Program of the Sessions

Winston-Salem, North Carolina, October 9–10, 1998

Friday, October 9

Meeting Registration and AMS Book Sale and Exhibit

7:30 AM – 4:00 PM — **Lobby, Benson University Center**

Special Session on Modern Methods in Set Theory and General Topology, I

8:00 AM – 10:50 AM — **Room 10, Calloway Hall**

Organizers: **Winfried Just**, Ohio University
Paul Szeptycki, Ohio University

- 8:00AM (1) *Metrizability of completely normal, hereditarily cwH manifolds.*
  Peter J. Nyikos, University of South Carolina, Columbia, SC (936-54-216)
- 8:30AM (2) *Countably compact spaces with a small diagonal.* Preliminary report.
  Gary Gruenhage, Auburn University (936-54-77)
- 9:00AM (3) *Survey of results on convergence in topologic algebraic systems.*
  Alexander Y. Shibakov, Tennessee Tech (936-54-192)
- 9:30AM (4) *Metrizable subspaces of free topological groups on metrizable spaces.* Preliminary report.
  Kohzo Yamada, Auburn University (936-54-114)
- 10:00AM (5) *On universal c-algebras and universal uniform Eberlein compacta, and related problems.*
  Mirna Dzamonja, University of East Anglia (936-04-177)
- 10:30AM (6) $C_p(X)$ *and the Berner-Juhasz point-picking game.*
  Marion Scheepers, Boise State University (936-54-186)

Special Session on Recent Results on the Topology of Three-Manifolds, I

8:30 AM – 10:50 AM — **Room 3, Calloway Hall**

Organizer: **Hugh Nelson Howards**, Wake Forest University

- 8:30AM (7) *Minimizing Morse functions transverse to boundaries.*
  David C. Bachman, University of Texas at Austin (936-57-102)
- 9:00AM (8) *Systoles of hyperbolic 3-manifolds.*
  Colin C. Adams*, Williams College, and **Alan W. Reid**, University of Texas (936-57-83)
- 9:30AM (9) *Dehn surgery on knots.* Preliminary report.
  John E. Luecke, University of Texas, Austin (936-57-185)
- 10:00AM (10) *Free Seifert surfaces for knots.*
  Mark Brittenham, University of North Texas (936-57-64)
- 10:30AM (11) *Knotted graphs in balls.*
  Hugh N. Howards, Wake Forest University (936-57-181)

Special Session on Commutative Ring Theory, I

8:30 AM – 10:50 AM — **Room 20, Calloway Hall**

Organizers: **David F. Anderson**, University of Tennessee, Knoxville
Evan Houston, University of North Carolina, Charlotte

- 8:30AM (12) *Relating two "closures" of ideals primary for the maximal ideal in an RLR.* Preliminary report.
  David C. Lantz, Colgate University (936-13-151)
- 9:00AM (13) *Extended modules.* Preliminary report.
  Roger Wiegand, University of Nebraska (936-13-81)
- 9:30AM (14) *Noetherian domains inside a homomorphic image of a completion I.*
  William J. Heinzer, Purdue University, **Christel Rotthaus**, Michigan State University, and **Sylvia M. Wiegand***, University of Nebraska, Lincoln (936-13-27)
- 10:00AM (15) *Noetherian domains inside a homomorphic image of a completion II.*
  William J. Heinzer*, Purdue University, **Christel**, Michigan State University, and **Sylvia M. Wiegand**, University of Nebraska Lincoln (936-13-28)

10:30AM *Primary decomposition of ideals in polynomial*
▶ (16) *rings.* Preliminary report.
Robert Gilmer* and **Guang Fu**, Florida State
University (936-13-14)

Special Session on Topology in Dynamics, I

8:30 AM – 10:50 AM   Room 17, Calloway Hall

Organizers: **Marcy Barge**, Montana State
University-Bozeman
Krystyna M. Kuperberg, Auburn
University

8:30AM *Periods vs. rotation numbers in dimension one.*
(17) Preliminary report.
Alexander Blokh, University of Alabama in
Birmingham, and **Michal Misiurewicz***, IUPUI
(936-58-57)

9:00AM *Trajectory of the turning point is dense for a*
(18) *co-σ-porous set of tent maps.*
Karen M. Brucks*, UWM-Milwaukee, and **Zoltán
Buczolich**, Eötvös Loránd University (936-99-56)

9:30AM *Inverse limit spaces of unimodal maps with finite*
(19) *critical orbits.*
Henk Bruin, KTH, Stockholm (936-53-09)

10:00AM *Topology of laminations.* Preliminary report.
(20) **Luther Johnson**, Montana State University
(936-54-191)

10:30AM *Hereditarily indecomposable inverse limits of*
(21) *horseshoes.*
Piotr Minc, Auburn University (936-54-141)

Special Session on Boundary Value Problems, I

8:30 AM – 10:50 AM   Room 101, Guy T. Carswell Hall

Organizers: **John V. Baxley**, Wake Forest University
Stephen B. Robinson, Wake Forest
University

8:30AM *Global existence and blow-up of classical solutions*
(22) *for degenerate quasilinear parabolic problems with*
slow diffusions.
Chiu Yeung Chan*, University of Southwestern
Louisiana, and **Wai Yuen Chan**, University of
Science and Arts of Oklahoma (936-35-166)

9:00AM *A degenerate parabolic quenching problem.*
(23) **Lan Ke**, University of Southwestern Louisiana
(936-35-171)

9:30AM *A partial functional differential equation.*
(24) Preliminary report.
Lawrence Turyn, Wright State University
(936-34-124)

10:00AM *Dynamics and bifurcations of a 3D system modeling*
▶ (25) *thermal instability.*
Miaohua Jiang, Wake Forest University (936-34-53)

10:30AM *The stationary power-law Stokes equation in convex*
▶ (26) *domains.* Preliminary report.
Lew E. Lefton* and **Dongming Wei**, University of
New Orleans (936-35-167)

Special Session on Operator Theory and Holomorphic Spaces, I

8:30 AM – 10:50 AM   Room 208, Guy T. Carswell Hall

Organizers: **Tavan T. Trent**, University of Alabama
Zhijian Wu, University of Alabama

