

Program of the Sessions

Nashville, Tennessee, October 16-17, 2004

Saturday, October 16

Meeting Registration

7:30 AM – 4:00 PM Lobby, Wilson

AMS Exhibit and Book Sale

7:30 AM – 4:00 PM Lobby, Wilson

Special Session on Graph Theory and Matroid Theory, I

8:00 AM – 10:50 AM Room 103, Calhoun

Organizers: **Mark N. Ellingham**, Vanderbilt University
Michael D. Plummer, Vanderbilt University

- 8:00AM *Finding a monochromatic subgraph or a rainbow path.*
► (1) **Andras Gyarfás**, Computer and Automation Research Institute of the Hungarian Academy of Sciences, **Jeno Lehel*** and **Richard H. Schelp**, The University of Memphis (999-05-204)
- 8:30AM *Mono-multi bipartite Ramsey numbers, designs, and matrices.*
(2) **Paul N. Balister***, University of Memphis, TN, **András Gyárfás**, Computer and Automation Research Institute of the Hungarian Academy of Sciences, **Jenő Lehel** and **Richard H. Schelp**, University of Memphis, TN (999-05-216)
- 9:00AM *Asymptotic solution of the Erdős-T. Sós conjecture.*
(3) **Mikós Ajtai**, IBM Almaden Research Center, **János Komlós**, Rutgers University, **Miklós Simonovits***, Hungarian Academy of Sciences, and **Endre Szemerédi**, Rutgers University (999-05-284)
- 9:30AM *An Interlacing Result on Normalized Laplacians.*
► (4) **Guantao Chen***, **George Davis**, **Frank Hall**, **Kinnari Patel** and **Michael Steward**, Georgia State University (999-15-31)

- 10:00AM *Additive spanners in hypercubes.* Preliminary report.
► (5) **Nana Arizumi**, University of Illinois at Urbana-Champaign, **Peter Hamburger**, Indiana University-Purdue University Fort Wayne, and **Alexandr Kostochka***, University of Illinois at Urbana-Champaign (999-05-43)
- 10:30AM *On the edge reconstruction conjecture.*
(6) **Yue Nick Zhao**, University of Central Florida (999-05-134)

Special Session on Wavelets, Frames, and Sampling, I

8:00 AM – 10:50 AM Room 325, Furman

Organizers: **Akram Aldroubi**, Vanderbilt University
Douglas P. Hardin, Vanderbilt University
Qiyu Sun, University of Central Florida

- 8:00AM *Sigma-Delta quantization and finite frames.*
(7) **John J. Benedetto***, University of Maryland at College Park, **Alex Powell**, Princeton University, and **Ozgur Yilmaz**, University of British Columbia (999-42-18)
- 8:30AM *Sampling Solutions of Integral and Operator Equations of the First Kind.* Preliminary report.
(8) **M Zuhair Nashed**, University of Central Florida, Orlando, FL 32816 (999-45-217)
- 9:00AM *Frames and Data Security.*
► (9) **Eric S Weber**, Iowa State University (999-42-189)
- 9:30AM *Adaptive Learning of Functions.*
(10) **Peter G. Binev**, University of South Carolina (999-65-265)
- 10:00AM *Frames and Sampling Expansions in Reproducing Kernel Hilbert and Banach Spaces.*
(11) **Deguang Han**, University of Central Florida (999-42-49)
- 10:30AM *Average sampling in shift-invariant spaces.* Preliminary report.
(12) **Qiyu Sun**, University of Central Florida (999-42-96)

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 25, 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.

Special Session on Universal Algebra and Lattice Theory, I

8:00 AM – 10:50 AM Room 109, Furman

Organizers: **Ralph N. McKenzie**, Vanderbilt University
George F. McNulty, University of South Carolina

- 8:00AM Approximate identical satisfaction of equations. Preliminary report.
 ▶ (13) **Walter Taylor**, University of Colorado (999-08-23)
- 8:50AM The Constraint Satisfaction Problem and Universal Algebra.
 (14) **Matt Valeriote**, McMaster University (999-08-88)
- 9:20AM The Finite Algebra Membership Problem. Preliminary report.
 (15) **George F McNulty**, University of South Carolina (999-08-45)
- 9:50AM Minimal Varieties of Involutive Residuated Lattices.
 (16) **Constantine Tsinakis**, Vanderbilt University (999-06-118)
- 10:30AM Non-associative residuated lattices.
 (17) **Nikolaos Galatos**, Vanderbilt University (999-06-108)

Special Session on Topological Aspects of Group Theory, I

8:00 AM – 10:50 AM Room 103, Wilson

Organizers: **Michael L. Mihalik**, Vanderbilt University
Mark V. Sapir, Vanderbilt University

- 8:00AM The contributions of Jean-Pierre Serre to the development of algebraic topology.
 (18) **Peter J. Hilton**, Binghamton University (SUNY) (999-55-34)
- 8:30AM Dehn functions of finitely presented groups. Preliminary report.
 (19) **Noel Brady***, University of Oklahoma, and **Martin R Bridson**, Imperial College London (999-20-260)
- 9:00AM The CAT(0) Boundary of Truncated Hyperbolic Space.
 (20) **Kim E. Ruane**, Tufts University (999-20-255)
- 9:30AM Presentations of automata groups and subgroups in direct products. Preliminary report.
 (21) **Rostislav I Grigorchuk**, Texas A&M University (999-20-243)
- 10:00AM Z-compactifications and Generalized Group Boundaries. Preliminary report.
 (22) **Craig R Guilbault**, University of Wisconsin-Milwaukee (999-57-211)
- 10:30AM When are geodesic languages for groups star-free?
 (23) **Susan Hermiller***, University of Nebraska, **Derek F. Holt**, University of Warwick, and **Sarah Rees**, University of Newcastle (999-20-172)

Special Session on Operator Theory on Function Spaces, I

8:00 AM – 10:50 AM Room 112, Wilson

Organizer: **Dechao Zheng**, Vanderbilt University

- 8:00AM The C*-algebra of a linear-fractional composition operator.
 (24) **Thomas Kriete***, **Barbara MacCluer**, University of Virginia, and **Jennifer Moorhouse**, Colgate University (999-47-151)

- 8:30AM Weighted composition operators between different weighted Bergman spaces and different Hardy spaces.
 (25) **Ruhan Zhao*** and **Zeljko Cuckovic**, University of Toledo (999-47-154)

- 9:00AM Composition operators on small holomorphic Sobolev spaces. Preliminary report.
 (26) **Boo Rim Choe***, **Hyungwoon Koo**, Korea University, and **Wayne Smith**, University of Hawaii (999-47-99)
- 9:30AM Extensions of the Koplienko-Neidhardt trace formulae.
 (27) **Vladimir Peller**, Michigan State University (999-47-11)
- 10:00AM Spectral analysis of operators of finite type. Preliminary report.
 (28) **Daoxing Xia**, Vanderbilt University (999-47-08)
- 10:30AM Backward shift invariant subspaces in the bidisc.
 (29) **Keiji Izuchi**, Niigata University, Japan (999-47-225)

Special Session on Algebraic Geometry and Commutative Algebra, I

8:00 AM – 10:50 AM Room 121, Wilson

Organizers: **Juan C. Migliore**, University of Notre Dame
Uwe Nagel, University of Kentucky

- 8:00AM Consecutive Genera for Irreducible ACM Space Curves. Preliminary report.
 (30) **Anthony A. Iarrobino, Jr.**, Northeastern University (999-14-84)
- 8:30AM Curves on double surfaces.
 (31) **Scott Nollet**, Texas Christian University (999-14-174)
- 9:00AM Finding Information on Resolutions of Fat Points in P^n . Preliminary report.
 (32) **Stephanie Fitchett***, Florida Atlantic University, **Brian Harbourne**, University of Nebraska - Lincoln, and **Sandeep Holay**, Southeast Community College (999-14-173)
- 9:30AM Resolutions of ideals of fat points with support in a hyperplane. Preliminary report.
 (33) **Giuliana Fatabbi**, Università di Perugia, **Brian Harbourne***, University of Nebraska-Lincoln, and **Anna Lorenzini**, Università di Perugia (999-13-114)
- 10:00AM Multigraded regularity and fat points.
 (34) **Adam Van Tuyl***, Lakehead University, and **Jessica Sidman**, Mount Holyoke College (999-13-208)
- 10:30AM Conjectures on ideals and singularities. Preliminary report.
 (35) **Karen A. Chandler**, University of Notre Dame (999-14-251)

