
Program of the Sessions

Bowling Green, Kentucky, March 18–19, 2005

Friday, March 18

Meeting Registration

7:30 AM – 4:00 PM Lobby, Mass Media and Technology Hall

AMS Exhibit and Book Sale

7:30 AM – 4:00 PM Lobby, Mass Media and Technology Hall

Special Session on Commutative Ring Theory, I

8:00 AM – 10:50 AM Room 236, Mass Media and Technology Hall

Organizers: **Michael C. Axtell**, Wabash College
Joe Alyn Stickles, Jr., University of Evansville

- 8:00AM *Polynomials whose roots and critical points are integers*. Preliminary report.
▶ (1) **Jean-Claude Evard**, Western Kentucky University (1004-11-277)
- 8:30AM *Idealization*.
(2) **Michael R Winders**, Worcester State College (1004-13-115)
- 9:00AM *Rings of Bounded Cohen-Macaulay Type*. Preliminary report.
(3) **Nicholas R Baeth**, University of Nebraska-Lincoln (1004-13-90)
- 9:30AM *Order-preserving injections on groups of divisibility*. Preliminary report.
▶ (4) **Jack Maney**, The University of South Dakota (1004-13-56)
- 10:00AM *When the v -Operation Distributes Over Intersections*. Preliminary report.
(5) **Sharon Magdalene Clarke***, Pepperdine University, and **Daniel D. Anderson**, University of Iowa (1004-13-268)

- 10:30AM *The Frattini subsemigroup of the multiplicative monoid of a finite special principal ideal ring*.
(6) **David E. Dobbs*** and **Brian C. Irick**, University of Tennessee (1004-13-37)

Special Session on Partial Differential Equations and Their Applications, I

8:00 AM – 10:50 AM Room 121, Mass Media and Technology Hall

Organizers: **Zhongwei Shen**, University of Kentucky
Changyou Wang, University of Kentucky

- 8:00AM *Uniqueness in a Free Boundary Problem*.
(7) **John L Lewis***, University of Kentucky, and **Andrew L Vogel**, Syracuse University (1004-35-46)
- 8:30AM *Positive solutions of elliptic equations involving both supercritical and sublinear growth*.
(8) **Peihao Zhao*** and **Chengkui Zhong**, Department of Mathematics, Lanzhou University (1004-35-111)
- 9:00AM *Boundary Value Problems and Duality Between L^p Dirichlet and Regularity Problems for Second order Parabolic Systems in Non-cylindrical Domains*.
(9) **Kaj Nyström**, Umea University, Sweden (1004-35-160)
- 9:30AM *The mixed problem in two-dimensional Lipschitz domains*. Preliminary report.
(10) **Russell Brown***, Department of Mathematics, University of Kentucky, **Luca Capogna** and **Loredana Lanzani**, Department of Mathematics, University of Arkansas (1004-35-158)
- 10:00AM *Generalized Gagliardo-Nirenberg inequalities and Hodge systems in R^n* .
(11) **Loredana Lanzani***, University of Arkansas, and **Elias M Stein**, Princeton University (1004-35-83)

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 26, Issue 2 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.

10:30AM (12) *Continuous dependence of the scattering data on the compactly-supported potential for the Schrödinger equation, $(\Delta + q)u = 0$, in \mathbb{R}^2 .*
Michael Dobranski, Morehead State University (1004-35-246)

Special Session on Knot Theory and Its Applications, I

8:00 AM – 10:50 AM Room 107, Academic Complex

Organizers: **Yuanan Diao**, University of North Carolina, Charlotte
Claus Ernst, Western Kentucky University

8:00AM (13) *The ropelength of closed braids.* Preliminary report.
Yuanan Diao*, Department of Mathematics and Statistics, UNC Charlotte, **Claus Ernst**, Department of Mathematics, Western Kentucky University, and **Uta Ziegler**, Department of Computer Science, Western Kentucky University (1004-57-234)

8:30AM (14) *Diffusion of knots along stretched DNA molecule.* Preliminary report.
Alexander Vologodskii*, New York University, and **Anatoly Borovik**, Institute of Molecular Genetics, Moscow, Russia (1004-92-236)

9:00AM Discussion.

9:30AM (15) *Hydrodynamics of ideal knots.* Preliminary report.
Cédric Weber, **Giovanni Dietler**, **John H. Maddocks**, Swiss Federal Institute of Technology, Lausanne, Switzerland, **Eric J. Rawdon**, Department of Mathematics & Computer Science, Duquesne University, Pittsburgh, and **Andrzej Stasiak***, Université de Lausanne, Switzerland (1004-76-220)

10:00AM (16) *The average inter-crossing number (ICN) between two equilateral random walks and polygons.*
Akos Dobay*, University of Munich, **Yuanan Diao**, University of North Carolina Charlotte, and **Andrzej Stasiak**, University of Lausanne (1004-65-166)

10:30AM (17) *Equilibrium Lengths of Random Equilateral Knots.* Preliminary report.
Akos Dobay, University of Munich, **Kenneth C Millett**, University of California, Santa Barbara, **Michael Piatek**, **Eric J Rawdon***, Duquesne University, and **Andrzej Stasiak**, University of Lausanne (1004-57-110)