8:30AM *Nontangential limits in $P^2(\mu)$ and the index of an*
(27) *invariant subspace.* Preliminary report.
Alexandru Aleman, Fernuniversitaet Hagen, and
Stefan Richter*, University of Tennessee
(936-47-158)

9:00AM *Hyponormal pairs of Toeplitz operators.*
(28) **Raúl E. Curto**, The University of Iowa (936-47-116)

9:30AM *Extremal problems for moments of planar continua*
(29) *with fixed conformal centroid.* Preliminary report.
Albert Baernstein II*, Washington University, and
Richard S. Laugesen, University of Illinois
(936-31-197)

10:00AM *A compact composition operator that is not*
(30) *Hilbert-Schmidt.*
Benjamin A. Lotto, Vassar College (936-47-163)

10:30AM *Compact composition operators between weighted*
(31) *Bergman spaces on convex domains in C^n.*
Peter R. Mercer, SUNY College at Buffalo
(936-47-74)

Special Session on Combinatorics and Graph Theory, I

9:00 AM – 10:50 AM   Room 117, Calloway Hall

Organizer: **Bruce Landman**, University of North
Carolina

9:00AM *The power of 2 dividing coefficients in a series.*
(32) Preliminary report.
Fredric T. Howard, Wake Forest University
(936-05-59)

9:30AM *Sequences of weighted averages.* Preliminary report.
▶ (33) **Neil J. Calkin**, Clemson University (936-05-204)

10:00AM *Antichains in the poset of integer partitions.*
(34) **Rod Canfield**, University of Georgia, Athens
(936-05-05)

10:30AM *Filter sizes in distributive lattices.*
(35) **Dwight Duffus***, Emory University, and **Bill Sands**,
The University of Calgary (936-06-175)

Special Session on Abelian Groups and Modules, I

9:00 AM – 10:50 AM   Room 112, Calloway Hall

Organizer: **Ulrich Albrecht**, Auburn University

9:00AM *Mixed groups and companion groups.* Preliminary
(36) report.
Steven T. Files, Wesleyan University (936-20-159)

9:30AM *Baer-Kaplansky theorems for direct sums of*
(37) *self-small mixed groups.*
Bill Wickless, University of Connecticut (936-20-39)

10:00AM Discussion

Special Session on Noncommutatuve Algebra, I

9:00 AM – 10:50 AM   Room 119, Calloway Hall

Organizers: **Ellen Kirkman**, Wake Forest University
James Kuzmanovich, Wake Forest
University

9:00AM *Enveloping algebras of Lie color algebras:*
(38) *Primeness versus graded-primeness.*
Jeffrey M. Bergen*, DePaul University, and **D. S.
Passman**, University of Wisconsin (936-16-180)

9:30AM *Orthogonal subcategories of the stable category.*
(39) Preliminary report.
Jon F. Carlson, University of Georgia (936-20-182)

10:00AM *Global dimension four extensions of Artin-Schelter*
(40) *regular algebras.*
Tom Cassidy, University of Oregon (936-16-105)

10:30AM *Module extensions over classical Lie superalgebras.*
(41) **Edward S. Letzter**, Texas A&M University
(936-16-173)

Special Session on Ergodic Theory, I

9:00 AM – 10:50 AM   **Room 102, Guy T. Carswell Hall**

Organizer: **Idris Assani**, University of North Carolina, Chapel Hill

9:00AM *Equivalence relations and the capturing property in*
(42)   *topological dynamics.*
Joseph Auslander, University of Maryland, College Park (936-54-109)

9:30AM *Integer sequences with big gaps and the pointwise*
(43)   *ergodic theorem.*
Roger L. Jones*, DePaul University, **Michael Lacey**, Georgia Tech. Univ., and **Mate Wierdl**, University of Memphis (936-26-97)

10:00AM *A finite approximation of the Conley decomposition.*
(44)   **Fern Y. Hunt**, National Institute of Standards and Technology (936-58-82)

10:30AM *Weakly almost periodic L_1 contractions and*
(45)   *coboundaries of non-singular transformations.*
Isaac Kornfeld*, North Dakota State University, Fargo and **Michael Lin**, Ben-Gurion University of the Negev, Beer-Sheva, Israel (936-28-66)

Invited Address

11:10 AM – NOON   **Pugh Auditorium, Benson University Center**

(46)   *A.e. multiple recurrence and Wiener Wintner dynamical systems.*
Idris Assani, UNC Chapel-Hill (936-28-234)

Invited Address

1:25 PM – 2:15 PM   **Pugh Auditorium, Benson University Center**

(47)   *Some mathematical problems related to the equations of the atmosphere and the oceans.*
Roger Temam, Indiana University (936-86-06)

Special Session on Combinatorics and Graph Theory, II

2:30 PM – 5:50 PM   **Room 117, Calloway Hall**

Organizer: **Bruce Landman**, University of North Carolina

2:30PM *A variation on the coloring criterion in finding the*
(48)   *Ramsey number of a complete graph.* Preliminary report.
Richard H. Schelp, The University of Memphis (936-05-48)

3:00PM *Some generalizations of the van der Waerden*
(49)   *numbers.* Preliminary report.
Bruce M. Landman*, University of North Carolina at Greensboro, and **Tom C. Brown**, Simon Fraser Unversity (936-05-89)

3:30PM *Geometrical and topological Ramsey numbers.*
(50)   Preliminary report.
Heiko Harborth, TU Braunschweig, Germany (936-05-179)

4:00PM *Infinite partition regular matrices – solutions in*
(51)   *central sets.* Preliminary report.
Neil Hindman*, Howard University, and **Imre Leader**, University College London (936-05-35)

4:30PM *Maximum jump numbers of regular matrices*
(52)   *classes of zeros and ones.*
Bo Cheng, University of the Witwatersrand (936-05-176)

5:00PM *A survey of configurations in BTDs and related*
(53)   *BIBDs.* Preliminary report.
Margaret A. Francel, The Citadel (936-05-103)

5:30PM *Some constructions of block designs.*
(54)   **Malcolm Greig**, Greig Consulting, and **Dinesh G. Sarvate***, University of Charleston (936-05-68)