Special Session on Inverse Problems, I

8:00 AM – 10:50 AM Room 209, Furman

Organizers: **Maeve L. McCarthy**, Murray State University
Rudi Weikard, University of Alabama at Birmingham

- 8:00AM A generalized Borg-Marchenko theorem with continuous spectrum.
 (36) **Tuncay Aktosun**, Mississippi State University (999-34-261)
- 8:30AM Application of the Riccati equation to inverse Sturm-Liouville problems.
 (37) **Daphne J. Gilbert**, Dublin Institute of Technology (999-34-246)

- 9:00AM *Inverse Spectral Problems in Rectangular Domains.*
(38) **Gregory Eskin** and **James V Ralston***, UCLA (999-35-201)
- 9:30AM *On the Borg-Levinson Problem.*
(39) **Marco Marletta***, Cardiff University, and **Rudi Weikard**, University of Alabama at Birmingham (999-34-78)
- 10:00AM *A Spectral Transform for the Matrix Hill's Equation.*
(40) **Robert Carlson**, University of Colorado at Colorado Springs (999-34-76)
- 10:30AM *Determining the Potential in the Schroedinger Equation by the Boundary Control Method.*
(41) **Sergei Avdonin**, University of Alaska, **Suzanne Lenhart**, University of Tennessee, and **Vladimir Prottopescu***, Oak Ridge National Laboratory (999-35-63)

Special Session on Geometry of Hyperbolic Manifolds, I

- 8:20 AM – 10:50 AM** **Room 122, Wilson**
Organizers: **John G. Ratcliffe**, Vanderbilt University
Steven T. Tschantz, Vanderbilt University
- 8:20AM *Representations of the quantum Teichmüller space.*
(42) Preliminary report.
Xiaobo Liu, University of Southern California (999-57-163)
- 9:00AM *Thick surfaces in hyperbolic 3-manifolds.*
(43) **Joseph D Masters**, SUNY Buffalo (999-57-257)
- 9:40AM *Geometric tameness in three-manifolds with word-hyperbolic fundamental group.*
(44) **Joshua B Barnard**, University of Oklahoma (999-57-212)
- 10:20AM *Incompressible surfaces and spinnormal form.*
(45) **Genevieve S Walsh**, University of Texas at Austin (999-57-213)

Special Session on Index Theory and the Topology of Manifolds, I

- 8:20 AM – 10:50 AM** **Room 113, Wilson**
Organizers: **Bruce Hughes**, Vanderbilt University
Guoliang Yu, Vanderbilt University
- 8:20AM *Deformations and the Baum-Connes assembly map for complex semisimple Lie groups.* Preliminary report.
(46) **Nigel Higson**, Penn State University (999-19-68)
- 9:00AM *The Mod p Higson Conjecture.*
(47) **Alexander Dranishnikov**, University of Florida (999-55-94)
- 9:40AM *A Hurewicz-type theorem for asymptotic dimension.* Preliminary report.
(48) **G. C. Bell***, Penn State University, and **A. N. Dranishnikov**, University of Florida (999-20-75)
- 10:20AM *Topology of 4-manifolds.* Preliminary report.
(49) **Frank S. Quinn**, Virginia Tech (999-57-81)

Special Session on Biomathematics, I

- 8:30 AM – 10:50 AM** **Room 311, Furman**
Organizers: **Laurent Pujo-Menjouet**, Vanderbilt University
Glenn F. Webb, Vanderbilt University

- 8:30AM *Modeling transcriptional feedback loops: The role of Gro/TLE1 in Hes1 oscillations.* Preliminary report.
▶ (50) **Samuel Bernard**, **Branka Čajavec**, Institute for Theoretical Biology, Humboldt University, Berlin, **Laurent Pujo-Menjouet***, Vanderbilt University, **Hanspeter Herzl**, Institute for Theoretical Biology, Humboldt University, Berlin, and **Michael C. Mackey**, Department of Physiology, McGill University (999-92-36)
- 9:00AM *A Review of Mathematical Modeling in Cellular Signaling.* Preliminary report.
(51) **Hannah Callender** and **Mary Ann Horn***, Vanderbilt University (999-92-196)
- 9:30AM *Distribution of the Number of Clonogenic Tumor Cells Surviving Fractionated Radiation.*
▶ (52) **Leonid G. Hanin**, Idaho State University/University of Rochester (999-92-53)
- 10:00AM *Modeling of Mesodermal Cellular Movements in Zebrafish Embryo.*
▶ (53) **Colette Jeanne Calmelet**, Tennessee State University/ Vanderbilt University (999-92-86)
- 10:30AM *A Mathematical Study of the Hematopoiesis Process with Applications to Chronic Myelogenous Leukemia.*
(54) **Mostafa Adimy**, **Fabien Crauste**, University of Pau, Pau, France, and **Shigui Ruan***, University of Miami, Coral Gables, USA (999-92-207)

Special Session on Semigroup Theory, I

- 8:30 AM – 10:40 AM** **Room 217, Furman**
Organizers: **Matthew I. Gould**, Vanderbilt University
Karen Ann Linton, California State Polytechnic University, Pomona
- 8:30AM *The variety generated by the five-element Brandt Semigroup.*
(55) **Edmond W. H. Lee**, Simon Fraser University (999-16-107)
- 9:00AM *Endomorphism monoids of pseudocomplemented semilattices.*
(56) **M. E. Adams***, State University of New York at New Paltz, and **Jürg Schmid**, University of Bern (999-20-113)
- 9:30AM *Ideal extension and retraction properties in semigroups.*
(57) **Karen D. Aucoin**, McNeese State University (999-20-116)
- 10:10AM *Ideal extensions of locally inverse semigroups.*
(58) **Francis J. Pastijn**, Marquette University (999-20-65)

Special Session on Local and Homological Algebra, I

- 8:30 AM – 10:50 AM** **Room 115, Wilson**
Organizers: **Florian Enescu**, Georgia State University
Adela N. Vraciu, University of South Carolina
- 8:30AM *Bounded Ext and Gorenstein dimension.*
(59) **Oana Veliche**, University of Utah (999-13-281)
- 9:00AM *Tate-Vogel cohomology algebras over some Gorenstein local rings.*
(60) **Luchezar L. Avramov***, University of Nebraska-Lincoln, and **Oana Veliche**, University of Utah (999-13-274)
- 9:30AM *Extensions of Modules.*
(61) **Janet Striuli**, University of Kansas (999-13-186)

Program of the Sessions – Nashville, TN, Saturday, October 16 (cont'd.)

- 10:00AM *Resolutions of Universal rings.*
(62) **Andrew R. Kustin***, University of South Carolina, and **Jerzy M. Weyman**, Northeastern University (999-13-240)
- 10:30AM *Extremal Algebras.*
(63) **L. L. Avramov**, **S. Iyengar**, University of Nebraska, and **C Miller***, Syracuse University (999-13-175)

Steven T. Tschantz, Vanderbilt University

- 2:30PM *Totally Geodesic Surfaces in Hyperbolic Knot and Link Complements.*
(73) **Colin C Adams***, Williams College, **Hanna Bennett**, University of Chicago, **Christopher Davis**, MIT, **Michael Jennings**, Cornell University, **Jennifer Novak**, Stanford University, **Nicholas Perry**, Newton, MA, and **Eric Schoenfeld**, Stanford University (999-57-148)
- 3:10PM *Cusp Shapes of Hyperbolic Knot Complements and Dehn Filling.*
(74) **Jessica S. Purcell**, The University of Texas at Austin (999-57-168)
- 3:50PM *A birationality result for character varieties.*
(75) **Stephan Tillmann*** and **Benjamin Klaff**, Université du Québec à Montréal (999-57-184)
- 4:30PM *Small covers of regular right-angled hyperbolic polytopes.*
▶ (76) **Anne Garrison**, Seattle, Washington, and **Richard Scott***, Santa Clara University (999-57-231)

Special Session on Von Neumann Algebras and Noncommutative Ergodic Theory, I

8:50 AM – 10:50 AM Room 126, Wilson

Organizers: **Dietmar Bisch**, Vanderbilt University
Sorin T. Popa, University of California Los Angeles

