Charlotte

- 2:30PM (130) *Monte Carlo Studies of Lattice Knots.*  
**Esaias J Janse van Rensburg**, York University (949-82-40)
- 3:00PM (131) *The writhe of simple closed curves in lattices.*  
**Stu Whittington**, University of Toronto (949-57-103)
- 3:30PM (132) *The curvature of lattice knots.*  
**David Promislow**, York University (949-57-108)
- 4:00PM (133) *Entanglement Complexity of Self-avoiding Polygons in a Rectangular Tube.*  
**Christine E Soteros**, University of Saskatchewan (949-82-146)
- 4:30PM (134) *Using random knotting to analyze DNA packing in viral capsids.* Preliminary report.  
**Francisco J Arsuaga\***, Florida State University, **Joaquim Roca**, I.B.M.B. - C.S.I.C., and **De Witt L Sumners**, Florida State University (949-92-86)
- 5:00PM (135) *Computing canonical conformations for knots.* Preliminary report.  
**Gregory Buck**, Saint Anselm College (949-57-243)

**Special Session on Commutative Algebra, III**

2:30 PM – 5:50 PM Room 116, Fretwell Hall

Organizers: **Sarah Glaz**, University of Connecticut  
**Evan G. Houston**, University of North Carolina at Charlotte  
**Thomas G. Lucas**, University of North Carolina at Charlotte

- 2:30PM *Prime ideals in polynomial and related rings.*  
(136) Preliminary report.  
**Serpil Saydam**, Northeast Louisiana State University, and **Sylvia M Wiegand\***, University of Nebraska (949-13-240)
- 3:00PM *The projective line over the integers.*  
(137) **Meral Arnavut**, University of Nebraska-Lincoln (949-13-236)
- 3:30PM *A cancellation theorem for ideals.*  
(138) **Alberto Corso**, Michigan State University (949-13-144)
- 4:00PM *The Sally module and the associated graded ring of an ideal.*  
(139) **Claudia Polini**, Hope College (949-13-116)
- 4:30PM *Seminormal Rings.*  
(140) **David F Anderson\***, University of Tennessee, and **Ayman Badawi**, Birzeit University (949-13-106)
- 5:00PM *Root Closure in Rings.* Preliminary report.  
(141) **David F Anderson**, University of Tennessee, and **Ayman Badawi\***, Birzeit University (949-13-107)
- 5:30PM *U-factorizations in Commutative Rings with Zero Divisors.* Preliminary report.  
(142) **Michael C Axtell**, University of Iowa (949-13-34)

- 2:30PM *Small-scale turbulent dynamo.*  
(150) **Michael Chertkov\***, Los Alamos National Laboratory, **Gregory Falkovich**, Weizmann Institute, Rehovot, Israel, **Igor Kolokolov**, Budker Institute, Novosibirsk, Russia, and **Massimo Vergassola**, CNRS, Nice, France (949-76-151)
- 3:00PM *Asymptotics for the almost-sure Lyapunov exponent for the solution of parabolic Anderson model.*  
(151) **Leonid B. Korolov\***, IAS, and **Stanislav A. Molchanov**, UNC at Charlotte (949-60-121)
- 3:30PM *Generalized Stochastic Flows and Passive Scalar Transport.*  
(152) **Weinan E**, Princeton University, and **Eric Vanden Eijnden\***, Courant Institute (949-60-211)
- 4:00PM *Ideal Turbulent Decay in Kraichnan's Model of a Passive Scalar, Part I.* Preliminary report.  
(153) **Gregory L Eyink\***, University of Arizona, and **Jack Xin**, University of Texas at Austin (949-35-179)
- 4:30PM *Ideal Turbulent Decay in Kraichnan's Model of a Passive Scalar, Part II.* Preliminary report.  
(154) **Gregory L Eyink**, University of Arizona, and **Jack Xin\***, University of Texas at Austin (949-35-180)
- 5:00PM Discussion