Special Session on Semigroups of Operators and Applications, I

8:00 AM – 10:50 AM Room 257, Mass Media and Technology Hall

Organizers: **Khristo Boyadzhiev**, Ohio Northern University
Lan Nguyen, Western Kentucky University
Quoc-Phong Vu, Ohio University

8:00AM (18) *Hille-Phillips Functional Calculus and Time-Discretization.* Preliminary report.
Frank Neubrander, Louisiana State University (1004-47-270)

8:30AM (19) *Null Controllability of the von Kármán Thermoelastic Plates Under the Clamped or Free Mechanical Boundary Conditions.*
George Avalos, University of Nebraska-Lincoln (1004-35-273)

9:00AM (20) *Dichotomy Theorem, Fredholm determinants, and the Evans function.*
Yuri Latushkin, Department of Mathematics, University of Missouri-Columbia (1004-34-89)

9:30AM (21) *Integral representations of analytic functions on sectors and H^1_n calculus for generators of semigroups.*
Khristo N Boyadzhiev, Ohio Northern University (1004-47-249)

10:00AM (22) *On the periodic solutions of abstract second order differential equations.* Preliminary report.
Lan Nguyen, Western Kentucky University (1004-47-171)

10:30AM (23) *Wellposedness of finite energy solutions to a two-dimensional Kirchhoff-Boussinesq equations.* Preliminary report.
Irena M Lasiecka*, Department of Mathematics, University of Virginia., and **I. Chueshov**, Kharkov National University (1004-35-196)

Special Session on Topology, Convergence, and Order (in Honor of Darrell Kent), I

8:00 AM – 10:50 AM Room 106, Academic Complex

Organizers: **Gary Richardson**, University of Central Florida
Thomas A. Richmond, Western Kentucky University

8:00AM Opening tribute to Darrell Kent by **Meg Gamon Bartrand**, Columbia Basin College.

8:05AM (24) *Darrell Kent: 40 Years of Research.* Preliminary report.

Gary D. Richardson, University of Central Florida (1004-54-33)

8:30AM (25) *Neighborhood Spaces.*
Darrell C. Kent*, Washington State University, and **Won Keun Min**, Kangwon National University (1004-54-23)

9:00AM (26) *Relations Between Decomposition Series and Supratopological Series of Neighborhood Spaces.*
Sang-Ho Park*, Gyeongsang National University, Korea, and **Darrell C. Kent**, Washington State University (1004-54-25)

9:30AM (27) *Motley Merotopological Spaces.* Preliminary report.
H. L. Bentley, University of Toledo (1004-54-29)

10:00AM (28) *On the Pontryagin duality in groups.*
Ronald J. Beattie, Mount Allison University (1004-46-146)

10:30AM (29) *Topological properties of generalized quotients.* Preliminary report.

David Bradshaw, **Mehrdad Khosravi**, **Heath M Martin** and **Piotr Mikusinski***, University of Central Florida (1004-54-32)

Special Session on L-Functions, I

8:00 AM – 10:50 AM Room 400, Academic Complex

Organizers: **Heather Russell**, Western Kentucky University
Nilabh Sanat, Western Kentucky University
Dominic Lanphier, Western Kentucky University

8:00AM (30) *An introduction to the Artin and strong Artin conjectures.*
Kimball Martin, Columbia University (1004-11-131)

8:30AM (31) *Artin's conjecture and the failure of multiplicity one.* Preliminary report.
Mark Dickinson, University of Pittsburgh (1004-11-239)

9:00AM (32) *Level-raising for definite unitary groups.*
Wm. Russell Mann, Brown University (1004-11-266)

- 9:30AM *Local Asai L-Functions and Applications.*
(33) **Anthony C. Kable**, Oklahoma State University (1004-22-175)
- 10:00AM *Distinguished Tame Supercuspidal Representations.*
(34) **Jeffrey Hakim**, American University (1004-43-145)
- 10:30AM *Bessel Functions and Functoriality.*
(35) **James W Cogdell**, Ohio State University (1004-11-124)

Special Session on Hopf Algebras and Related Topics, I

8:30 AM – 10:50 AM Room 249, Mass Media and Technology Hall

Organizers: **David E. Radford**, University of Illinois at Chicago
Bettina Richmond, Western Kentucky University

- 8:30AM *Coalgebras, Hopf algebras and Casimir elements.*
(36) Preliminary report.
Margaret Beattie, Mount Allison University (1004-16-143)
- 9:00AM *Braided bi-Galois theory.* Preliminary report.
(37) **Peter C Schauenburg**, Mathematisches Institut der Universität München (1004-16-159)
- 9:30AM *Dual Hopf orders in group rings of elementary abelian p -groups.*
(38) **Lindsay N. Childs***, University at Albany, and **Harold H. Smith, III**, Pennsylvania State Univ., New Kensington (1004-13-109)
- 10:00AM *On the representations of a family of Drinfel'd doubles.*
(39) **Karen Erdmann**, Oxford University, **Edward L Green***, Virginia Tech, **Nicole Snashall**, University of Leicester, and **Rachel Taillefer**, University Jean Monnet (1004-16-95)
- 10:30AM *How to compute the Faddeev-Reshetikhin-Takhtajan Quantum Enveloping Algebra.*
(40) **Jacob Towber**, Math. Dept., De Paul University, Chi. IL (1004-20-219)