- 8:50AM *A Kurosh type theorem for type II_1 factors.*
(64) **Narutaka Ozawa**, University of Tokyo / UCLA (999-46-30)
- 9:40AM *On the distribution of some sequences related to Farey fractions.*
(65) **Florin Boca*** and **Alexandru Zaharescu**, University of Illinois (999-37-98)
- 10:10AM *Non-commutative, analytic version of Hilbert's 17-th problem in type II_1 von Neumann algebras.*
(66) **Florin Radulescu**, University of Iowa (999-46-171)

Special Session on Nonlinear Partial Differential Equations and Applications, I

9:00 AM – 10:50 AM Room 132, Furman

- Organizer: **Gieri Simonett**, Vanderbilt University
- 9:00AM *Renormalization And Scaling In Interface Problems.*
(67) **Gunduz Caginalp**, University of Pittsburgh (999-35-61)
- 9:30AM *Coarsening Dynamics for the Convective Cahn-Hilliard Equation.*
(68) **Stephen J Watson**, ESAM, Northwestern University (999-35-263)
- 10:00AM *Triple junctions on the plane.* Preliminary report.
▶ (69) **Nicholas D. Alikakos**, University of North Texas (999-35-275)
- 10:30AM *Quasi-stationary optical solitons with power law nonlinearity.*
▶ (70) **Anjan Biswas**, Tennessee State University (999-78-130)

Invited Address

11:00 AM – NOON Room 103, Wilson

- 11:00AM Welcoming remarks.
(71) *Deformation, rigidity, and the classification of II_1 factors.*
Sorin T. Popa, University of California Los Angeles (999-46-03)

Invited Address

1:30 PM – 2:20 PM Room 103, Wilson

- (72) *Holomorphic disks and low-dimensional topology.*
Peter S. Ozsvath, Columbia University (999-57-05)

Special Session on Geometry of Hyperbolic Manifolds, II

2:30 PM – 5:00 PM Room 122, Wilson

Organizers: **John G. Ratcliffe**, Vanderbilt University

Special Session on Nonlinear Partial Differential Equations and Applications, II

2:30 PM – 5:20 PM Room 132, Furman

- Organizer: **Gieri Simonett**, Vanderbilt University
- 2:30PM *Selfsimilar Blowup of Unstable Thin-film Equations.*
(77) **Mary C Pugh***, University of Toronto, and **Dejan Slepcev**, University of California Los Angeles (999-35-180)
- 3:00PM *Blow-up dynamics of long-wave unstable thin-film equations.* Preliminary report.
(78) **Dejan Slepcev**, University of California Los Angeles (999-35-219)
- 3:30PM *The zero surface tension limit of 2D water waves.*
(79) **David M. Ambrose*** and **Nader Masmoudi**, Courant Institute (999-76-143)
- 4:00PM *An Analytical Approach to the Ekman Boundary Layer Problem.*
(80) **Y. Giga**, **K. Inui**, Hokkaido University, Sapporo, **A. Mahalov**, Arizona State University, Phoenix, **S. Matsui**, Hokkaido Information University, Sapporo, and **J. Saal***, Vanderbilt University, Nashville (999-35-205)
- 4:30PM *A solution for the flow field within a torus.*
▶ (81) **T. S. Morton**, Greenville, SC (999-76-21)
- 5:00PM *Mechanics of Forced Elongation.* Preliminary report.
▶ (82) **Thomas C. Hagen**, The University of Memphis (999-35-124)

Special Session on Biomathematics, II

2:30 PM – 4:20 PM Room 311, Furman

- Organizers: **Laurent Pujo-Menjouet**, Vanderbilt University
Glenn F. Webb, Vanderbilt University
- 2:30PM *A Mathematical Analysis of Prion Proliferation.*
▶ (83) **Meredith L. Greer***, Bates College, **Laurent Pujo-Menjouet** and **Glenn Webb**, Vanderbilt University (999-92-244)
- 3:00PM *A Mathematical Model Describing the Spread of Panleucopenia Virus Within Feline Populations.*
(84) **W. Fitzgibbon***, University of Houston, **M Langlais**, Victor Segalen Bordeaux 2, and **J Morgan**, University of Houston (999-92-40)

3:30PM *Modeling spatio-temporal dynamics in ecology and epidemiology.*
(85) **Jianhong Wu**, York University, Toronto, Canada (999-92-250)

4:00PM *Optimal Control of Immunotherapy.*
▶ (86) **K. Renee Fister***, Murray State University, **Thalya Burden**, University of Kentucky, **Jon Ernstberger**, North Carolina State University, and **Jennifer Hughes**, Murray State University (999-34-19)

Special Session on Semigroup Theory, II

2:30 PM – 4:50 PM Room 217, Furman

Organizers: **Matthew I. Gould**, Vanderbilt University
Karen Ann Linton, California State Polytechnic University, Pomona

2:30PM *Flatness Properties of S-posets.*
▶ (87) **Sydney D Bulman-Fleming**, Wilfrid Laurier University (999-20-58)

3:00PM *Commutative coextensions.*
(88) **Pierre A. Grillet**, Tulane University (999-20-128)

3:30PM *On Ranks of Semigroups of Order-Preserving and Orientation-Preserving Transformations.*
(89) Preliminary report.
Inessa Levi, Western Illinois University (999-20-60)

4:00PM *PA-isomorphisms of orthodox semigroups.*
(90) Preliminary report.
Simon M. Goberstein, California State University, Chico (999-20-139)

4:30PM *Residuation on the bicyclic semigroup.*
(91) **Robert B McFadden**, University of Louisville (999-08-119)

Special Session on Graph Theory and Matroid Theory, II

2:30 PM – 5:20 PM Room 103, Calhoun

Organizers: **Mark N. Ellingham**, Vanderbilt University
Michael D. Plummer, Vanderbilt University

2:30PM *Listening for Perfect Matchings in Bipartite Graphs.*
(92) Preliminary report.
Andre E Kezdy, University of Louisville (999-05-153)

3:00PM *On a conjecture of Haggkvist on completing latin squares.*
(93) Preliminary report.
Tristan Denley* and **Jaromy Kuhl**, MS (999-05-245)

3:30PM *The size of edge chromatic critical graphs with maximum degree six.*
▶ (94) Preliminary report.
Rong Luo*, Middle Tennessee State University, and **Yue Zhao**, University of Central Florida (999-05-123)

4:00PM *Pfaffian labellings and signs of edge colorings.*
(95) **Serguei Norine*** and **Robin Thomas**, Georgia Institute of Technology (999-05-203)

4:30PM *Edge coloring of graphs with small maximum degrees.*
(96) Preliminary report.
Xuechao xi Li, Division of Academic Enhancement, University of Georgia (999-05-102)

5:00PM *Potentially K_S^t -graphic degree sequences.*
(97) **Michael Ferrara**, **Ronald Gould*** and **John Schmitt**, Emory University, Atlanta, GA 30322 (999-05-152)

Special Session on Von Neumann Algebras and Noncommutative Ergodic Theory, II

2:30 PM – 5:00 PM Room 126, Wilson

Organizers: **Dietmar Bisch**, Vanderbilt University
Sorin T. Popa, University of California Los Angeles

2:30PM *New examples of group pairs with Kazhdan's Relative Property (T).*
(98) **Talia Fernos**, University of Illinois, Chicago (999-20-156)

3:20PM *Cohomology of Actions of groups by Bernoulli shifts.*
(99) **Sorin Popa**, UCLA, and **Roman Sasyk***, Purdue University (999-46-149)

3:50PM *A 1-cohomology characterization of property (T) in von Neumann algebras.*
(100) **Jesse Peterson**, University of California, Los Angeles (999-47-131)

4:20PM *Geodesic flows and symmetric joins of metric spaces.*
(101) **Igor Mineyev**, University of Illinois at Urbana-Champaign (999-20-122)

Special Session on Wavelets, Frames, and Sampling, II

2:30 PM – 5:20 PM Room 325, Furman

Organizers: **Akram Aldroubi**, Vanderbilt University
Douglas P. Hardin, Vanderbilt University
Qiyu Sun, University of Central Florida

2:30PM *Operator-Valued Frame Theory.* Preliminary report.
(102) **David R. Larson**, Texas A&M University (999-47-59)