**Special Session on Spectral Theory of Differential Operators and Applications, III**

2:30 PM – 5:50 PM Room 102, Denny Hall

- Organizers: **Boris R. Vainberg**, University of North Carolina at Charlotte  
**Stanislav Molchanov**, University of North Carolina at Charlotte
- 2:30PM *Inverse problem for a semibounded crystal.*  
(143) **Yulia Karpeshina**, University of Alabama at Birmingham (949-35-18)
- 3:00PM *The Direct And Inverse Scattering Problems For The Difference Schroedinger Operator.* Preliminary report.  
(144) **Wafaa A. Shaban\*** and **Boris R. Vainberg**, UNC at Charlotte (949-35-13)
- 3:30PM *Spectral Asymptotics with Sharp Remainder Estimates for Operators with Non Regular Coefficients.*  
(145) **Victor Ivrii**, University of Toronto (949-35-17)
- 4:00PM *Semi-classical asymptotics for the counting functions of Pauli and Dirac operators with large magnetic fields.* Preliminary report.  
(146) **Alexander A. Balinsky**, **W. Desmond Evans**, University of Wales, Cardiff, and **Roger T. Lewis\***, UAB (949-81-33)
- 4:30PM *Boundary estimates and perturbation theory for the ground state of the p-Laplacian.*  
(147) **Evans M Harrell, II\***, Georgia Institute of Technology, **Jacqueline Fleckinger** and **Francois de Thélin**, University of Toulouse (949-35-10)
- 5:00PM *Positive Lyapunov exponents and dimensionality of the spectral measures of quasiperiodic operators.*  
(148) **Svetlana Jitomirskaya**, UC Irvine (949-37-215)
- 5:30PM *Semiclassical Dynamics with Exponentially Small Error Estimates.*  
(149) **George A. Hagedorn**, Virginia Polytechnic Institute and State University (949-81-32)

**Special Session on Stochastic PDEs and Turbulence, II**

2:30 PM – 5:20 PM Room 121, Fretwell Hall

- Organizer: **Weinan E**, Courant Institute, New York University

**Special Session on Operator Theory, Including Applications in Operator Algebras and Wavelets, II**

2:30 PM – 5:50 PM Room 114, Fretwell Hall

- Organizers: **Alan L. Lambert**, University of North Carolina at Charlotte  
**Xingde Dai**, University of North Carolina at Charlotte
- 2:30PM *A simple approach to limit distributions of Haar unitary systems.* Preliminary report.  
(155) **Michal Dostal**, Prague, and **Don Hadwin\***, University of New Hampshire (949-47-229)
- 3:00PM *Abstract harmonic analysis applied to wavelet theory.* Preliminary report.  
(156) **Lawrence W. Baggett\***, University of Colorado, and **Kathy D. Merrill**, The Colorado College (949-43-123)
- 3:30PM *On a weighted Cesaro operator.* Preliminary report.  
(157) **Joseph A. Cima\***, UNC, Chapel Hill, and **Aristmonenis G. Siskakis**, Aristotle Univ. of Thessaloniki (949-47-20)
- 4:00PM *Semisimple TUHF algebras are primitive.* Preliminary report.  
(158) **Elias G Katsoulis**, East Carolina University (949-47-30)
- 4:30PM Discussion
- 5:00PM Discussion
- 5:30PM Discussion

**Special Session on Set-Theoretic Topology, III**

2:30 PM – 5:50 PM Room 113, Fretwell Hall

- Organizer: **Ronald F. Levy**, George Mason University
- 2:30PM *Character Reduction.*  
(159) **Zoltan T. Balogh**, Miami University, Oxford, OH (949-54-193)
- 3:00PM *Basic homogeneity.*  
(160) **Mikhail V Matveev**, Moscow, Russia; currently UC Davis, California (949-54-164)
- 3:30PM *Connected Hausdorff-Subtopologies.* Preliminary report.  
▶ (161) **Jack R Porter**, University of Kansas (949-54-62)