Special Session on Abelian Groups and Modules, II

2:30 PM – 4:20 PM   **Room 112, Calloway Hall**

Organizer: **Ulrich Albrecht**, Auburn University

2:30PM *Test classes for freeness.* Preliminary report.
(55)   **Andreas R. Blass***, University of Michigan, and **John Irwin**, Wayne State University (936-20-79)

3:00PM *Cotilting modules and bimodules.*
(56)   **Riccardo Colpi**, Universita di Padova, and **Kent R. Fuller***, University of Iowa (936-16-36)

3:30PM *A class of groups characterized by the ranks of*
(57)   *their socles.*
Anthony J. Giovannitti, University of West Georgia (936-20-24)

4:00PM *A-solvability and quasi-isomorphism.*
(58)   **Ulrich F. Albrecht**, Auburn University (936-20-149)

Special Session on Noncommutatuve Algebra, II

2:30 PM – 5:50 PM   **Room 119, Calloway Hall**

Organizers: **Ellen Kirkman**, Wake Forest University
               James Kuzmanovich, Wake Forest University

2:30PM *Quantized primitive ideal spaces as quotients of*
(59)   *affine varieties.* Preliminary report.
Kenneth R. Goodearl*, University of California, and **Edward S. Letzter**, Texas A&M University (936-16-147)

3:00PM *Eulerian derivations.* Preliminary report.
(60)   **Daniel R. Farkas**, Virginia Tech, **Christof Geiss**, UNAM, **Edward L. Green***, Virginia Tech, and **Eduardo N. Marcos**, Univ. of Sao Paulo (936-16-87)

3:30PM *Algebraic structure of the quantum Lorentz group.*
(61)   **Timothy J. Hodges**, University of Cincinnati (936-16-104)

4:00PM *Canonical basis and Macdonald polynomials.*
(62)   **Naihuan Jing**, North Carolina State University (936-17-212)

4:30PM *On the Krull-Schmidt-Azumaya theorem for integral*
(63)   *group rings.*
Peter Hindman, University of Georgia, **Lee Klingler***, Florida Atlantic University, and **Charles Odenthal**, University of Toledo (936-16-200)

5:00PM *Projective modules over hereditary Noetherian*
(64)   *prime rings.*
Lawrence Sherwin Levy*, University of Wisconsin, Madison, and **J. Chris Robson**, University of Leeds, England (936-16-161)

5:30PM *A family of Yetter-Drinfeld module algebras for the*
(65)   *Taft algebras.* Preliminary report.
M. Susan Montgomery, University of Southern California (936-16-73)

Special Session on Recent Results on the Topology of Three-Manifolds, II

2:30 PM – 5:50 PM   **Room 3, Calloway Hall**

Organizer: **Hugh Nelson Howards**, Wake Forest University

2:30PM *Abelian subgroup separability.* Preliminary report.
(66)   **Elizabeth S. Allman**, University of North Carolina at Asheville, and **Emily Hamilton***, Emory University (936-57-203)

3:00PM
(67) *Degenerations of representations and the boundary curve space of the Whitehead link.* Preliminary report.
Alan E. Lash, UCSB, and **Patrick D. Shanahan***, Loyola Marymount University (936-57-135)

3:30PM
(68) *Non-mutant hyperbolic knots with unfaithful double branch covers.* Preliminary report.
Steven A. Bleiler*, Portland State University, **Bell Foozwell** and **Hyam Rubinstein**, University of Melbourne (936-57-115)

4:00PM
(69) *Genus two 3-manifolds decompose into handle number one pieces.* Preliminary report.
Eric D. Sedgwick, Oklahoma State University (936-57-211)

4:30PM
(70) *The $\lfloor 2\pi \rfloor$-theorem.*
Ian Agol, University of California, Davis (936-57-133)

5:00PM
(71) *Holonomic parametrizations of knots.* Preliminary report.
Joan S. Birman*, Barnard College of Columbia University, and **Nancy C. Wrinkle**, Columbia University (936-57-168)

5:30PM
(72) *Length multiplicities of hyperbolic 3-manifolds.*
Joseph D. Masters, University of Texas at Austin (936-57-134)

Special Session on Commutative Ring Theory, II

2:30 PM – 5:50 PM   Room 20, Calloway Hall

Organizers: **David F. Anderson**, University of Tennessee, Knoxville
Evan Houston, University of North Carolina, Charlotte

2:30PM
(73) *Commutative rings with zero divisors having no atoms.*
Bernadette Mullins*, Youngstown State University, and **Jim Coykendall**, North Dakota State University (936-13-169)

3:00PM
(74) *Unique factorization rings with zero divisors.*
Ahmet G. Ağargün, Yildiz Üniversitesi, **Daniel D. Anderson***, The University of Iowa, and **Silvia Valdes-Leon**, University of Southern Maine (936-13-32)

3:30PM
(75) *On the elasticities of Krull domains with finite cyclic divisor class group.*
Scott T. Chapman*, Trinity University, and **David F. Anderson**, University of Tennessee at Knoxville (936-13-127)

4:00PM
(76) *Non-unique factorization in monoid domains.*
Hwankoo Kim, Univ. Tennessee, Knoxville (936-13-108)

4:30PM
(77) *Elasticity properties preserved in the normset.*
Jim B. Coykendall, North Dakota State University (936-13-19)

5:00PM
(78) *Weakly factorial algebraic orders.* Preliminary report.
Martine Picavet-L'Hermitte, Laboratoire de Mathematiques Pures, Universite Blaise Pascal (936-13-18)

5:30PM
(79) *Splitting multiplicative sets in Dedekind domains.*
David F. Anderson Univ. Tennessee, Knoxville and **Jeanam Park***, INHA, Korea (936-13-107)

Special Session on Ergodic Theory, II

2:30 PM – 4:50 PM   Room 102, Guy T. Carswell Hall

Organizer: **Idris Assani**, University of North Carolina, Chapel Hill

2:30PM
(80) *Modulated ergodic theorems along sequences of density zero.*
Roger L. Jones, DePaul University, **Michael Lin**, Ben-Gurion University, and **James H. Olsen***, North Dakota State University (936-28-52)