3:00PM *Wavelet bases on Julia sets.*
(103) **Palle Jorgensen**, University of Iowa (999-47-14)

3:30PM *The Kadison-Singer Problem and Hilbert space frame theory.* Preliminary report.
(104) **Peter G. Casazza**, University of Missouri (999-46-44)

4:00PM *Density, Overcompleteness, and Localization of Frames.*
(105) **Radu Balan**, Siemens Research Corporation, **Peter G. Casazza**, University of Missouri, **Christopher Heil***, Georgia Institute of Technology, and **Zeph Landau**, City College of New York (999-42-16)

4:30PM *Multidimensional Riesz Wavelets Derived from Refinable Function Vectors.* Preliminary report.
(106) **Bin Han**, University of Alberta (999-42-69)

5:00PM *Conversion between analog and digital domains revisited.* Preliminary report.
(107) **Bernhard G Bodmann**, University of Houston, **David K Hoffman**, Iowa State University, **Donald J Kouri**, University of Houston, and **Manos Papadakis***, University of Houston (999-41-221)

Special Session on Index Theory and the Topology of Manifolds, II

2:30 PM – 5:40 PM Room 113, Wilson

Organizers: **Bruce Hughes**, Vanderbilt University
Guoliang Yu, Vanderbilt University

2:30PM *Smoothing Loop Spaces.*
(108) **Tilman Bauer**, Münster University, **Nitoo Kitchloo**, Johns Hopkins University, **Dietrich Notbohm**, University of Leicester, England, and **Erik K Pedersen***, Binghamton University (999-57-70)

- 3:10PM *Rigidity of arithmetic manifolds*. Preliminary report.
(109) **Stanley S Chang***, Wellesley College, and **Shmuel Weinberger**, University of Chicago (999-53-32)
- 3:50PM *K-theory of groups and algebra of associated group rings*.
(110) **Boris Goldfarb**, SUNY at Albany (999-57-170)
- 4:30PM *The coarse Baum-Connes conjecture and subspaces*.
(111) **Nick Wright**, University of Southampton (999-19-144)
- 5:10PM *Uniform embeddings and the Novikov conjecture*. Preliminary report.
(112) **Gennadi Kasparov*** and **Guoliang Yu**, Vanderbilt University (999-19-13)

- 4:00PM *Translation equivalence in free groups*.
(122) **Ilya Kapovich***, University of Illinois at Urbana-Champaign, **Gilbert Levitt**, Université de Caen, **Paul Schupp**, University of Illinois at Urbana-Champaign, and **Vladimir Shpilrain**, City College of the City University of New York (999-20-117)
- 4:30PM *Growth of Free Group Outer Automorphisms and their Inverses, and Parageometric Outer Automorphisms*. Preliminary report.
(123) **Lee Mosher*** and **Michael Handel**, Rutgers University (999-20-288)
- 5:00PM *Homology stability for outer automorphism groups of free groups*. Preliminary report.
(124) **Allen Hatcher** and **Karen Vogtmann***, Cornell University (999-20-95)

Special Session on Universal Algebra and Lattice Theory, II

2:30 PM – 5:20 PM **Room 109, Furman**

Organizers: **Ralph N. McKenzie**, Vanderbilt University
George F. McNulty, University of South Carolina

- 2:30PM *Homomorphic images of subdirectly irreducible algebras*. Preliminary report.
► (113) **Jaroslav Jezek**, Charles University, Czech Republic (999-08-100)
- 3:00PM *Relations on Algebras*.
(114) **John W Snow**, Sam Houston State University (999-08-192)
- 3:30PM *On the structure of generalized basic logic algebras*.
(115) **Peter Jipsen***, Chapman University, and **Franco Montagna**, University of Siena (999-06-162)
- 4:00PM *Canonical extensions of partially ordered algebras*. Preliminary report.
(116) **Mai Gehrke**, New Mexico State University/Copenhagen University (999-06-290)
- 4:30PM *Concepts in universal algebra on propositional logic*.
(117) **Chihiro Oshima**, Texas A&M International University (999-03-239)
- 5:00PM *Stream ciphers and clones*. Preliminary report.
► (118) **Clifford H Bergman**, Iowa State University (999-08-55)

Special Session on Topological Aspects of Group Theory, II

2:30 PM – 5:20 PM **Room 103, Wilson**

Organizers: **Michael L. Mihalik**, Vanderbilt University
Mark V. Sapir, Vanderbilt University

- 2:30PM *Braiding Matching Complexes and Houghton Groups*.
(119) **Kai-Uwe Bux**, University of Virginia (999-20-177)
- 3:00PM *Kernels of homomorphisms from right angled Artin groups onto free groups*.
(120) **Noel Brady**, University of Oklahoma, **Jon McCammond**, University of California at Santa Barbara, and **John Meier***, Lafayette College (999-20-167)
- 3:30PM *Limit groups are CAT(0)*. Preliminary report.
(121) **Emina Alibegovic**, University of Michigan, and **Mladen Bestvina***, University of Utah (999-57-132)

Special Session on Local and Homological Algebra, II

2:30 PM – 5:20 PM **Room 115, Wilson**

Organizers: **Florian Enescu**, Georgia State University
Adela N. Vraciu, University of South Carolina

- 2:30PM *Phantom depth and stable phantom exactness*.
(125) **Neil M Epstein**, University of Kansas (999-13-215)
- 3:00PM *The existence of the F-signature in certain cases*. Preliminary report.
(126) **Ian M Aberbach**, University of Missouri (999-13-140)
- 3:30PM *On the upper semi-continuity of Hilbert-Kunz multiplicity*.
(127) **Kazuma Shimomoto***, University of Utah, and **Florian Enescu**, Georgia State University (999-13-160)
- 4:00PM *Failure of injectivity for maps of Grothendieck groups from a local ring to its completion*. Preliminary report.
(128) **Melvin Hochster**, University of Michigan, Ann Arbor (999-13-269)
- 4:30PM *Tight closure in coordinate rings of elliptic curves*. Preliminary report.
(129) **Geoffrey D Dietz**, University of Michigan (999-13-127)
- 5:00PM *The F-signature of an affine semigroup ring*.
► (130) **Anurag K Singh**, Georgia Institute of Technology (999-13-141)

Special Session on Operator Theory on Function Spaces, II

2:30 PM – 5:20 PM **Room 112, Wilson**

- Organizer: **Dechao Zheng**, Vanderbilt University
- 2:30PM *Hankel operators with bounded symbol*. Preliminary report.
(131) **Patrick R. Ahern***, University of Wisconsin-Madison, and **E. H. Youssfi**, CMI Université de Provence (999-47-249)
- 3:00PM *Bounded Toeplitz Products on Weighted Bergman Spaces*.
(132) **Karel Stroethoff***, University of Montana, and **Dechao Zheng**, Vanderbilt University (999-47-258)
- 3:30PM *Area Operators on Bergman spaces*.
(133) **Zhijian Wu**, The University of Alabama (999-47-227)
- 4:00PM *Hyponormality, k-hyponormality, and subnormality for Toeplitz operators*.
(134) **Raul E Curto**, The University of Iowa (999-47-179)

- 4:30PM *Quasinormality and Tuples of Toeplitz Operators.*
 (135) Preliminary report.
Jim Gleason, University of Tennessee (999-47-79)
- 5:00PM *Commutative C^* -algebras of Toeplitz operators on the Bergman space.*
 (136) Preliminary report.
Nikolai Vasilevski, CINVESTAV, Mexico City (999-47-28)

Special Session on Algebraic Geometry and Commutative Algebra, II

2:30 PM – 5:20 PM Room 121, Wilson

Organizers: **Juan C. Migliore**, University of Notre Dame
Uwe Nagel, University of Kentucky

- 2:30PM *Gorenstein liaison of algebraic varieties.* Preliminary report.
 (137) **Robin Hartshorne**, University of California, Berkeley (999-14-72)
- 3:30PM *Betti Numbers and Degree Bounds For Some Linked Zero-schemes.*
 (138) **Leah H. Gold***, **Hal Schenck**, Texas A&M University, and **Hema Srinivasan**, University of Missouri, Columbia (999-13-157)
- 4:00PM *Bounds on the multiplicity of an ideal.* Preliminary report.
 (139) **Christopher A. Francisco**, University of Missouri (999-13-74)
- 4:30PM *Special resolutions and the Eisenbud-Green-Harris conjecture.* Preliminary report.
 (140) **Ben Richert**, California Polytechnic State University (999-13-267)
- 5:00PM *Lexifying Ideals.* Preliminary report.
 ▶ (141) **Jeff Mermin*** and **Irena Peeva**, Cornell University (999-13-161)