- 4:00PM *Compactness in Countable Tychonoff Products and Choice.* (162)  
**Adrienne M Stanley**, University of Northern Iowa (949-04-241)
- 4:30PM *Cantor sets with bounded splitting.* Preliminary report. (163)  
**L. Brian Lawrence**, George Mason University (949-54-257)
- 5:00PM *More homogeneous almost disjoint Boolean algebras.* (164)  
**Judith Roitman**, University of Kansas (949-04-28)
- 5:30PM *On the family of spaces  $Seq(\{u_t\})$ .* Preliminary report. (165)  
**Jerry E Vaughan**, UNC-Greensboro (949-54-131)

- 3:30PM *Numerical Computation of Invariant Sets in Flows: Part I.* Preliminary report. (175)  
**Erik M Boczko**, Georgia Institute of Technology, **William D Kalies\***, Florida Atlantic University, and **Konstantin Mischaikow**, Georgia Institute of Technology (949-37-248)
- 4:00PM *Numerical Computation of Invariant Sets in Flows: Part II.* Preliminary report. (176)  
**Erik M Boczko\***, Georgia Institute of Technology, **William D Kalies**, Florida Atlantic University, and **Konstantin Mischaikow**, Georgia Institute of Technology (949-37-247)
- 4:30PM *Invariant measures for stochastically forced dynamical systems and their numerical discretizations.* (177)  
**Jonathan C Mattingly**, Stanford University (949-37-249)

**Special Session on Geometric Function Theory, III**

2:30 PM – 5:50 PM Room 203, Denny Hall

- Organizers: **David A. Herron**, University of Cincinnati  
**Shanshuang Yang**, Emory University
- 2:30PM *Inner Chord Arc Domains with Fractal Boundary.* Preliminary report. (166)  
**David A Herron\*** and **Theresa S Sullivan**, University of Cincinnati (949-30-141)
- 3:00PM *Spherical and weakly quasisymmetric maps.* Preliminary report. (167) ▶  
**M. Jean M McKemie**, St. Edward's University (949-30-117)
- 3:30PM *Quasiconformally symmetric compacta in the complex plane.* (168)  
**Paul MacManus**, National University of Ireland-Maynooth, **Raimo Näkki**, University of Jyväskylä, and **Bruce Palka\***, The University of Texas at Austin (949-30-59)
- 4:00PM *Fatou Theorem for  $p$ -Harmonic Functions on Trees.* (169)  
**Robert Kaufman** and **Jang-Mei Wu\***, University of Illinois (949-31-101)
- 4:30PM  *$p$ -Harmonic Functions on Metric Spaces.* (170)  
**Nageswari Shanmugalingam**, National University of Ireland, and **Institut Mittag-Leffler** (949-30-89)
- 5:00PM *On Wolff's Integral.* Preliminary report. (171) ▶  
**Andrew L Vogel\***, Syracuse University, **Greg C Verchota**, University of Syracuse, and **John L Lewis**, University of Kentucky (949-30-73)
- 5:30PM *Weighted inequalities of exponential type.* Preliminary report. (172)  
**David E Edmunds**, University of Sussex, and **Ritva M Hurri-Syrjanen\***, University of Helsinki (949-46-26)

**Special Session on Contemporary Methods in Dynamics and Differential Equations, III**

2:30 PM – 4:50 PM Room 200, Denny Hall

- Organizers: **Robert W. Ghrist**, Georgia Institute of Technology  
**Konstantin M. Mischaikow**, Georgia Institute of Technology
- 2:30PM *Topological analysis of point vortex motions.* (173)  
**Philip L Boyland\***, University of Florida, **Mark Stremler** and **Hassan Aref**, University of Illinois (949-37-208)
- 3:00PM *Topological Entropy and the Conley Index.* (174) ▶  
**Anthony W Baker**, Georgia Institute of Technology (949-37-216)