Special Session on Nonlinear Analysis and Applied Mathematics, I

8:30 AM – 10:50 AM Room 118B, Academic Complex

Organizers: **Robert J. McCann**, University of Toronto
Daniel P. Spirn, University of Minnesota

- 8:30AM *Variational solutions of some nonlinear problems in geometry and optics via Monge-Kantorovich optimal mass transport theory.* Preliminary report.
► (41) **Vladimir Oliker**, Department of Mathematics and Computer Science, Emory University (1004-49-87)
- 9:00AM *A variational problem on the formation of mud cracking.*
(42) **Qinglan Xia**, University of Texas at Austin (1004-49-99)
- 9:30AM *Electrostatically deflected membranes and their symmetry.* Preliminary report.
(43) **J. McCuan***, Atlanta, GA, and **J. Pelesko**, University of Delaware (1004-35-181)
- 10:00AM *Positive Solutions of Elliptic Equations Involving both Supercritical and Sublinear Growth.*
(44) **Peihao Zhao*** and **Chengkui Zhong**, Department of Mathematics, Lanzhou University (1004-35-47)

- 10:30AM *Compactness via Symmetrization.*
(45) **Almut Burchard***, University of Virginia, and **Yan Guo**, Brown University (1004-46-202)

Special Session on Geometric Topology and Group Theory, I

9:00 AM – 10:50 AM Room 118A, Academic Complex

Organizer: **Jens E. Harlander**, Western Kentucky University

- 9:00AM *A simple algebraic proof of the algebraic index theorem.*
(46) **Vasily A. Dolgushev**, Department of Mathematics, MIT (1004-19-27)
- 9:30AM *Universal covers of uniform spaces.* Preliminary report.
(47) **Valera N Berestovskii**, Omsk State University, and **Conrad Plaut***, University of Tennessee (1004-53-179)
- 10:00AM *Hyperbolic structure on "link" complements in simply connected 4-manifolds.*
(48) **Dubravko Ivanšić***, Murray State University, **John G. Ratcliffe** and **Steven T. Tschantz**, Vanderbilt University (1004-57-172)
- 10:30AM *On the Homotopy Type of CW-Complexes with Aspherical Fundamental Group.* Preliminary report.
(49) **Jens Harlander**, Western Kentucky University, and **Jacqueline A Jensen***, Sam Houston State University (1004-57-167)

Special Session on Recent Advances in Noncommutative Algebra, I

9:00 AM – 10:50 AM Room 250, Mass Media and Technology Hall

Organizer: **Ellen E. Kirkman**, Wake Forest University

- 9:00AM *Remarks on the K -invariants in $\mathcal{U}(\mathfrak{g})$.* Preliminary report.
(50) **Jeb F. Willenbring**, University of Wisconsin - Milwaukee (1004-17-154)
- 9:30AM *Automorphisms of affine n -space and critical density.*
(51) **Jason Pierre Bell**, University of Michigan (1004-16-30)
- 10:00AM *Some results on characters and cohomology.*
(52) **Brian Parshall**, University of Virginia (1004-20-205)
- 10:30AM *On the parameterization of primitive ideals in affine PI algebras.* Preliminary report.
(53) **Edward S Letzter**, Temple University (1004-16-127)

Special Session on Graph Theory, I

9:00 AM – 10:50 AM Room 228, Mass Media and Technology Hall

Organizer: **Mustafa Atici**, Western Kentucky University

- 9:00AM *Certain Statistics in Random Trees.*
(54) **Lane Clark**, Department of Mathematics, Southern Illinois University Carbondale (1004-05-15)
- 9:30AM *Closed neighborhood anti-Sperner graphs.*
► (55) Preliminary report.
Alison M. Marr*, **John P. McSorley**, **Thomas D. Porter** and **W. D. Wallis**, Southern Illinois University (1004-05-232)

Program of the Sessions – Bowling Green, KY, Friday, March 18 (cont'd.)

- 10:00AM p -valuations for some stunted trees. Preliminary report. (56) **André E Kézdy**, University of Louisville (1004-05-71)
- 10:30AM On the domination of triangulations of graphs having non-negative Euler characteristic. Preliminary report. (57) **Michael D Plummer**, Vanderbilt University, and **Xiaoya Zha***, Middle Tennessee State University (1004-05-102)

Invited Address

- 11:10 AM – NOON **Auditorium, Mass Media and Technology Hall**
- (58) *Combinatorial geometric flows.* **Bennett Chow**, University of California San Diego (1004-53-02)

Invited Address

- 2:00 PM – 2:50 PM **Auditorium, Mass Media and Technology Hall**
- (59) *Searching for quantum projective spaces.* **James J. Zhang**, University of Washington (1004-16-05)