Special Session on Inverse Problems, II

2:30 PM – 5:20 PM Room 209, Furman

Organizers: **Maeve L. McCarthy**, Murray State University
Rudi Weikard, University of Alabama at Birmingham

- 2:30PM *Continuity of a scattering transform for a first-order system.*
 (142) **Russell M Brown**, University of Kentucky (999-35-164)
- 3:00PM *On the Geometry of Optimal Windows.*
 (143) **Almut Burchard**, University of Virginia, and **Jochen Denzler***, University of Tennessee, Knoxville (999-35-125)
- 3:30PM *An inverse problem for the free boundary model of ductal carcinoma in situ.* Preliminary report.
 (144) **Yongzhi Steve Xu**, University of Louisville (999-35-120)
- 4:00PM *On a non-selfadjoint eigenvalue problem arising in fiber optics.* Preliminary report.
 (145) **Martin Klaus**, Virginia Tech (999-34-147)
- 4:30PM *Boundary Determination from Overposed Boundary Data in Parabolic Problems.* Preliminary report.
 (146) **Lester Caudill***, University of Richmond, and **Kurt Bryan**, Rose-Hulman Institute of Technology (999-35-104)
- 5:00PM *An iterative stabilization method.* Preliminary report.
 (147) **Charles W. Groetsch**, University of Cincinnati (999-65-29)

Session for Contributed Papers

2:30 PM – 4:55 PM Room 127, Wilson

- 2:30PM *Representations and Estimates to Csiszar's f -Divergence.*
 (148) **George A Anastassiou**, University of Memphis (999-41-09)
- 2:45PM *Residual Solvability of generalized free products.*
 (149) **Delaram Kahrobaei**, CUNY Graduate Center (999-20-22)
- 3:00PM *On the global convergence analysis of a class of penalty function methods for general nonlinear programs.*
 (150) **Anhua Lin**, Middle Tennessee State University (999-90-111)
- 3:15PM *Global Weak Hyperbolic Harmonic Maps into Euclidean Spheres.*
 (151) **Carlos J Almada**, Columbus State University (999-35-166)
- 3:30PM *Some new existence and nonexistence results for positive solutions of third order nonlinear boundary value problems.*
 ▶ (152) **John R. Graef***, University of Tennessee at Chattanooga, and **Bo Yang**, Kennesaw State University (999-34-194)
- 3:45PM *A class of integrable dynamical systems and their connection to one-dimensional inverse system.*
 (153) **Yilian Zhang***, University of South Carolina Aiken, and **Adrian I Nachman**, University of Toronto (999-37-236)
- 4:00PM *Explicit expressions of the generalized inverses and condensed Cramer rules.* Preliminary report.
 ▶ (154) **Jun Ji**, Kennesaw State University (999-15-223)
- 4:15PM *Exact Controllability of a Ring.* Preliminary report.
 (155) **Sergei A Avdonin**, University of Alaska, Fairbanks, and **Boris P Belinskiy***, University of Tennessee at Chattanooga (999-93-259)
- 4:30PM *The Properties of The First Return Map of The Logistic Map.* Preliminary report.
 ▶ (156) **May Ru Chen**, Changhua (999-37-27)
- 4:45PM *A Sequence of Orthogonal Polynomials and Its Application.*
 (157) **Maitree Podisuk**, Faculty of Science KMUTL (999-65-169)

Sunday, October 17

Meeting Registration

8:00 AM – NOON Lobby, Wilson

AMS Exhibit and Book Sale

8:00 AM – NOON Lobby, Wilson

Special Session on Nonlinear Partial Differential Equations and Application, III

8:00 AM – 10:50 AM Room 132, Furman

Organizer: **Gieri Simonett**, Vanderbilt University

- 8:00AM *A Degenerate Parabolic Functional Differential Equation with Hysteresis.* Preliminary report.
 (158) **J Ildefonso Diaz**, Universidad Complutense de Madrid, Spain, **Georg Hetzer***, Auburn University, and **Lourdes Tello**, Universidad Politecnica de Madrid, Spain (999-35-129)

Program of the Sessions – Nashville, TN, Sunday, October 17 (cont'd.)

- 8:30AM (159) *Strong solutions to diffusive coagulation-fragmentation equations.*
Herbert Amann, University of Zurich, and **Christoph Walker***, Vanderbilt University, Nashville (999-35-150)
- 9:00AM (160) *Symmetry properties of positive solutions of parabolic equations on R^N .*
Peter Polacik, University of Minnesota (999-35-158)
- 9:30AM (161) *The Dirichlet problem for Hessian and curvature equations.*
Bo Guan, Ohio State University and University of Tennessee (999-35-226)
- 10:00AM (162) *Travelling wave solutions of nonlinear dispersive wave equations.*
Hongqiu Chen, University of Memphis and University of Illinois at Chicago (999-35-181)
- 10:30AM Discussion.

- 8:30AM (170) *Semi-orthogonal wavelets for elliptical problems with non-uniform partitions.* Preliminary report.
David W Roach, Murray State University (999-41-271)
- 9:00AM (171) *Balanced Scaling Vectors Using Fractal Functions.* Preliminary report.
▶ **Bruce Kessler***, **Matt Dawson** and **Justin Grieves**, Western Kentucky University (999-41-248)
- 9:30AM (172) *Wavelets on Nonuniform Knot Sequences.*
▶ **Derek Bruff**, Harvard University (999-43-266)
- 10:00AM (173) *Constructing wavelets on nonuniform meshes using refinable macroelements.*
Douglas P Hardin, Vanderbilt University (999-41-241)
- 10:30AM (174) *Finite tight frames.*
Dejun Feng, Qsinghua University, **Long Wang***, Southern Polytechnic State University, and **Yang Wang**, Georgia Institute of Technology (999-42-291)

Special Session on Graph Theory and Matroid Theory, III

8:00 AM – 10:50 AM Room 103, Calhoun

- Organizers: **Mark N. Ellingham**, Vanderbilt University
Michael D. Plummer, Vanderbilt University
- 8:00AM ▶ (163) *On Some Properties of Alphabet Overlap Graphs.*
Anant Godbole, **Debra Knisley*** and **Rick Norwood**, East Tennessee State University (999-05-195)
- 8:30AM ▶ (164) *Largest Circuits in Matroids.* Preliminary report.
Nolan McMurray, University of North Carolina at Wilmington, **Talmage J Reid***, **Wei Bing**, **Bryan Williams** and **Haidong Wu**, The University of Mississippi (999-05-198)
- 9:00AM (165) *Non-separating cocircuits in binary matroids.*
Haidong Wu, University of Mississippi (999-05-218)
- 9:30AM ▶ (166) *Some impediments to extending the four-color theorem.*
Neil Robertson, The Ohio State University (999-05-273)
- 10:00AM (167) *An Extremal Function for K_{10} minors.*
Zixia Song, Ohio State University (999-05-197)
- 10:30AM (168) *Bonds in graphs.*
Xujin Chen, University of Hong Kong, **Xingxing Yu***, Georgia Institute of Technology, and **Wenan Zang**, University of Hong Kong (999-05-238)

Special Session on Wavelets, Frames, and Sampling, III

8:00 AM – 10:50 AM Room 325, Furman

- Organizers: **Akram Aldroubi**, Vanderbilt University
Douglas P. Hardin, Vanderbilt University
Qiyu Sun, University of Central Florida
- 8:00AM (169) *An inhomogeneous uncertainty principle for digital low-pass filters.*
Bernhard G. Bodmann*, University of Houston, **David K Hoffman**, Dept. of Chemistry, Iowa State University, Ameslab, **Donald J Kouri**, Depts of Chemistry, Physics and Mathematics, University of Houston, **Manos Papadakis**, University of Houston, and **Qiyu Sun**, University of Central Florida (999-42-220)