3:00PM
(81) *Factors of nonsingular Cartesian products.* Preliminary report.
Andres del Junco, University of Toronto, and **Cesar E. Silva***, Williams College (936-28-132)

3:30PM
(82) *Transformations and singular sequences.* Preliminary report.
Andrew B. Nobel, University of North Carolina (936-60-113)

4:00PM
(83) *The Krieger theorem for ergodic measure preserving Z^d actions.*
E. Arthur Robinson Jr*, George Washington Univ, and **Ayse A. Sahin**, North Dakota State Univ (936-28-67)

4:30PM
(84) *Almost everywhere convergence and boundedness of Cesàro-α ergodic averages.*
Francisco J. Martín-Reyes*, Universidad de Málaga, and **María Dolores Sarrión Gavilán**, Univ. de Málaga (936-28-100)

Special Session on Spectral Theory of Differential Equations and Applications, I

2:30 PM – 5:50 PM   Room 101, Guy T. Carswell Hall

Organizers: **Dominic Clemence**, North Carolina A&T University
Alexandra Kurepa, North Carolina A&T University

2:30PM
(85) *Shape invariants of weak Dirac spinors and C^1 immersions.*
George I. Kamberov, Washington University (936-35-215)

3:00PM
(86) *Variational analysis of the nonlinear Schrodinger equation.*
J. K. Shaw, Virginia Tech University (936-34-70)

3:30PM
(87) *Second order opial inequalities and applications.*
Richard C. Brown, University of Alabama, **Victor Burenkov**, University of Wales Cardiff, **Steve Clark**, University of Missouri Rolla, and **Don Hinton***, University of Tennessee (936-34-93)

4:00PM
(88) *The distribution of scattering poles.* Preliminary report.
Peter D. Hislop, University of Kentucky (936-35-63)

4:30PM
(89) *Two-parameter spectral averaging and localization for non-monotoneous random Schrödinger operators.*
Gunter Stolz, University of Alabama at Birmingham (936-81-86)

5:00PM
(90) *Perturbation theory for a Sturm-Liouville operator.* Preliminary report.
Don B. Hinton, University of Tennessee, and **Suzanne C. Melescue***, Arkansas State University (936-34-128)

5:30PM
(91) *Numerical determination of continuous spectra for the Neumann Laplacian.*
John W. Neuberger* and **Robert J. Renka**, University of North Texas (936-35-08)

Special Session on Modern Methods in Set Theory and General Topology, II

2:30 PM – 5:20 PM   Room 10, Calloway Hall

Organizers: **Winfried Just**, Ohio University
Paul Szeptycki, Ohio University

2:30PM (92) *Resolutions as a categorical property and as a mapping property.* Preliminary report.
Stephen Watson, York University (936-54-223)

3:00PM (93) *Special sets of reals.*
Tomek Bartoszynski, Boise State University (936-04-227)

3:30PM (94) *A countably compact space X such that X^ω is strongly collectionwise normal and X^2 is not pseudocompact.*
Oleg I. Pavlov, Ohio University (936-54-29)

4:00PM (95) *Small filters.* Preliminary report.
Claude Laflamme, University of Calgary (936-04-195)

4:30PM (96) *The topology of elementary submodels.* Preliminary report.
Franklin D. Tall, University of Toronto (936-54-50)

5:00PM (97) *Three reflection properties for cardinal functions.* Preliminary report.
Richard E. Hodel, Duke University, and **Jerry E. Vaughan***, University of North Carolina at Greensboro (936-54-196)

Special Session on Topology in Dynamics, II

2:30 PM – 5:20 PM   Room 17, Calloway Hall

Organizers: **Marcy Barge**, Montana State University-Bozeman
Krystyna M. Kuperberg, Auburn University

2:30PM (98) *When do new chain recurrent points imply a tangency?*
Kathleen Alligood, George Mason University (936-58-206)

3:00PM (99) *Explosions at homoclinic tangency.* Preliminary report.
Evelyn Sander, George Mason University (936-58-199)

3:30PM (100) *Rational attractors and irrational continua for maps in the Lozi family.*
Chris Cleveland, Montana State (936-58-145)

4:00PM (101) *Dynamics forced by homoclinic tangles.*
Pieter Collins, University of California, Berkeley (936-58-157)

4:30PM (102) *The Horseshoe: Pruning and homoclinic families.*
André S. de Carvalho*, SUNY at Stony Brook, and **Toby Hall**, Univ. of Liverpool, UK (936-58-117)

5:00PM (103) *Isotopy stable dynamics relative to compact invariant sets.*
Philip L. Boyland, University of Florida (936-58-10)

Special Session on Operator Theory and Holomorphic Spaces, II

2:30 PM – 5:50 PM   Room 208, Guy T. Carswell Hall

Organizers: **Tavan T. Trent**, University of Alabama
Zhijian Wu, University of Alabama

2:30PM (104) *Ext over the bidisk algebra.* Preliminary report.
Sarah H. Ferguson, Wayne State University (936-47-193)

3:00PM (105) *Disjoint invariant subspaces for cyclic subnormal operators.*
James E. Thomson* and **Robert F. Olin**, Virginia Tech (936-47-42)

3:30PM (106) *Non-cyclic cellular indecomposable subnormal operators.* Preliminary report.
Robert F. Olin, Virginia Tech (936-47-207)

4:00PM (107) *Semi-commutators and commutators of Toeplitz operators.*
Dechao Zheng, Vanderbilt University (936-47-85)

4:30PM (108) *Solving Poisson's equation with interior conditions.*
John E. McCarthy*, Washington University, **Elena Yu. Backhaus** and **Joel Fajans**, U.C. Berkeley (936-78-34)

5:00PM (109) *Weakly compact composition operators on VMO.*
Joseph A. Cima*, UNC, and **Alec L. Matheson**, Lamar University (936-30-51)

5:30PM (110) *A commutant lifting theorem on the polydisc.*
Joe E. Ball, Virginia Institute of Technology, **Wing Suet Li***, Georgia Institute of Technology, **Dan Timotin**, Romanian Academy of Science, and **Tavan Trent**, University of Alabama (936-47-229)