Special Session on Hopf Algebras and Related Topics, II

- 3:00 PM – 5:20 PM **Room 249, Mass Media and Technology Hall**
- Organizers: **David E. Radford**, University of Illinois at Chicago
Bettina Richmond, Western Kentucky University
- 3:00PM *On the irreducible representations of a class of pointed Hopf algebras.* Preliminary report. (60) **David E. Radford**, University of Illinois at Chicago, Department of Mathematics, Statistics and Computer Science, and **H.-J. G. Schneider***, Mathematisches Institut der Ludwig-Maximilians-Universität München (1004-16-176)
- 3:30PM *Comodule Lie algebras over a cotriangular Hopf algebra.* Preliminary report. (61) **Mikhail V. Kochetov**, University of Southern California (1004-17-269)
- 4:00PM *Parameters for Hopf Orders.* Preliminary report. (62) **Robert G. Underwood**, Auburn University, Montgomery (1004-13-69)
- 4:30PM *Factorization of characters on graded connected Hopf algebras.* (63) **Marcelo Aguiar***, Texas A&M University, and **Sam Hsiao**, Department of Mathematics, University of Michigan (1004-16-207)
- 5:00PM *Products of linear maps on bialgebras.* (64) **Edwin J. Beggs**, University of Wales Swansea, and **Earl J. Taft***, Rutgers university (1004-16-26)

Special Session on Commutative Ring Theory, II

- 3:00 PM – 5:50 PM **Room 236, Mass Media and Technology Hall**
- Organizers: **Michael C. Axtell**, Wabash College
Joe Alyn Stickles, Jr., University of Evansville

- 3:00PM *Prüfer, Gaussian, and Arithmetical Rings.* Preliminary report. (65) **Sarah Glaz**, University of Connecticut (1004-13-173)
- 3:30PM *Schreier Property and Gauss' Lemma.* Preliminary report. (66) **Daniel D Anderson**, Department of Mathematics, University of Iowa, Iowa City IA, and **Muhammad Zafrullah***, Pocatello, Idaho (1004-13-100)
- 4:00PM *Zero-Divisor Graphs of Polynomial and Power Series Rings.* (67) **Mike Axtell**, Wabash College, **Jim Coykendall***, North Dakota State University, and **Joe Stickles**, University of Evansville (1004-13-75)
- 4:30PM *The diameter of the zero divisor graph of $R[[x]]$.* (68) **Thomas G. Lucas**, University of North Carolina Charlotte (1004-13-58)
- 5:00PM *Zero divisor graphs of semigroups.* (69) **Frank DeMeyer**, Colorado State University, and **Lisa DeMeyer***, Central Michigan University (1004-13-128)
- 5:30PM *Central Sets of the Zero-Divisor Graph of a Commutative Ring.* (70) **Shane P Redmond**, Eastern Kentucky University (1004-13-142)

Special Session on Partial Differential Equations and Their Applications, II

- 3:00 PM – 5:50 PM **Room 121, Mass Media and Technology Hall**
- Organizers: **Zhongwei Shen**, University of Kentucky
Changyou Wang, University of Kentucky
- 3:00PM *The Dirichlet problem for fully nonlinear equations on Riemannian manifolds.* (71) **Bo Guan**, Ohio State University (1004-35-245)
- 3:30PM *Remarks on maximum principles for uniformly elliptic PDE with unbounded and quadratic terms.* (72) **Andrzej Swiech**, Georgia Institute of Technology (1004-35-130)
- 4:00PM *Infinity Variational problems and Aronsson equations.* (73) **Yifeng Yu**, U.C. Berkeley (1004-35-140)
- 4:30PM *On Recent Progress of Nonhomogeneous Boundary-Value Problems of the Korteweg-de Vries Equation.* (74) **Bing-Yu Zhang**, Department of Mathematical Sciences, University of Cincinnati (1004-35-70)
- 5:00PM *Symmetry Theorems and Uniform Rectifiability.* Preliminary report. (75) **John L Lewis**, University of Kentucky, and **Andrew L Vogel***, Syracuse University (1004-35-182)
- 5:30PM *Uniqueness in a free boundary problem of Lewis and Vogel.* (76) **Björn Bennowitz**, University of Kentucky (1004-35-226)

Special Session on Nonlinear Analysis and Applied Mathematics, II

- 3:00 PM – 5:50 PM **Room 118, Mass Media and Technology Hall**
- Organizers: **Robert J. McCann**, University of Toronto
Daniel P. Spirn, University of Minnesota

- 3:00PM *Mean curvature flow in the Heisenberg group.*
(77) Preliminary report.
Luca Capogna, University of Arkansas
(1004-35-125)
- 3:30PM *Long time asymptotics for scalar conservation laws via potential comparison.*
▶ (78) **Yong Jung Kim**, Department of Mathematics, University of California-Riverside (1004-35-161)
- 4:00PM *Hyperbolic models for chemotaxis.*
(79) **Hyung Ju Hwang**, Duke University (1004-35-135)
- 4:30PM *Generalized Homogeneous Autonomous System and Gyroscope.* Preliminary report.
(80) **Ke-ying Guan*** and **Yanxia Hu**, Science College, Beijing Jiaotong University, Beijing China (1004-70-19)
- 5:00PM *Opial's Inequality for Zero-Area Constraint.*
▶ (81) **Jochen Denzler**, University of Tennessee at Knoxville (1004-26-275)
- 5:30PM *Blowup Solutions of the Semilinear Schrödinger Equation.*
(82) **James Colliander**, Department of Mathematics, University of Toronto, **Sarah Raynor***, Department of Mathematics, Wake Forest University, **Catherine Sulem**, Department of Mathematics, University of Toronto, and **J. Douglas Wright**, Department of Mathematics, University of Minnesota (1004-35-178)