Special Session on Universal Algebra and Lattice Theory, III

8:00 AM – 10:50 AM Room 109, Furman

- Organizers: **Ralph N. McKenzie**, Vanderbilt University
George F. McNulty, University of South Carolina
- 8:00AM ▶ (175) *Automatic Proofs and Countermodels With Application to Short Single Axioms.*
William McCune, Mathematics and Computer Science Division, Argonne National Laboratory (999-03-247)
- 8:50AM (176) *Some problems in varieties generated by finite algebras.* Preliminary report.
Kirby A. Baker, University of California, Los Angeles (999-08-165)
- 9:20AM (177) *On a question of G. McNulty.* Preliminary report.
Ross Willard, University of Waterloo (999-08-182)
- 9:50AM (178) *Finite axiomatizability for quasivarieties.*
Miklos Maroti, Vanderbilt University (999-08-228)
- 10:30AM (179) *Finitely Based Varieties of Directed Graph Algebras.* Preliminary report.
Brian L Walter, The Evergreen State College (999-08-52)

Special Session on Topological Aspects of Group Theory, III

8:00 AM – 10:50 AM Room 103, Wilson

- Organizers: **Michael L. Mihalik**, Vanderbilt University
Mark V. Sapir, Vanderbilt University
- 8:00AM Discussion.
- 8:30AM (180) *On Singer Conjecture for Coxeter groups.*
Boris Okun, University of Wisconsin-Milwaukee (999-57-66)
- 9:00AM ▶ (181) *Quasiconvex subgroups of right-angled Coxeter groups.* Preliminary report.
Patrick Bahls, University of Illinois, Urbana-Champaign (999-20-51)
- 9:30AM (182) *Properly 3-realizable groups.*
Francisco F. Lasheras, University of Seville, Spain (999-55-12)
- 10:00AM (183) *More on simplicial nonpositive curvature.* Preliminary report.
Tadeusz Januszkiewicz* and **Jacek Swiatkowski**, Ohio State University (999-20-287)

- 10:30AM (184) *Regular neighbourhoods in group theory.*
Preliminary report.
Gadde Swarup* and **Peter Scott**, University of Melbourne (999-20-289)

Special Session on Local and Homological Algebra, III

8:00 AM – 10:50 AM Room 115, Wilson

- Organizers: **Florian Enescu**, Georgia State University
Adela N. Vraciu, University of South Carolina
- 8:00AM (185) *Hilbert Polynomials Associated to Tor and Ext for Powers of Ideals.* Preliminary report.
Daniel L. Katz, University of Kansas, Lawrence, Kansas, and **Emanoil Theodorescu***, University of Missouri, Columbia, Missouri (999-13-232)
- 8:30AM (186) *Homology multipliers and the relation type of parameter ideals.*
Laura Ghezzi, Florida International University, Miami FL (999-13-48)
- 9:00AM (187) *Open loci of graded modules.*
Liana M Segal* and **Christel Rotthaus**, Michigan State University (999-13-199)
- 9:30AM (188) *Constructing modules with prescribed intersection properties.*
Greg Piepmeyer, University of Nebraska, and **Paul C Roberts***, University of Utah (999-13-142)
- 10:00AM (189) *Integral closedness of almost complete intersection ideals.*
Catalin Ciuperca, University of Missouri-Columbia (999-13-176)
- 10:30AM (190) *Growth of Ideals.*
Sandra M. Spiroff*, University of Utah, **Florian Enescu**, Georgia State University, and **Catalin Ciuperca**, University of Missouri (999-13-210)

Special Session on Operator Theory on Function Spaces, III

8:00 AM – 10:50 AM Room 112, Wilson

- Organizer: **Dechao Zheng**, Vanderbilt University
- 8:00AM (191) *Interpolation sequences for Besov spaces of the complex ball.* Preliminary report.
Richard Rochberg*, Washington University, **Nicola Arcozzi**, University of Bologna, and **Eric Sawyer**, McMaster University (999-46-188)
- 8:30AM (192) *Corona Solutions on the Polydisk in C^n belonging to the Orlicz-type Space $\exp(L^{\frac{1}{2n-1}})$.*
Tavan T. Trent, University of Alabama (999-32-209)
- 9:00AM (193) *Maximality theorems for Frechet algebras.*
Zeljko Cuckovic* and **N. V. Rao**, University of Toledo, Ohio (999-30-103)
- 9:30AM (194) *Invariant subspaces for the backward shift on Hilbert spaces of analytic functions with regular norm.*
A. Aleman, University of Lund, **S. Richter*** and **C. Sundberg**, University of Tennessee (999-47-237)
- 10:00AM (195) *Value Distributions of Interpolating Blaschke Products.*
Pamela Gorkin*, Bucknell University, and **Raymond Mortini**, University of Metz (999-46-145)
- 10:30AM (196) *Interpolation without separation in Bergman spaces.* Preliminary report.
Daniel H. Luecking, University of Arkansas (999-30-20)

Special Session on Algebraic Geometry and Commutative Algebra, III

8:00 AM – 10:50 AM Room 121, Wilson

- Organizers: **Juan C. Migliore**, University of Notre Dame
Uwe Nagel, University of Kentucky
- 8:00AM (197) *Asymptotic behaviour of arithmetically Cohen-Macaulay blow-ups.*
H. Tai Ha, Tulane University (999-13-138)
- 8:30AM (198) *Graded algebras of surface singularities.*
Steven Dale Cutkosky, University of Missouri (999-14-252)
- 9:00AM (199) *Factorization of Matrices and Birational Maps.*
Steven Dale Cutkosky and **Hema Srinivasan***, University of Missouri (999-15-256)
- 9:30AM (200) *Primes associated to the integral closure of torsion-free symmetric powers of a module.* Preliminary report.
Glenn Rice* and **Daniel Katz**, University of Kansas (999-13-155)
- 10:00AM (201) *Green's Hyperplane Restriction Theorem and the Eakin-Sathaye Theorem.* Preliminary report.
Giulio Caviglia, Mathematical Sciences Research Institute, Berkeley (999-13-268)
- 10:30AM (202) *Prolongation of additive invariants and the conjecture of McClintock.* Preliminary report.
Joseph P Brennan*, North Dakota State University, and **Robert M Fossum**, Beckman Institute, University of Illinois (999-13-264)

Special Session on Inverse Problems, III

8:00 AM – 10:50 AM Room 209, Furman

- Organizers: **Maeve L. McCarthy**, Murray State University
Rudi Weikard, University of Alabama at Birmingham
- 8:00AM (203) *Failure of uniqueness in the inverse conductivity problem.*
Allan Greenleaf*, University of Rochester, **Matti Lassas**, Helsinki University of Technology, and **Gunther Uhlmann**, University of Washington (999-35-137)
- 8:30AM (204) *Stable determination of generic simple metrics from the hyperbolic DN map.*
Plamen Stefanov*, Purdue University, and **Gunther Uhlmann**, University of Washington (999-53-73)
- 9:00AM (205) *The Borg Problem on Trees.*
B M Brown*, Cardiff University School of Computer Science, and **R Weikard**, University of Alabama at Birmingham (999-34-112)
- 9:30AM (206) *Nonuniqueness in the parameter identification for anisotropic elastodynamics.*
Anna L Mazzucato*, Penn State University, and **Lizabeth V Rachele**, RPI (999-53-57)
- 10:00AM (207) *Inverse Problems for Anisotropic Elastic Media.*
Lizabeth V Rachele, Rensselaer Polytechnic Institute (999-35-24)
- 10:30AM (208) *The representation of the Dirichlet to Neumann map.*
Amin Boumenir, State University of West Georgia (999-35-15)

Special Session on Geometry of Hyperbolic Manifolds, III

8:20 AM – 10:50 AM Room 122, Wilson

Organizers: **John G. Ratcliffe**, Vanderbilt University
Steven T. Tschantz, Vanderbilt University

8:20AM *Hyperbolic volume and mod 2 homology, Part I.*
(209) Preliminary report.

Marc Culler and **Peter B. Shalen***, University of Illinois at Chicago (999-57-270)

9:00AM *Hyperbolic volume and mod 2 homology, Part II.*
(210) Preliminary report.