Saturday, October 10

Meeting Registration and AMS Book Sale and Exhibit

8:00 AM – NOON   Lobby, Benson University Center

Special Session on Commutative Ring Theory, III

8:00 AM – 10:50 AM   Room 20, Calloway Hall

Organizers: **David F. Anderson**, University of Tennessee, Knoxville
Evan Houston, University of North Carolina, Charlotte

8:00AM (111) *Powerful ideals in integral domains.*
Ayman Badawi*, Birzeit University, and **Evan Houston**, University of North Carolina at Charlotte (936-13-30)

8:30AM (112) *Commutative rings with finitely generated multiplicative semigroup.*
Daniel D. Anderson, The University of Iowa, and **Joe Stickles***, Marshall University (936-13-91)

9:00AM (113) *On the prime ideals in a commutative ring.*
David E. Dobbs, University of Tennessee (936-13-49)

9:30AM (114) *Dilworth and Sperner numbers of group rings.*
James S. Okon and **J. Paul Vicknair***, California State University, San Bernardino (936-13-96)

10:00AM (115) *Krull rings and the ring of finite fractions.* Preliminary report.
Thomas G. Lucas, University of North Carolina at Charlotte (936-13-120)

10:30AM (116) *Closures along admissible subsets.* Preliminary report.
Gabriel Picavet, Laboratoire de Mathematiques pures, Universite Blaise Pascal (936-13-17)

Special Session on Modern Methods in Set Theory and General Topology, III

8:00 AM – 10:50 AM   Room 10, Calloway Hall

Organizers: **Winfried Just**, Ohio University
Paul Szeptycki, Ohio University

8:00AM (117) *Ulam stability and pathological submeasures.* Preliminary report.
Ilijas Farah, York University (936-04-201)

8:30AM (118) *Cardinal characteristics and ultrafilters.* Preliminary report.
Andreas R. Blass, University of Michigan (936-03-80)

9:00AM (119) *Almost* realcompact spaces.*
John J. Schommer*, University of Tennessee at Martin, and **Mary Anne Swardson**, Ohio University (936-54-190)

9:30AM (120) *A linearly fibered Souslinean space under Martin's axiom.*
Justin Tatch Moore, University of Toronto (936-54-154)

10:00AM (121) *Which partial orders extend to $\mathbb{Q}$?* Preliminary report.
Judith Roitman, University of Kansas (936-06-152)

10:30AM (122) *Why Boolean algebras?*
Andrzej Roslanowski, Boise State University (936-04-126)

Special Session on Boundary Value Problems, II

8:00 AM – 9:50 AM   **Room 5, Guy T. Carswell Hall**

Organizers: **John V. Baxley**, Wake Forest University
Stephen B. Robinson, Wake Forest University

8:00AM (123) *Differentiation of solutions of Lidstone boundary value problems with respect to the boundary data.*
John M. Davis, Auburn University (936-34-26)

8:30AM (124) *Existence of multiple solutions for some n^{th} order boundary value problems.*
Johnny Henderson*, Auburn University, and **H. B. Thompson**, The University of Queensland (936-34-20)

9:00AM ▶ (125) *A self-adjoint second order equation on a measure chain.* Preliminary report.
Allan C. Peterson, University of Nebraska-Lincoln (936-39-90)

9:30AM (126) *Exact controllability and uniform stabilization for electromagnetic fields.*
Matthias M. Eller, Tennessee Technical University, and **James E. Masters III***, University of Virginia (936-35-189)

Special Session on Noncommutatuve Algebra, III

8:30 AM – 10:50 AM   **Room 119, Calloway Hall**

Organizers: **Ellen Kirkman**, Wake Forest University
James Kuzmanovich, Wake Forest University

8:30AM (127) *q-wedge modulules for quantized enveloping algebras of classical type.* Preliminary report.
Kailash C. Misra, North Carolina State University (936-17-205)

9:00AM (128) *Down-up algebras.* Preliminary report.
Paula A.A.B. Carvalho, Universidade do Porto, Portugal, and **Ian M. Musson***, University of Wisconsin-Milwaukee (936-16-72)

9:30AM (129) *Tilting modules and cohomology.*
Brian J. Parshall, Univ. Virginia (936-16-208)

10:00AM (130) *Construction of noncommutative ruled surfaces.* Preliminary report.
David Patrick, University of Washington (936-16-184)

10:30AM ▶ (131) *Representation theory, generic and specific.*
Leonard L. Scott, University of Virginia (936-16-210)

Special Session on Recent Results on the Topology of Three-Manifolds, III

8:30 AM – 10:50 AM   **Room 3, Calloway Hall**

Organizer: **Hugh Nelson Howards**, Wake Forest University

8:30AM (132) *The second homology group of the level 2 mapping class group and extended Torelli group of an orientable surface.*
Joel S. Foisy, SUNY Potsdam (936-57-58)

9:00AM (133) *Results concerning surface groups in surgered manifolds.*
Anneke Bart, Saint Louis University (936-57-21)

9:30AM ▶ (134) *Relatively-slice links and the lower central series of 3-manifold groups.*
Vyacheslav S. Krushkal, Institute for Advanced Study (936-57-220)

10:00AM (135) *Subgroup separability and the generalized word problem in $Aut(F_n)$ and the braid groups.*
Oliver T. Dasbach, Columbia University, and **Brian S. Mangum***, Barnard College - Columbia University (936-57-164)

10:30AM (136) *Planar normal surfaces and the word problem.*
William H. Jaco*, Oklahoma State University, **Joachim H. Rubinstein**, University of Melbourne, and **Eric D. Sedgwick**, Oklahoma State University (936-57-222)

Special Session on Ergodic Theory, III

8:30 AM – 10:50 AM   **Room 102, Guy T. Carswell Hall**

Organizer: **Idris Assani**, University of North Carolina, Chapel Hill

8:30AM (137) *Oscillation for discrete singular integral operators.* Preliminary report.
James T. Campbell* and **Mate Wierdl**, University of Memphis (936-43-230)

9:00AM (138) *Fractional Poisson's equation and ergodic theorems for fractional coboundaries.* Preliminary report.
Yves Derriennic, Université de Bretagne Occidentale, and **Michael Lin***, Ben-Gurion University of the Negev (936-28-65)