Special Session on Geometric Topology and Group Theory, II

3:00 PM – 5:50 PM Room 118A, Academic Complex

Organizer: **Jens E. Harlander**, Western Kentucky University

- 3:00PM *Generalized Knot Complements and Aspherical Ribbon Disc Complements.*
(83) **Stephan T Rosebrock**, Paedagogische Hochschule Karlsruhe (1004-57-94)
- 3:30PM *The geometric realization problem of algebraic 2-complexes.* Preliminary report.
(84) **Nancy Waller*** and **F. Rudolf Beyl**, Portland State University (1004-57-259)
- 4:00PM *The effect of cyclic factors of 3-manifold groups on homotopy classification.* Preliminary report.
(85) **F. Rudolf Beyl*** and **Nancy Waller**, Portland State University (1004-57-257)
- 4:30PM *Path Spaces and cohomology of the fundamental group.*
(86) **Greg Conner***, BYU, and **x, x** (1004-55-211)
- 5:00PM *Controlled Topology Invariants of Translation Actions.*
(87) **Nic Koban**, Western Carolina University (1004-20-50)
- 5:30PM *Elements of finite order in VF groups.*
(88) **Ian J Leary**, Ohio State University, University of Southampton (1004-20-129)

Special Session on Recent Advances in Noncommutative Algebra, II

3:00 PM – 5:20 PM Room 250, Mass Media and Technology Hall

Organizer: **Ellen E. Kirkman**, Wake Forest University

- 3:00PM *Spherical functions on homogeneous superspaces.*
(89) **Rui Bin Zhang**, School of Mathematics and Statistics, University of Sydney, and **Yi Ming Zou***, Department of Mathematical Sciences, University of Wisconsin-Milwaukee (1004-16-63)

- 3:30PM *Canonical Singularities of Orders over Surfaces.*
(90) **Daniel Chan**, University of New South Wales, and **Colin Ingalls***, University of New Brunswick (1004-16-223)
- 4:00PM *Maximal orders on surfaces of Kodaira dimension 1.* Preliminary report.
(91) **Daniel Chan**, University of New South Wales, Sydney, and **Rajesh S Kulkarni***, Michigan State University (1004-16-264)
- 4:30PM *Classifying birationally commutative surfaces.*
(92) **Daniel Rogalski**, M. I. T. (1004-16-241)
- 5:00PM *I-algebras and Curve Categories.*
(93) **K. Retert**, University of Dallas (1004-16-198)

Special Session on Graph Theory, II

3:00 PM – 5:20 PM Room 228, Mass Media and Technology Hall

Organizer: **Mustafa Atici**, Western Kentucky University

- 3:00PM *Odd-degenerate Graphs.*
(94) **Dan Pritikin**, Dept. of Math & Stat, Miami University, Oxford, OH 45056 (1004-05-28)
- 3:30PM *On Hajos' coloring conjecture.* Preliminary report.
(95) **Xingxing Yu***, School of Mathematics Georgia Institute of Technology, and **Florian Zickfeld**, Technische Universität Berlin, Germany (1004-05-224)
- 4:00PM *Multidecomposition of the Complete graph with certain leave.*
(96) **Atif Abueida**, University of Dayton (1004-05-240)
- 4:30PM *2-connected spanning subgraphs with low maximum degree in locally planar graphs.*
(97) **Mark Ellingham***, Department of Mathematics, Vanderbilt University, and **Ken-ichi Kawarabayashi**, Graduate School of Information Sciences, Tohoku University, Japan (1004-05-53)
- 5:00PM *Connectivity and matching in 3-vertex-critical claw-free graphs.*
(98) **Nawarat Ananchuen**, Silpakorn University, and **Michael D Plummer***, Vanderbilt University (1004-05-148)

Special Session on Dynamic Equations on Time Scales and Applications, I

3:00 PM – 5:50 PM Room 227, Mass Media and Technology Hall

Organizers: **Ferhan M. Atici**, Western Kentucky University
Daniel C. Biles, Western Kentucky University
Billvur Kaymakccalan, Georgia Southern University

- 3:00PM *An Application of Time Scales to Economics.*
(99) **Ferhan Merdivenci Atici**, **Daniel C. Biles*** and **Alex Lebedinsky**, Western Kentucky University (1004-34-49)
- 3:30PM *A Linear Difference Equation of Fractional Order.*
(100) **Paul W. Eloe**, University of Dayton (1004-39-149)
- 4:00PM *Positive Solutions for a Nonlinear Functional Dynamical Equation on a Time Scale.* Preliminary report.
▶ (101) **Eric R Kaufmann***, University of Arkansas at Little Rock, and **Youssef N Raffoul**, University of Dayton (1004-34-174)

Program of the Sessions – Bowling Green, KY, Friday, March 18 (cont'd.)