**Special Session on Algebraic Geometry, III**

2:30 PM – 5:50 PM Room 107, Fretwell Hall

- Organizers: **Valery Aleexev**, University of Georgia  
**William Graham**, University of Georgia  
**Roy C. Smith**, University of Georgia  
**Robert Varley**, University of Georgia
- 2:30PM *The Siegel Modular Variety of Degree Two and Level Three.* (178)  
**J. William Hoffman** and **Steven H. Weintraub\***, Louisiana State Univ. (949-14-19)
- 3:00PM Discussion
- 3:30PM *Hodge Structures with Automorphisms.* (179)  
**Bert van Geemen**, Universita di Pavia, Italia, and **Elham Izadi\***, University of Georgia (949-14-198)
- 4:00PM *Characterization of Veronese varieties - in the framework of Alexeev-Shokurov.* (180)  
**Yasuyuki Kachi**, The Johns Hopkins University (949-14-176)
- 4:30PM *Positivity in equivariant Schubert calculus.* (181)  
**William Graham**, University of Georgia (949-14-135)
- 5:00PM *Forms with logarithmic poles and Chern-Schwartz-MacPherson's classes of singular varieties.* (182)  
**Paolo Aluffi**, Florida State University (949-14-87)
- 5:30PM *Hypersurfaces and generalized deformations.* Preliminary report. (183)  
**John A Terilla**, UNC, Chapel Hill (949-16-118)

**Special Session on Gauge Theory and Low-Dimensional Topology, III**

2:30 PM – 5:40 PM Room 118, Fretwell Hall

- Organizers: **Eric P. Klassen**, Florida State University  
**Paul A. Kirk**, Indiana University
- 2:30PM *Witten's conjecture and gluing  $PU(2)$  monopoles.* (184)  
**Paul M Feehan\***, Ohio State University, and **Thomas G Leness**, Florida International University (949-58-60)
- 3:10PM  *$PU(2)$  monopoles and spin polynomials (preliminary report).* Preliminary report. (185)  
**Thomas G Leness\***, Florida International University, and **Paul M N Feehan**, Ohio State University (949-53-27)
- 3:50PM *Exact triangles in Seiberg-Witten Floer theory.* Preliminary report. (186)  
**Matilde Marcolli\***, MIT, and **Bai-Ling Wang**, University of Adelaide (949-57-98)



- 4:30PM *On the Seiberg-Witten theory of rational homology 3-spheres.*  
(187)  
**Liviu I Nicolaescu**, University of Notre Dame (949-58-130)
- 5:10PM *Isotopy of 4-manifolds and the Seiberg-Witten equations.* Preliminary report.  
(188)  
**Daniel Ruberman**, Brandeis University (949-57-143)

- 3:30PM *Another Look at Julia's Lemma.* Preliminary report.  
▶ (200)  
**Peter R Mercer**, SUNY College at Buffalo (949-30-254)
- 3:45PM *Haylon spaces, Ghers, and the Rogers Lemma.*  
(201)  
**Q. P. Mueller**, C.F.C.T.E. Inc. (949-18-07)

### Special Session on Applied Probabilistic Combinatorics, III

2:30 PM – 6:40 PM Room 105, Denny Hall

Organizers: **Bela Bollobás**, University of Memphis  
**Gregory Sorkin**, IBM T. J. Watson Research Center

- 2:30PM *Anisotropic Self-Avoiding Walks: The Existence of a Phase with Nontrivial Negative Masses.*  
(189)  
**Christian H Borgs**, **Jennifer T Chayes\***, Microsoft Research, **Chris King**, Northeastern University, and **Neal Madras**, York University (949-60-225)
- 3:00PM *Equivalent Conditions of Regularity.*  
(190)  
**Yoshiharu Kohayakawa**, University of Sao Paulo, Brasil, **Vojtech Rodl** and **Jozef Skokan\***, Emory University (949-05-251)
- 3:30PM *Broadcasting on Trees and the Ising Model.*  
(191)  
**William Evans**, U. Arizona, **Claire Kenyon**, LRI, Universite de Paris-Sud, **Yuval Peres**, Hebrew University and U. C. Berkeley, and **Leonard J Schulman\***, Georgia Tech (949-60-95)
- 4:00PM *Edge disjoint paths in expander graphs.* Preliminary report.  
(192)  
**Alan M Frieze**, Carnegie Mellon University (949-68-85)
- 4:30PM *Interruptible perfect sampling.*  
(193)  
**Mark L Huber**, Stanford University (949-60-104)
- 5:00PM *Correlation decay in random tilings.* Preliminary report.  
(194)  
**Rick Kenyon**, Orsay, and **Robin Pemantle\***, Ohio State University (949-05-252)
- 5:30PM *Upper and lower bounds for the time constant of first-passage percolation.* Preliminary report.  
▶ (195)  
**Sven Erick Alm**, Uppsala University (949-60-142)
- 6:20PM Discussion