Marc Culler* and **Peter B. Shalen**, University of Illinois at Chicago (999-57-272)

9:40AM *Subgroup separability of free products with amalgamation of hyperbolic 3-manifold groups.*
(211)

Emily Hamilton, Emory University (999-57-200)

10:20AM *Covers of arithmetic 3-orbifolds with positive first betti number.* Preliminary report.
(212)

Alan W Reid, U. T. Austin (999-57-185)

Special Session on Index Theory and the Topology of Manifolds, III

8:20 AM – 10:50 AM Room 113, Wilson

Organizers: **Bruce Hughes**, Vanderbilt University
Guoliang Yu, Vanderbilt University

8:20AM *Analytic properties of groups acting on CAT(0) cube complexes.* Preliminary report.
(213)

Erik Guentner*, University of Hawaii, Manoa, and
Nigel Higson, Pennsylvania State University (999-46-276)

9:00AM *On the Algebraic K- and L-theory of Word Hyperbolic Groups.*
(214)

David Rosenthal*, St. John's University, and **Dirk Schuetz**, Westfälische Wilhelms-Universität Muenster (999-20-77)

9:40AM *Large scale geometry of S-arithmetic groups and the integral Novikov conjectures.* Preliminary report.
(215)

Lizhen Ji, University of Michigan, Ann Arbor (999-22-83)

10:20AM *Family Version of Surgery Theory.*
(216)

Bruce Williams, U. of Notre Dame (999-57-202)

Special Session on Biomathematics, III

8:30 AM – 10:50 AM Room 311, Furman

Organizers: **Laurent Pujot-Menjouet**, Vanderbilt University
Glenn F. Webb, Vanderbilt University

8:30AM *Stability of n-Dimensional Patterns in a Generalized Turing System: Implications for Pattern Formation in Vertebrate Limb Development.*
▶ (217)

Tilmann Glimm, Department of Physics, Emory University, Atlanta, Ga (999-92-214)

9:00AM *Traveling waves for a biological reaction-diffusion system.* Preliminary report.
(218)

Wenzhang Huang, University of Alabama in Huntsville (999-35-54)

9:30AM *The Formation of Tree Leaves.* Preliminary report.
▶ (219)

Qinglan Xia, University of Texas at Austin (999-92-26)

10:00AM *Introduction to an Optimal Control and its application to a Fishery Model.*
(220)

Hem Raj Joshi*, Xavier University, **Suzanne Lenhart**, University OF Tennessee, and **Mike Neubert**, Woods Hole Oceanographic Institute (999-49-110)

10:30AM *A state space model for HIV pathogenesis involving plasma and lymph nodes.* Preliminary report.
(221)

W. Y. Tan*, **P. Zhang**, University of Memphis, and **X. Xiong**, Department of Biostatistics, St Jude Childrens Research Hospital, Memphis, TN (999-62-38)

Special Session on Semigroup Theory, III

8:30 AM – 10:40 AM Room 217, Furman

Organizers: **Matthew I. Gould**, Vanderbilt University

Karen Ann Linton, California State Polytechnic University, Pomona

8:30AM *Maximal inverse semigroups of transformations.*
▶ (222) Preliminary report.

Boyko G. Gyurov*, University of Arkansas, and **Boris M. Schein**, University of Arkansas, Fayetteville, AR (999-20-87)

9:00AM *Totally Ordered E-unitary Inverse Semigroups.*
(223) Preliminary report.

Gracinda M. S. Gomes, Centro de Álgebra da Universidade de Lisboa (CAUL), and **Donald B. McAlister***, Northern Illinois University and CAUL (999-20-62)

9:30AM *Representation Theory of Finite Semigroups and Formal Language Theory.*
(224)

Jorge Almeida, University of Porto, **Stuart W. Margolis***, Bar-Ilan University, **Benjamin Steinberg**, Carleton University, and **Mikhail V. Volkov**, University of the Urals (999-20-47)

10:10AM *The free idempotent-generated semigroup on a biordered set.* Preliminary report.
(225)

Stuart Margolis, Bar Ilan University, and **John C. Meakin***, University of Nebraska-Lincoln (999-20-97)

Special Session on Von Neumann Algebras and Noncommutative Ergodic Theory, III

9:10 AM – 10:50 AM Room 126, Wilson

Organizers: **Dietmar Bisch**, Vanderbilt University
Sorin T. Popa, University of California Los Angeles

9:10AM *Estimates for non-microstates free entropy dimension.*
(226)

Dimitri Shlyakhtenko, UCLA (999-46-115)

10:00AM *A rigidity result for irrational rotation HT factors.*
(227)

Remus Nicoara*, Vanderbilt University, **Sorin Popa**, University of California Los Angeles, and **Roman Sasyk**, Purdue University (999-46-33)

10:30AM *On the topology of the Kasparov groups and its applications.*
(228)

Marius Dadarlat, Purdue University (999-46-64)

Invited Address

11:00 AM – 11:50 AM Room 103, Wilson

(229) *Artin groups, mapping class groups and automorphism groups.*

Ruth M. Charney, Brandeis University (999-20-01)

Invited Address

1:30 PM – 2:20 PM **Room 103, Wilson**

- (230) *Inverse problems for Sturm-Liouville equations.*
Rudi Weikard, University of Alabama at Birmingham (999-34-04)

Special Session on Geometry of Hyperbolic Manifolds, IV

2:30 PM – 5:00 PM **Room 122, Wilson**

Organizers: **John G. Ratcliffe**, Vanderbilt University
Steven T. Tschantz, Vanderbilt University

- 2:30PM *Classification of negatively pinched manifolds with amenable fundamental groups.*
 (231) **Igor Belegradek***, Georgia Tech, and **Vitali Kapovitch**, Universität Münster (999-53-82)
- 3:10PM *Hyperbolic structure on some complements of tori and Klein bottles in the 4-sphere.*
 (232) **Dubravko Ivanšić***, Murray State University, **John G. Ratcliffe** and **Steven T. Tschantz**, Vanderbilt University (999-57-105)
- 3:50PM *Some examples of aspherical 4-manifolds that are homology 4-spheres.*
 (233) **John G. Ratcliffe*** and **Steven T. Tschantz**, Vanderbilt University (999-57-206)
- 4:30PM *The Smallest Hyperbolic 6-Manifolds.*
 (234) **Brent Everitt**, University of York, **John Ratcliffe** and **Steven Tschantz***, Vanderbilt University (999-57-191)

Special Session on Biomathematics, IV

2:30 PM – 4:20 PM **Room 311, Furman**

Organizers: **Laurent Pujon-Menjouet**, Vanderbilt University
Glenn F. Webb, Vanderbilt University

- 2:30PM *HIV and Culture.* Preliminary report.
 ► (235) **Keith E Howard**, Kenyon College (999-34-17)
- 3:00PM *The model for strep throat infection.*
 (236) **Yan Zhao**, Vanderbilt University (999-15-41)
- 3:30PM *Transmission Dynamics of Antibiotic Resistance in Hospitals.* Preliminary report.
 ► (237) **Erika M. D'Agata**, Beth Israel Deaconess Medical Center, Division of Infectious Diseases, **Mary Ann Horn** and **Glenn F. Webb***, Vanderbilt University (999-92-91)
- 4:00PM *The solution differential systems with delay and with commutative matrixes.*
 (238) **Iryna Uleychuk**, Ukranian Academy Ecology Technologies (999-34-183)

Special Session on Semigroup Theory, IV

2:30 PM – 4:50 PM **Room 217, Furman**

Organizers: **Matthew I. Gould**, Vanderbilt University
Karen Ann Linton, California State Polytechnic University, Pomona

- 2:30PM *Asymptotic growth of free spectra of finite semigroups.*
 (239) **Steven Seif**, University of Louisville (999-20-229)

- 3:00PM *A finitely generated variety of semigroups whose finite membership problem is NP-hard.*
 (240) **Ralph N McKenzie***, Vanderbilt University, and **Michael Jackson**, La Trobe University (Melbourne, Australia) (999-08-90)
- 3:30PM *Permutative semigroups whose congruences form a chain.*
 (241) **Peter R. Jones***, Marquette University, and **Attila Nagy**, Budapest University of Technology and Economics (999-20-80)
- 4:00PM *Faithful Functors and Ample Semigroups.*
 ► (242) **Victoria Gould**, University of York, and **Mark Kambites***, Carleton University (999-20-133)
- 4:30PM *Extensions of endomorphisms of free groups to their pro-finite completions.*
 ► (243) **Mark Sapir**, Vanderbilt University (999-20-56)