4:30PM (102) *Existence results for even ordered multipoint boundary value problems on a time scale.* Preliminary report.
Bonita A Lawrence, Marshall University (1004-34-251)

5:00PM (103) *Forward and reverse bifurcations in a unimodal queueing model.* Preliminary report.
James A Walsh, Oberlin College (1004-37-39)

5:30PM (104) *Lyapunov Functions and Hybrid Differential Equations.* Preliminary report.
Snezhana G. Hristova, Denison University (1004-34-255)

4:30PM (114) *A characterization of semi-orthogonal multiwavelets.* Preliminary report.
Lawrence W. Baggett and **Veronika Furst***, University of Colorado at Boulder (1004-43-105)

5:00PM (115) *Nonhomogeneous Refinement Equations and Quadrilateral/Triangular Subdivision Schemes.* Preliminary report.
Qingtang Jiang, University of Missouri-St. Louis (1004-42-151)

5:30PM (116) *Fractal Surface Macroelements for Orthogonal Nonseparable Bases.*
Bruce Kessler*, Western Kentucky University, and **Douglas Hardin**, Vanderbilt University (1004-41-260)

Special Session on Knot Theory and Its Applications, II

3:00 PM – 5:50 PM Room 107, Academic Complex

Organizers: **Yuanan Diao**, University of North Carolina Charlotte
Claus Ernst, Western Kentucky University

3:00PM (105) *The Probability of Knotting after a Local Strand Passage in SAPs.* Preliminary report.
M L Szafron*, University of Saskatchewan/St. Peter's College, and **C E Soteros**, University of Saskatchewan (1004-62-177)

3:30PM (106) *On lattice knots and links in dimensions 3 and higher.* Preliminary report.
Dennis Roseman, University of Iowa (1004-57-11)

4:00PM (107) *Lattice Knots and Cell Knots.* Preliminary report.
Casey Mann* and **Jennifer McLoud**, The University of Texas at Tyler (1004-52-208)

4:30PM (108) *How many knots are enough?*
Kenneth C. Millett, University of California, Santa Barbara (1004-57-217)

5:00PM (109) *Spin Networks and Anyonic Topological Quantum Computation.* Preliminary report.
Louis H Kauffman*, University of Illinois at Chicago, and **Samuel J Lomonaco**, University of Maryland at Baltimore County (1004-57-137)

5:30PM (110) *Quasi-Fuchsian Surfaces in Hyperbolic Knot Complements.* Preliminary report.
Colin C. Adams, Williams College (1004-57-117)

Special Session on Advances in the Study of Wavelets and Multiwavelets, I

3:00 PM – 5:50 PM Room 322, Mass Media and Technology Hall

Organizers: **Douglas P. Hardin**, Vanderbilt University
Bruce Kessler, Western Kentucky University

3:00PM (111) *MALDI TOF MS Data Processing Using Wavelets, Splines, and Statistical Techniques.* Preliminary report.
Don Hong*, Vanderbilt University and ETSU, and **Yu Shyr**, Ingram Cancer Center, Vanderbilt University (1004-62-38)

3:30PM (112) *Detecting tissue anomalies in CT data by statistical analysis with isotropic wavelets.*
Bernhard G Bodmann* and **Manos Papadakis**, University of Houston (1004-42-09)

4:00PM (113) *Some wavelet constructions in nonlinear dynamics.*
Dorin Ervin Dutkay, Rutgers University, and **Palle E. T. Jorgensen***, University of Iowa (1004-47-06)

Special Session on Semigroups of Operators and Applications, II

3:00 PM – 5:20 PM Room 257, Mass Media and Technology Hall

Organizers: **Khristo Boyadzhiev**, Ohio Northern University
Lan Nguyen, Western Kentucky University
Quoc-Phong Vu, Ohio University

3:00PM (117) *Stability of operator semigroups. Achievements and perspectives.*
Yuriy Tomilov, Institute of Mathematics, Polish Academy of Sciences (1004-47-218)

3:30PM (118) *On Mild solutions and almost periodic solutions of differential equations with multi-time.*
Saud M. Alsulami* and **Quoc-Phong Vu**, Ohio University (1004-46-93)

4:00PM (119) *Propagation of some properties of semigroups $S(t)$ from a neighborhood of $+\infty$, to a neighborhood of $0+$.* Preliminary report.
Nicolae H Pavel, Ohio University, Department of Mathematics (1004-46-209)

4:30PM (120) *Bounded Solutions of Evolution Equations.*
Van Minh Nguyen, Department of Mathematics, State University of West Georgia (1004-47-13)

5:00PM (121) *Cocycles of Holomorphic Flows.*
Elena T. Toneva, Eastern Washington University (1004-47-162)

Special Session on Topology, Convergence, and Order (in Honor of Darrell Kent), II

3:00 PM – 5:50 PM Room 106, Academic Complex

Organizers: **Gary Richardson**, University of Central Florida
Thomas A. Richmond, Western Kentucky University

3:00PM (122) *A convergence-theoretic approach to product theorems.*
Frederic Mynard, Georgia Southern University (1004-54-213)