### Session for Contributed Papers

2:30 PM – 3:55 PM Room 103, Denny Hall

- 2:30PM *On the Approximation of a Generalized Incomplete Gamma Function Arising in Heat Conduction Problems.*  
(196)  
**Mohamed T Boudjelkha\*** and **Aslam M Chaudhry**, King Fahd University of Petroleum and Minerals (949-33-181)
- 2:45PM *Moments and Probability Densities of Traveling Wave Solutions of Stochastic Burgers-like Nonlinear Wave Equations.* Preliminary report.  
▶ (197)  
**Thad G. Dankel\*** and **Matthew K Griffith**, University of North Carolina at Wilmington (949-35-238)
- 3:00PM *The Minimal Polynomial of  $1 + \sqrt{[n]a} + \sqrt{[n]a^2} + \dots + \sqrt{[n]a^{n-1}}$  for a such that  $x^n - a$  is Irreducible over the Rational Numbers.*  
(198)  
**Karin M Deck**, UNC Wilmington (949-12-125)
- 3:15PM *Computer Science or Mathematics?: An Alternative Contemporary Method for Scientifically Capturing Dynamics.* Preliminary report.  
▶ (199)  
**Danielle Mihram**, University of Southern California and **G. Arthur Mihram\***, Princeton, NJ (949-68-223)

## Sunday, October 17

### Invited Address

8:30 AM – 9:20 AM Room 200, Denny Hall

- (202) *Recent results in mathematical and statistical hydrodynamics.*  
**Yakov Sinai**, Princeton University

### Special Session on Knot Theory and Its Applications, IV

9:30 AM – 11:50 AM Room 106, Denny Hall

Organizer: **Yuanan Diao**, University of North Carolina at Charlotte

- 9:30AM *A Leibniz type formula for links - with application to higher order link polynomials.* Preliminary report.  
(203)  
**Yongwu Rong**, The George Washington University (949-57-222)
- 10:00AM *On n-string tangles.* Preliminary report.  
▶ (204)  
**Claus Ernst\***, Western Kentucky University, and **John Emert**, Ball State University (949-54-201)
- 10:30AM *Noncommutative trigonometry and the A-polynomial.* Preliminary report.  
(205)  
**Razvan Gelca**, University of Michigan (949-57-39)
- 11:00AM *Polygonal Isotopy of Geometric Knots.* Preliminary report.  
▶ (206)  
**Jorge Alberto Calvo**, North Dakota State University (949-57-221)
- 11:30AM *A state space model of the HOMFLY polynomial.*  
(207)  
**Bela Bollobas**, The University of Memphis and Trinity College, Cambridge, **Luke Pebody\*** and **David Weinreich**, The University of Memphis (949-05-228)

### Special Session on Commutative Algebra, IV

9:30 AM – 11:50 AM Room 116, Fretwell Hall

Organizers: **Sarah Glaz**, University of Connecticut  
**Evan G. Houston**, University of North Carolina at Charlotte  
**Thomas G. Lucas**, University of North Carolina at Charlotte