Special Session on Graph Theory and Matroid Theory, IV

2:30 PM – 5:20 PM **Room 103, Calhoun**

Organizers: **Mark N. Ellingham**, Vanderbilt University
Michael D. Plummer, Vanderbilt University

- 2:30PM *A Game of Edge Removal on Graphs.*
 ► (244) **Bert L. Hartnell***, Saint Mary's University, and **Doug F. Rall**, Furman University (999-05-109)
- 3:00PM *On 4- and 5- Connected Well-Covered Triangulations.* Preliminary report.
 ► (245) **Arthur S Finbow***, **B Hartnell**, Saint Mary's University, **R Nowakowski**, Dalhousie University, and **M D Plummer**, Vanderbilt University (999-05-262)
- 3:30PM *Colored domination and colored independence in graphs.* Preliminary report.
 (246) **Peter John Slater**, University of Alabama in Huntsville (999-05-187)
- 4:00PM *An Old Decomposition Problem.* Preliminary report.
 ► (247) **Guantao Chen**, Georgia State University, and **Richard H. Schelp***, University of Memphis (999-05-126)
- 4:30PM *Hamiltonicity of generalized prisms.*
 (248) **Roman Čada**, University of West Bohemia, and ITI, Charles University, Czech Republic, **Evelyne Flandrin*** and **Hao Li**, LRI, Université Paris-Sud, France (999-05-242)
- 5:00PM *Hamiltonian Graphs and Linear Forests.*
 (249) **Guantao Chen**, Georgia State University, **Ralph Faudree***, University of Memphis, **Ronald Gould**, Emory University, **Michael Jacobson**, University of Colorado at Denver, **Linda Lesniak**, Drew University, and **Florian Pfender**, Emory University (999-05-253)

Special Session on Von Neumann Algebras and Noncommutative Ergodic Theory, IV

2:30 PM – 4:30 PM **Room 126, Wilson**

Organizers: **Dietmar Bisch**, Vanderbilt University
Sorin T. Popa, University of California Los Angeles

- 2:30PM *Orbit equivalence Rigidity.*
 (250) **Nicolas Monod**, University of Chicago (999-37-193)
- 3:20PM *Intermediate Subfactors.* Preliminary report.
 (251) **Dietmar Bisch**, Vanderbilt University (999-46-159)

- 3:50PM *The Pukanszky invariant and group von Neumann algebras.* (252)
Allan M Sinclair, Univ. of Edinburgh, and **Roger R Smith***, Texas A&M University (999-46-89)

Special Session on Index Theory and the Topology of Manifolds, IV

2:30 PM – 5:40 PM **Room 113, Wilson**

Organizers: **Bruce Hughes**, Vanderbilt University
Guoliang Yu, Vanderbilt University

- 2:30PM *Topological invariants of 3-manifolds arising in the K -theory of AF C^* -algebras.* Preliminary report. (253)
► **Igor Nikolaev**, Calgary (999-19-71)
- 3:10PM *Group actions on aspherical manifolds.* (254)
Shmuel Weinberger, University of Chicago (999-57-146)
- 3:50PM *A Complete Obstruction to the Existence of Nonvanishing Vector Fields on Almost-Complex, Closed Orbifolds.* (255)
Christopher W. Seaton, Rhodes College (999-57-121)
- 4:30PM *The Gromov-Lawson-Rosenberg Conjecture for cocompact Fuchsian groups.* (256)
James F. Davis*, Indiana University, and **Kimberly Pearson**, Valparaiso University (999-53-277)
- 5:10PM Discussion.

Special Session on Universal Algebra and Lattice Theory, IV

2:30 PM – 5:20 PM **Room 109, Furman**

Organizers: **Ralph N. McKenzie**, Vanderbilt University
George F. McNulty, University of South Carolina

- 2:30PM *Complex Algebras of Subalgebras.* Preliminary report. (257)
► **Kira Adaricheva***, Harold Washington College, Chicago, Illinois, and **Agata Pilitowska**, Warsaw University of Technology, Warsaw, Poland (999-08-135)
- 3:00PM *Sectionally complemented lattices and congruence restrictions.* (258)
G. Grätzer* and **H. Lakser**, University of Manitoba (999-06-92)
- 3:30PM *Open Questions Related to the Problem of Birkhoff and Maltsev.* (259)
M. E. Adams, State University of New York at New Paltz, **K. V. Adaricheva**, Harold Washington College at Chicago, **W. Dziobiak***, University of Puerto Rico at Mayaguez, and **A. V. Kravchenko**, Institute of Mathematics of the Siberian Branch of RAS (999-06-178)
- 4:00PM *Join prime elements in join semidistributive lattices.* Preliminary report. (260)
J. B. Nation, University of Hawaii (999-06-224)
- 4:30PM *Simple Boolean algebras with operators.* (261)
Steven R. Givant, Mills College (999-08-42)
- 5:00PM *Minimal Algebras in Semi-distributive Varieties.* Preliminary report. (262)
Ju Wang, GuangXi Normal University (999-08-283)

Special Session on Topological Aspects of Group Theory, IV

2:30 PM – 5:20 PM **Room 103, Wilson**

Organizers: **Michael L. Mihalik**, Vanderbilt University
Mark V. Sapir, Vanderbilt University

- 2:30PM *Discrete Morse Theory and Graph Braid Groups.* (263)
► **Daniel S Farley*** and **Lucas Sabalka**, University of Illinois at Urbana-Champaign (999-20-230)
- 3:00PM *The homology of Richard Thompson's group F .* Preliminary report. (264)
Kenneth S. Brown, Cornell University (999-20-106)
- 3:30PM *Are the Thompson Groups the Most Complex Subgroups of the Piecewise Linear Homeomorphisms of the Unit Interval?* (265)
Matthew G. Brin, Binghamton University, NY (999-20-67)
- 4:00PM *Algebras derived from dimension theory.* (266)
Jerzy None Dydak, University of Tennessee (999-55-85)
- 4:30PM *Graph representatives and free group endomorphisms.* (267)
Michael R Kelly, Loyola University - New Orleans (999-55-286)
- 5:00PM Discussion.

Special Session on Local and Homological Algebra, IV

2:30 PM – 4:20 PM **Room 115, Wilson**

Organizers: **Florian Enescu**, Georgia State University
Adela N. Vraciu, University of South Carolina

- 2:30PM *Semidualizing modules.* Preliminary report. (268)
Sean M. Sather-Wagstaff, University of Nebraska-Lincoln (999-13-136)
- 3:00PM *Betti numbers of multigraded modules.* Preliminary report. (269)
H. Charalambous and **A. Tchernev***, University at Albany, SUNY (999-13-25)
- 3:30PM *Submodules and Quotients of Cofinite Modules.* (270)
Janet Cowden Vassilev, University of Arkansas (999-13-50)
- 4:00PM *The colength and multiplicity of an \mathfrak{m} -primary ideal.* Preliminary report. (271)
C-Y. Jean Chan*, University of Arkansas, Fayetteville, **Jung-Chen Liu**, National Taiwan Normal University, and **Bernd Ulrich**, Purdue University (999-13-222)

Special Session on Operator Theory on Function Spaces, IV

2:30 PM – 5:20 PM **Room 112, Wilson**

- Organizer: **Dechao Zheng**, Vanderbilt University
- 2:30PM *C^* -Algebras and Function Algebras on the Unit Disk.* Preliminary report. (272)
Ronald G. Douglas, Texas A&M University (999-47-190)
- 3:00PM *Fredholm theory for an n -tuple of commuting operators.* Preliminary report. (273)
Xiang Fang, University of Alabama (999-47-10)
- 3:30PM *Defect operators of analytic Hilbert modules.* Preliminary report. (274)
Kunyu Guo, Fudan University (999-47-46)

- 4:00PM *Toeplitz algebras on reproducing*
(275) *$C[z_1, \dots, z_d]$ -modules and its automorphism group.*
Xu Xian Min*, **Hu Jun Yun**, **Sun Shun Hua**, Jiaxing University, and **Guo Yu Kun**, Fudan University (999-47-285)
- 4:30PM *A Generalization of Kantorovich Inequality to two*
(276) *Operators.*
Morteza Seddighin, Indiana University East (999-47-35)
- 5:00PM Discussion.

John L. Bryant
Associate Secretary
Tallahassee, Florida