3:30PM (123) *Convergence structures for homeomorphism groups and coset spaces.*
N Rath, University of Western Australia (1004-54-121)

4:00PM (124) *Convergence with respect to a closure operator.*
Josef Slapal, Brno University of Technology (1004-18-107)

4:30PM (125) *Epi-convergence and -topology in archimedean lattice-ordered groups.*
Anthony W. Hager*, Wesleyan University, and **Richard N. Ball**, University of Denver (1004-54-42)

- 5:00PM *Various types of logics, related structures and their applications.* (126)
Werner Gaehler, Berlin, Germany (1004-54-222)
- 5:30PM *Apartness spaces—a constructive approach.* (127)
Luminița Simona Viță, University of Canterbury, New Zealand (1004-54-44)

Special Session on L-Functions, II

3:00 PM – 5:20 PM **Room 344, Mass Media and Technology Hall**

Organizers: **Heather Russell**, Western Kentucky University
Nilabh Sanat, Western Kentucky University
Dominic Lanphier, Western Kentucky University

- 3:00PM *Metaplectic forms and multiple Dirichlet series.* (128)
 Preliminary report.
Gautam Chinta, Lehigh University (1004-11-250)
- 3:30PM *Archimedean Zeta Integrals.* (129)
Paul Garrett, School of Mathematics, University of Minnesota (1004-11-231)
- 4:00PM *Poles of Eisenstein series induced from cusppforms.* (130)
Feryal Alayont, University of Arizona (1004-11-252)
- 4:30PM *Non-vanishing of central critical values of modular L-functions modulo p.* (131)
Scott Ahlgren and **Matthew Boylan***, University of Illinois at Urbana-Champaign (1004-11-51)
- 5:00PM *Tate classes and L-functions for a product of Picard modular surfaces.* (132)
 Preliminary report.
Andrew H. Knightly, University of Maine (1004-11-112)

Western Kentucky University Reception

6:00 PM – 7:00 PM **Lobby, Mass Media and Technology Hall**

Saturday, March 19

Meeting Registration

8:00 AM – NOON **Lobby, Mass Media and Technology Hall**

AMS Exhibit and Book Sale

8:00 AM – NOON **Lobby, Mass Media and Technology Hall**

Special Session on Commutative Ring Theory, III

8:00 AM – 10:50 AM **Room 236, Mass Media and Technology Hall**

Organizers: **Michael C. Axtell**, Wabash College
Joe Alyn Stickles, Jr., University of Evansville

- 8:00AM *Prime ideals of injective dimension one.* Preliminary report. (133)
Bruce Olberding, New Mexico State University (1004-13-64)
- 8:30AM *The prime spectrum of a ring of integer-valued rational functions.* Preliminary report. (134)
K. Alan Loper, Ohio State University - Newark (1004-13-187)

- 9:00AM *Generating sets for ideals of a pullback.* Preliminary report. (135)
Jeanam Park, Department of Mathematics, Inha University (1004-13-106)

- 9:30AM *Factoring ideals in Prüfer domains.* Preliminary report. (136)
Marco Fontana, University of Rome III, **Evan Houston*** and **Thomas G Lucas**, UNC Charlotte (1004-13-191)

- 10:00AM *VSFT Domains, a preliminary report.* Preliminary report. (137)
Tridib Dutta, North Dakota State University (1004-13-210)

- 10:30AM *Descent of Minimal Overings of Integrally Closed Domains to Fixed Rings.* (138)
David E Dobbs, Univfersity of Tennessee , Knoxville, and **Jay Shapiro***, George Mason University (1004-13-85)

Special Session on Partial Differential Equations and Their Applications, III

8:00 AM – 10:50 AM **Room 121, Mass Media and Technology Hall**

Organizers: **Zhongwei Shen**, University of Kentucky
Changyou Wang, University of Kentucky

- 8:00AM *Recent Results in L-infinity Variational Problems.* (139)
 Preliminary report.
Robert R Jensen, Loyola University Chicago (1004-35-164)
- 8:30AM *A new approach to some nonlinear geometric equations in dimension two.* (140)
Fengbo Hang* and **Xiaodong Wang**, Michigan State University (1004-35-92)
- 9:00AM *Some regularity properties of convex functions in Carnot groups.* Preliminary report. (141)
Luca Capogna, University of Arkansas (1004-35-170)
- 9:30AM *An example in 2-D nonlinear elasticity.* (142)
Xiaodong Yan*, Michigan State University, and **Jonathan Bevan**, Oxford University (1004-35-91)
- 10:00AM *On the uniqueness and regularity of discontinuous solution of Hamilton-Jacobi equations.* Preliminary report. (143)
Bo Su, Iowa State University (1004-35-212)
- 10:30AM *Isospectral membranes: a connection between shape and density.* (144)
Maeve L McCarthy, Murray State University (1004-35-254)

Special Session on Numerical Analysis, Approximation, and Computational Complexity: Interdisciplinary Aspects, I

8:00 AM – 10:50 AM **Room 314, Mass Media and Technology Hall**

Organizers: **David Benko**, Western Kentucky University
Steven B. Damelin, Georgia Southern University