- 9:30AM *How many random submodules of a free module should be summed to yield the free module?* Preliminary report.  
(208)  
**Grady D Bullington\***, Huntingdon College, and **David E Dobbs**, University of Tennessee (949-13-56)
- 10:00AM *Pairs of going-down rings.* Preliminary report.  
(209)  
**R. Douglas Chatham**, University of Tennessee, Knoxville (949-13-41)
- 10:30AM *On zero-dimensionality and fragmented rings.*  
(210)  
**Jim Coykendall**, North Dakota State University, **David E. Dobbs\***, University of Tennessee, and **Bernadette Mullins**, Youngstown State University (949-13-14)
- 11:00AM *The Weak Davenport Constant and Related Class Group Invariants of a Dedekind Domain.* Preliminary report.  
(211)  
**Michael A Freeze**, UNC Wilmington (949-13-188)

11:30AM *Almost GCD Domains with a Finiteness Condition.*  
(212) Preliminary report.  
**Tiberiu Dumitrescu**, Universitatea Bucuresti, **Joe L Mott**, Florida State University, and **Muhammad Zafrullah\***, University of Arkansas (949-13-150)

**Special Session on Spectral Theory of Differential Operators and Applications, IV**

9:30 AM – 12:20 PM Room 102, Denny Hall

Organizers: **Boris R. Vainberg**, University of North Carolina at Charlotte  
**Stanislav Molchanov**, University of North Carolina at Charlotte

9:30AM *Strong Uncertainty Principle and Stability of Fronts.*  
(213) **Eric A Carlen\***, **M C Carvalho**, Ga Tech, and **Enza Orlandi**, University of Roma III (949-35-110)

10:00AM *The  $\Xi$  Operator and its Relation to Krein's Spectral Shift Function.*  
(214) **Fritz Gesztesy** and **Konstantin A Makarov\***, University of Missouri-Columbia (949-47-165)

10:30AM *Simon - Wolff localization theorem: a measure theoretic approach .*  
(215) **Alexander Y Gordon**, UNC-Charlotte (949-00-224)

11:00AM *On the Spectrum of N-Body Schrödinger Operators with Singular Potentials.*  
(216) **Marcel Griesemer**, University of Alabama at Birmingham (949-81-72)

11:30AM *M-functions and the spectral theory of Sturm-Liouville expressions with interior singularities.* Preliminary report.  
(217) **Dominic P. Clemence**, North Carolina A&T State University (949-34-256)

NOON Discussion

**Special Session on Operator Theory, Including Applications in Operator Algebras and Wavelets, III**

9:30 AM – 11:50 AM Room 114, Fretwell Hall

Organizers: **Alan L. Lambert**, University of North Carolina at Charlotte  
**Xingde Dai**, University of North Carolina at Charlotte

9:30AM *Joint similarity and weak factorization.* Preliminary report.  
(218) **Sarah Ferguson**, Wayne State University, and **Srdjan Petrovic\***, Western Michigan University (949-47-217)

10:00AM *Wavelets, frames and operator algebras.* Preliminary report.  
(219) **Xingde Dai**, University of North Carolina at Charlotte, **Qing Gu**, Peking University, and **David R Larson\***, Texas A&M University (949-47-177)

10:30AM *Spectral properties of backward shift operators.*  
(220) **William T Ross**, University of Richmond (949-47-111)

11:00AM *Geometry of the Unit Ball in D: Preliminary Report.*  
(221) Preliminary report.  
**John P Daughtry**, East Carolina University (949-46-53)

11:30AM Discussion

**Special Session on Geometric Function Theory, IV**

9:30 AM – 12:20 PM Room 203, Denny Hall

Organizers: **David A. Herron**, University of Cincinnati  
**Shanshuang Yang**, Emory University

9:30AM *Elliptic capacity.* Preliminary report.  
(222) **Peter Duren\***, University of Michigan, and **Reiner Kühnau**, Martin-Luther-Universität Halle-Wittenberg (949-30-115)

10:00AM *Existence of extremal domains for Robin capacity.*  
(223) **Robert E Thurman\***, Pacific Lutheran University, and **Michael O'Neill**, University of Texas at El Paso (949-30-76)