9:30AM (139) *Invariant measures for set-valued dynamical systems.*
Walter M. Miller*, Howard University, and **Ethan Akin**, CUNY (936-28-144)

10:00AM (140) *Factor maps between tiling dynamical systems.*
Karl E. Petersen, University of North Carolina at Chapel Hill (936-28-13)

10:30AM (141) *Universal estimation of ergodic transformations.* Preliminary report.
Terrence M. Adams*, Rhode Island College, and **Andrew B. Nobel**, UNC-CH (936-60-221)

Special Session on Spectral Theory of Differential Equations and Applications, II

8:30 AM – 10:50 AM   **Room 101, Guy T. Carswell Hall**

Organizers: **Dominic Clemence**, North Carolina A&T University
Alexandra Kurepa, North Carolina A&T University

8:30AM (142) *Exact results for the m-Lambda function.* Preliminary report.
John C.D. Diamantopoulos, Ouachita Baptist University, Arkadelphia, AR (936-34-235)

9:00AM (143) *A spectral method for the solution of control problems.*
Mohsen Razzaghi, Mississippi State University (936-93-99)

9:30AM (144) *Extremal properties of eigenvalues.* Preliminary report.
Charlotte A. Knotts-Zides, University of Tennessee at Knoxville (936-34-123)

10:00AM (145) *Discrete Liapunov inequalities.*
Steve Clark*, University of Missouri-Rolla, and **Don Hinton**, University of Tennessee-Knoxville (936-39-198)

10:30AM An existence result for a class of sublinear
(146) semipositone systems.
Alfonso Castro, University of North Texas, **Chhetri Maya** and **Ratnasingham Shivaji***, Mississippi State University (936-35-98)

Special Session on Topology in Dynamics, III

8:30 AM – 10:50 AM   **Room 17, Calloway Hall**

Organizers: **Marcy Barge**, Montana State University-Bozeman
Krystyna M. Kuperberg, Auburn University

8:30AM Models of boundaries of Siegel disks. Preliminary
(147) report.
Andrew O. Maner, **John C. Mayer*** and **Lex G. Oversteegen**, UAB (936-30-142)

9:00AM External impressions in non-locally-connected Julia
(148) sets. Preliminary report.
Lex G. Oversteegen* and **John C. Mayer**, UAB
(936-54-139)

9:30AM Exit points on the boundary of a Siegel disk.
(149) Preliminary report.
James T. Rogers Jr., Tulane University (936-58-54)

10:00AM Blowup and fixed points. Preliminary report.
(150) **Christopher W. Stark**, NSF and University of Florida
(936-57-218)

10:30AM How basins of attraction evolve as a parameter is
(151) varied.
James A. Yorke*, University of Maryland, and
Helena E. Nusse, University of Groningen
(936-00-217)

Special Session on Operator Theory and Holomorphic Spaces, III

8:30 AM – 10:50 AM   **Room 208, Guy T. Carswell Hall**

Organizers: **Tavan T. Trent**, University of Alabama
Zhijian Wu, University of Alabama

8:30AM Synthesis sets for $H^\infty + C$. Preliminary report.
(152) **Pamela B. Gorkin***, Bucknell University, and
Raymond Mortini, Universite de Metz (936-46-38)

9:00AM Schroeder's equation in several variables.
(153) **Carl C. Cowen**, Purdue University, and **Barbara D. MacCluer***, University of Virginia (936-32-84)

9:30AM Composition operators on transition Bergman
(154) spaces. Preliminary report.
Thomas L. Kriete, University of Virginia
(936-47-150)

10:00AM Commutant lifting on a two holed domain.
(155) **Scott McCullough**, University of Florida
(936-47-138)

10:30AM Numerical ranges of composition operators.
(156) Preliminary report.
Valentin Matache, University of Puerto Rico
(936-47-22)

Special Session on Combinatorics and Graph Theory, III

9:00 AM – 10:50 AM   **Room 117, Calloway Hall**

Organizer: **Bruce Landman**, University of North Carolina

9:00AM On the number of elements in matroids with small
▶ (157) circuits or cocircuits.
Tristan M. J. Denley and **Talmage J. Reid***, The University of Mississippi (936-05-101)

9:30AM Cycles for square matrices mod n. Preliminary
▶ (158) report.
Theresa P. Vaughan*, University of North Carolina at Greensboro, and **Ezra Brown**, Virginia Polytechnic Institute & State Univ. (936-15-119)

10:00AM Using graph theory to find the genus of
▶ (159) fundamental regions of subgroups of $SL(2, Z)$.
Preliminary report.
Ezra Brown, Virginia Tech (936-05-111)

10:30AM Applications of Deza's theorem. Preliminary report.
▶ (160) **Andras Gyarfas**, Computer and Automation Institute, Hungarian Academy of Sciences, **Andre Kezdy*** and **Jeno Lehel**, University of Louisville (936-05-172)

Special Session on Abelian Groups and Modules, III

9:00 AM – 10:50 AM   **Room 112, Calloway Hall**

Organizer: **Ulrich Albrecht**, Auburn University
9:00AM Discussion

Invited Address

11:10 AM – NOON   **Pugh Auditorium, Benson University Center**

▶ (161) Unique and nonunique factorization in integral
domains.
David F. Anderson, University of Tennessee, Knoxville (936-13-69)

Invited Address

1:25 PM – 2:15 PM   **Pugh Auditorium, Benson University Center**

▶ (162) Structure of attractors. Preliminary report.
Marcy Barge, Montana State University
(936-58-233)

Special Session on Combinatorics and Graph Theory, IV

2:30 PM – 5:20 PM   **Room 117, Calloway Hall**

Organizer: **Bruce Landman**, University of North Carolina

2:30PM Inverting random functions. Preliminary report.
(163) **Mike A. Steel**, University of Canterbury, and **Laszlo A. Szekely***, University of South Carolina
(936-05-31)

3:00PM The cycling of partitions and compositions under
▶ (164) repeated shifts.
Jerrold R. Griggs* and **Chih-Chang Daniel Ho**, University of South Carolina (936-05-165)

3:30PM On k-ordered graphs.
(165) **Jill R. Faudree**, University of Alaska - Fairbanks, **Ralph J. Faudree**, University of Memphis, **Ronald J. Gould***, Emory University, **Michael S. Jacobson**, University of Louisville, and **Linda Lesniak**, Drew University (936-05-122)

4:00PM Total irredundance in graphs. Preliminary report.
(166) **Teresa W.W. Haynes**, East Tennessee State University, **Stephen T.T. Hedetniemi**, Clemson University, and **Debra J. Knisley***, East Tennessee State University (936-05-125)

4:30PM Progress on mod sum graphs.
▶ (167) **Boland James*** and **Wallace Christopher**, East Tennessee State University (936-05-140)

5:00PM From isospectral graphs and domains to isospectral
▶ (168) networks. Preliminary report.
Tzong-Yow Lee, University of Maryland (936-52-16)

Special Session on Noncommutatuve Algebra, IV

2:30 PM – 5:50 PM   Room 119, Calloway Hall

Organizers: **Ellen Kirkman**, Wake Forest University
James Kuzmanovich, Wake Forest University

2:30PM *Exotic differential operators.* Preliminary report.
(169) **Thierry Levasseur**, Université de Bretagne Occidentale, Brest, France, and **J. T. Stafford***, University of Michigan, Ann Arbor (936-17-75)

3:00PM *Weighted quantum planes and related regular*
(170) *algebras.*
Darin R. Stephenson, Hope College (936-16-183)

3:30PM *Line schemes.* Preliminary report.
(171) **Brad Shelton**, University of Oregon, and **Michaela Vancliff***, University of Texas at Arlington (936-16-46)

4:00PM *Some homological invariants of local PI algebras.*
(172) Preliminary report.
Quanshui Wu* and **James J. Zhang**, Univ. of Washington (936-16-236)

4:30PM *Full embeddings of almost split sequences for*
(173) *split-by-nilpotent extensions.*
I. Assem, University of Sherbrooke, and **Dan Zacharia***, Syracuse University (936-16-110)

5:00PM *A noncommutative version of Watanabe theorem.*
(174) **James J. Zhang**, University of Washington (936-16-61)

5:30PM *Phantoms in representation theory – remembrance*
(175) *of things finite.* Preliminary report.
Birge Huisgen-Zimmermann, University of California (936-16-146)

Special Session on Recent Results on the Topology of Three-Manifolds, IV

2:30 PM – 5:50 PM   Room 3, Calloway Hall

Organizer: **Hugh Nelson Howards**, Wake Forest University

2:30PM *Integral points on character varieties.*
(176) **Darren Long**, U.C.S.B., and **Alan W. Reid***, University of Texas (936-57-136)

3:00PM *The Yang-Mills measure in the Kauffman bracket*
(177) *skein module.*
Doug Bullock*, University of Maryland, **Charles Frohman**, University of Iowa, and **Joanna Kania-Bartoszynska**, Boise State University (936-57-162)

3:30PM *Counting Heegaard genus and tunnel number.*
(178) **Martin G. Scharlemann**, UCSB, and **Jennifer C. Schultens***, Emory University (936-57-214)

4:00PM *Intrinsically chiral colored graphs.* Preliminary
(179) report.
Erica L. Flapan* and **David L. Li**, Pomona College (936-57-137)

4:30PM *Simple closed curves and pseudo-Anosov maps.*
▶ (180) **Shicheng Wang**, Beijing University, **Ying-Qing Wu***, University of Iowa, and **Qing Zhou**, Easten China Normal University (936-57-160)

5:00PM *Existence of essential laminations.* Preliminary
(181) report.
Rachel Roberts, Washington University (936-57-194)

5:30PM *SL(2) characters of groups.* Preliminary report.
(182) **Feng Luo**, Rutgers University (936-57-156)

Special Session on Commutative Ring Theory, IV

2:30 PM – 5:20 PM   Room 20, Calloway Hall

Organizers: **David F. Anderson**, University of Tennessee, Knoxville
Evan Houston, University of North Carolina, Charlotte

2:30PM *Overrings of Z[x].* Preliminary report.
(183) **Alan Loper***, Ohio State University - Newark, and **Francesca Tartarone**, Universita "La Sapienza" (936-13-62)

3:00PM *On the polynomial equivalence of subsets E and f(E)*
(184) *of Z.*
Robert Gilmer, Florida State University, and **William W. Smith***, University of North Carolina at Chapel Hill (936-13-47)

3:30PM *Integral domains for which every non-zero ideal is*
(185) *stable.* Preliminary report.
Bruce M. Olberding, Northeast Louisiana University (936-13-95)

4:00PM *Strongly homogeneous rings extensions of a*
(186) *domain.*
Herman P. Goeters, Auburn University (936-13-23)

4:30PM *Independent locally-finite intersections of*
(187) *localizations.*
Daniel D. Anderson and **Muhammad Zafrullah***, The University of Iowa (936-13-40)

5:00PM *Prime producing sequences.*
▶ (188) **Joe L. Mott**, Florida State University (936-40-187)

Special Session on Ergodic Theory, IV

2:30 PM – 4:20 PM   Room 102, Guy T. Carswell Hall

Organizer: **Idris Assani**, University of North Carolina, Chapel Hill

2:30PM *Simplicial dynamical systems.* Preliminary report.
(189) **Ethan Akin**, The City College (936-28-76)

3:00PM *Measures that maximize weighted entropy for*
(190) *factor maps between subshifts of finite type.*
Preliminary report.
Sujin Shin, University of North Carolina at Chapel Hill (936-28-153)

3:30PM *Convergence of subsequential averages of*
(191) *admissible superadditive processes.*
Dogan Comez, North Dakota State University (936-28-155)

4:00PM *Absolutely continuous invariant measures for*
(192) *piecewise C^2 and expanding mappings of general domains in R^N.*
Jiu Ding*, Univ. of Southern Mississippi, and **Aihui Zhou**, Chinese Academy of Sciences (936-58-07)

Special Session on Spectral Theory of Differential Equations and Applications, III

2:30 PM – 5:50 PM   Room 101, Guy T. Carswell Hall

Organizers: **Dominic Clemence**, North Carolina A&T University
Alexandra Kurepa, North Carolina A&T University