10:30AM *McMillan's area problem.*  
(224) **Michael D O'Neill\***, University of Texas at El Paso, and **Robert E Thurman**, Pacific Lutheran University (949-30-75)

11:00AM *Generalizations and Extensions of Lindelöf's Theorem.* Preliminary report.  
(225) **Enrique Villamor\***, Florida International University, and **Juan J Manfredi**, University of Pittsburgh (949-31-100)

11:30AM *The Four Arc Conjecture for the Schwarzian Derivative of Support Points of the Class S.* Preliminary report.  
(226) **Stephen M. Zemyan**, Pennsylvania State University (949-30-29)

**Special Session on Algebraic Geometry, IV**

9:30 AM – 11:50 AM Room 107, Fretwell Hall

Organizers: **Valery Aleexev**, University of Georgia  
**William Graham**, University of Georgia  
**Roy C. Smith**, University of Georgia  
**Robert Varley**, University of Georgia

9:30AM *Special Subschemes at a Cusp.* Preliminary report.  
(227) **Robert F Lax**, LSU (949-14-11)

10:00AM Discussion

10:30AM *Base loci of linear series and diophantine approximation.* Preliminary report.  
(228) **Michael J Nakamaye**, University of New Mexico (949-14-124)

11:00AM *Adeles and autoduality of the Jacobian.* Preliminary report.  
(229) **Richard M Crew**, University of Florida (949-14-105)

11:30AM *Weierstrass m-tuples and minimum distance of Goppa codes.*  
(230) **Gretchen L Matthews**, University of Tennessee-Knoxville (949-14-184)

**Special Session on Gauge Theory and Low-Dimensional Topology, IV**

9:30 AM – NOON Room 118, Fretwell Hall

Organizers: **Eric P. Klassen**, Florida State University  
**Paul A. Kirk**, Indiana University

9:30AM *The SU(3) Casson invariant for homology spheres split along a 2-sphere or a 2-torus: I.*  
(231) **Hans U Boden**, Ohio State University, and **Christopher M Herald\***, University of Nevada, Reno (949-57-214)

10:10AM *The SU(3) Casson invariant for homology spheres split along a 2-sphere or a 2-torus: II.*  
(232) **Hans U Boden\***, Ohio State University-Mansfield, and **Chris M Herald**, University of Nevada at Reno (949-57-233)

10:50AM *SL<sub>2</sub>(C)-knot invariants.* Preliminary report.  
(233) **Weiping Li**, Oklahoma State University (949-58-149)

11:30AM *Floer Homology and Homology Cobordisms.* Preliminary report.  
(234) **Kim A Froyshov**, Harvard University (949-58-119)

**Special Session on Applied Probabilistic  
Combinatorics, IV**

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9:30 AM – 12:50 PM                      **Room 105, Denny Hall**

Organizers: **Bela Bollobás**, University of Memphis  
**Gregory Sorkin**, IBM T.J. Watson  
Research Center

9:30AM (235) *Counting Independent Sets in the Grid*. Preliminary report.

**Neil J Calkin**, Clemson University (949-05-235)

10:00AM (236) *Mick gets more than pie*. Preliminary report.

**Dimitris Achlioptas**, Microsoft Research  
(949-05-70)

10:30AM (237) *Confirming Kleitman-Winston conjecture on the largest coefficient in a q-Catalan number*. Preliminary report.

**Boris G Pittel\***, Ohio State University, and **Jeong Han Kim**, Microsoft (949-05-168)

11:00AM (238) *Bounds for Critical Probabilities in Percolation Models*. Preliminary report.

**John C Wierman**, Johns Hopkins University  
(949-05-52)

11:30AM (239) *Entanglement in 3D percolation*.

**Olle Haggstrom**, Chalmers University of  
Technology (949-60-155)

NOON Discussion

12:30PM Discussion

**John L. Bryant**  
Associate Secretary  
Tallahassee, Florida