2:30PM *Uniqueness of steady states for thin film equations.*
(193) **Richard S. Laugesen***, University of Illinois, Urbana–Champaign, and **Mary C. Pugh**, University of Pennsylvania (936-34-112)

3:00PM *Some remarks about the inverse scattering problem*
(194) *for first order systems on the line.*
Tuncay Aktosun, North Dakota State University, **Martin Klaus***, Virginia Tech, and **Cor van der Mee**, University of Cagliari (936-34-188)

3:30PM *Spectral stability of encapsulated vortices in*
(195)   *nonlinear wave equations.* Preliminary report.
        Robert L. Pego, University of Maryland, and **Henry A. Warchall***, University of North Texas (936-35-94)

4:00PM *Inverse problems for elastic media.*
(196)   **Lizabeth V. Rachele**, Tufts University (936-35-213)

4:30PM *Some Opial and Lyapunov inequalities with*
(197)   *nonhomogenous boundary conditions.* Preliminary report.
        Richard C. Brown*, University of Alabama, **Arlington M. Fink**, Iowa State University, and **Don B. Hinton**, University of Tennessee (936-34-170)

5:00PM *On sectorial operators and bouindary value*
(198)   *problems.* Preliminary report.
        Eduard R. Tsekanovskii, Niagara University (936-47-148)

5:30PM *Ice-covered ocean wave guides and operator*
(199)   *polynomials.* Preliminary report.
        Boris P. Belinskiy, University of Tennessee at Chattanooga (936-34-15)

Special Session on Modern Methods in Set Theory and General Topology, IV

2:30 PM – 3:50 PM   Room 10, Calloway Hall

Organizers: **Winfried Just**, Ohio University
             Paul Szeptycki, Ohio University

2:30PM *D-spaces give a new characterization of*
(200)   *semistratifiabity.* Preliminary report.
        William G. Fleissner, University of Kansas (936-54-78)

3:00PM *Normal subspaces of finite products of ordinals.*
(201)   **Adrienne M. Stanley**, Purdue University (936-54-219)

3:30PM *Ordered spaces with special dense subsets.*
(202)   Preliminary report.
        Harold R. Bennett*, Texas Tech University, **Robert W. Heath**, University of Pittsburgh, and **David J. Lutzer**, The College of William and Mary (936-54-118)

Special Session on Topology in Dynamics, IV

2:30 PM – 5:20 PM   Room 17, Calloway Hall

Organizers: **Marcy Barge**, Montana State University-Bozeman
             Krystyna M. Kuperberg, Auburn University

2:30PM *Knotted orbits in steady fluid flows.* Preliminary
(203)   report.
        John Etnyre, Stanford University, and **Robert Ghrist***, Georgia Tech (936-58-174)

3:00PM *Index bounds for self-mappings of two-complexes.*
(204)   **Michael R. Kelly**, Loyola University, New Orleans (936-57-106)

3:30PM *Symbolic dynamics of the collinear three-body*
(205)   *problem.*
        Samuel R. Kaplan, Bowdoin College (936-34-41)

4:00PM *The convergence of an algorithm for calculating*
(206)   *topological entropy.* Preliminary report.
        S. Baldwin* and **E. E. Slaminka**, Auburn University (936-58-231)

4:30PM *Horseshoes and billiards.* Preliminary report.
(207)   **Judy Kennedy**, University of Delaware (936-58-228)

5:00PM *Toral invariants analogous to continued fractions.*
(208)   Preliminary report.
        Robert F. Williams, University of Texas, Austin (936-58-60)

Special Session on Operator Theory and Holomorphic Spaces, IV

2:30 PM – 5:20 PM   Room 208, Guy T. Carswell Hall

Organizers: **Tavan T. Trent**, University of Alabama
             Zhijian Wu, University of Alabama

2:30PM *Hermitian matrix completions of band matrices.*
(209)   **Hugo J. Woerdeman**, The College of William and Mary (936-15-121)

3:00PM *Dirichlet spaces of $\mathcal{M}$-harmonic functions on the*
(210)   *unit ball in $\mathbb{C}^n$.* Preliminary report.
        Manfred Stoll, University of South Carolina (936-32-92)

3:30PM *Sampling measures for Bergman spaces on the unit*
(211)   *disk.*
        Daniel H. Luecking, University of Arkansas (936-30-71)

4:00PM *Loewner's theorem for kernels having a finite*
(212)   *number of negative squares.*
        Daniel Alpay, Ben-Gurion University of the Negev, and **James Rovnyak***, University of Virginia (936-47-88)

4:30PM *Boundedness of higher order Hankel forms and*
(213)   *factorization in potential spaces.* Preliminary report.
        Sarah Ferguson, Wayne State University, and **Richard Rochberg***, Washington University (936-46-209)

5:00PM *Compactness criteria for holomorphic composition*
▶ (214) *operators on the Hardy and Bergman spaces of the unit ball in $\mathbf{C}^n$.*
        Dana Dwight Clahane, University of California, Irvine (936-47-232)

Session for Contributed Papers

2:30 PM – 3:40 PM   Room 112, Calloway Hall

2:30PM *Path stability and nonlinear weak ergodic theorems.*
(215)   **Yong-Zhuo Chen**, University of Pittsburgh at Bradford (936-47-45)

2:45PM *The beta-shift, expansions of 1, and pumping*
(216)   *lemmas.* Preliminary report.
        Kimberly C. Johnson, University of North Carolina at Chapel Hill (936-58-202)

3:00PM *Shifts on Banach spaces.* Preliminary report.
(217)   **M. Rajagopalan***, Tennessee State University, and **K. Sundaresan**, Cleveland State University (936-46-130)

3:15PM *Tessellations of moduli spaces and the mosaic*
▶ (218) *operad.*
        Satyan L. Devadoss, Johns Hopkins University (936-55-131)

3:30PM *A supplemental bibliography on mathematics within*
▶ (219) *the scientific method.* Preliminary report.
        G. Arthur Mihram*, Princeton, NJ, and **Danielle Mihram**, Univ of Southern California (936-98-143)

Robert J. Daverman
Associate Secretary
Knoxville, Tennessee