- 8:00AM *Integral and Positivity Preserving Approximations of Functions with Application to Markov Operators.* (145)
Jiu Ding*, Univ of Southern Mississippi, and **Noah Rhee**, Univ of Missouri at Kansas City (1004-65-07)

- 8:30AM (146) *Matrix analysis of the small-world properties of a ring network.*
Minerva Catral, **Michael Neumann**, Department of Mathematics, University of Connecticut, and **Jianhong Xu***, Department of Mathematics and Statistics, University of West Florida (1004-15-12)
- 9:00AM (147) *A finite element method for the solution of an electromagnetic scattering problem.* Preliminary report.
Aihua W Wood*, Air Force Institute of Technology, and **Junqi Huang**, Air Force Institute of Technology (1004-65-18)
- 9:30AM (148) *Applications of Approximation in Hilbert Spaces.* Preliminary report.
Scott N. Kersey, Georgia Southern University (1004-41-20)
- 10:00AM (149) *Separation of minimal s -energy points on the sphere.*
P. D. Dragnev*, Indiana-Purdue University, and **E. B. Saff**, Vanderbilt University (1004-31-261)
- 10:30AM (150) *On Efficiency of Smolyak's Algorithms for Sobolev Spaces.*
Fengbo Hang, Michigan State University, and **Youming Li***, Georgia Southern University (1004-41-189)

Special Session on Graph Theory, III

8:00 AM – 10:50 AM Room 228, Mass Media and Technology Hall

Organizer: **Mustafa Atici**, Western Kentucky University

- 8:00AM (151) *Convexity-Related Independence in Multipartite Tournaments.* Preliminary report.
Darren B. Parker*, University of Dayton, **Randy F. Westhoff** and **Marty J. Wolf**, Bemidji State University (1004-05-136)
- 8:30AM (152) *Some Structural Properties of Visibility Graphs.*
J Michael McGrew*, **Jay S Bagga**, **John W Emert** and **Frank W Owens**, Ball State University (1004-05-235)
- 9:00AM (153) *Lower Bounds on the Cheeger Constant and Integrity of Highly Connected Graphs.* Preliminary report.
Jason Rosenhouse*, James Madison University, and **Dominic Lanphier**, Western Kentucky University (1004-05-228)
- 9:30AM (154) *Induced Turan problem for graphs with bounded degree.* Preliminary report.
Myung S. Chung, National Institute of Health, **Tao Jiang***, Miami University, and **Douglas B. West**, University of Illinois-Urbana (1004-05-134)
- 10:00AM (155) *On k -additive spanners or k -detour subgraphs.*
Peter Hamburger*, Indiana University-Purdue University Fort Wayne (IPFW), **Nana Arizumi** and **Alexandr Kostochka**, University of Illinois, Urbana (1004-05-66)
- 10:30AM (156) *Spanning Eulerian Subgraphs in claw-free graphs.*
Zhi-Hong Chen*, Butler University, Indianapolis, IN 46208, **Hong-Jian Lai**, Department of Math, West Virginia University, Morgantown, WV, and **Weiqi Luo**, JiNan University, GuangZhou, P.R. China (1004-05-41)

Special Session on Knot Theory and Its Applications, III

8:00 AM – 10:50 AM Room 107, Academic Complex

Organizers: **Yuanan Diao**, University of North Carolina Charlotte
Claus Ernst, Western Kentucky University

- 8:00AM (157) *Packing, curvature, and tangling of filaments (III).*
Jonathan K. Simon*, University of Iowa, and **Gregory Buck**, St. Anselm College (1004-57-118)
- 8:30AM (158) *Classification of Tangle Solutions for a Generic Integrase, A Protein that Changes DNA Topology.*
Dorothy Buck*, Imperial College London & UC Davis, and **Cynthia Verjovsky Marcotte**, St Edwards University (1004-57-237)
- 9:00AM (159) *Solving tangle equations with KnotPlot.*
Isabel K. Darcy*, University of Iowa, **Stephen D. Levene**, UT Dallas, and **Robert G. Scharein**, Vancouver, B. C., Canada (1004-92-186)
- 9:30AM (160) *DNA Knotting & Unknotting.* Preliminary report.
Jennifer K. Mann*, Mathematics, Florida State University and Molecular Virology & Microbiology, Baylor College of Medicine, **Richard W. Deibler**, Department of Molecular Virology and Microbiology, Baylor College of Medicine, **De Witt L. Sumners**, Department of Mathematics, Florida State University, and **E. Lynn Zechiedrich**, Department of Molecular Virology and Microbiology, Baylor College of Medicine (1004-92-184)
- 10:00AM (161) *Chirality of DNA Knots and Protein-DNA Complexes Determined by Atomic-force Microscopy and Surface Reconstructions.* Preliminary report.
Stephen D Levene*, **Travis Thompson**, **Nicola E Dundas**, University of Texas at Dallas, and **Isabel K Darcy**, University of Iowa (1004-52-133)
- 10:30AM (162) *Modeling DNA Unknotting by Typell Topoisomerases.* Preliminary report.
Mariel Vazquez, Mathematics Department, U.C. Berkeley (1004-92-119)

Special Session on Advances in the Study of Wavelets and Multiwavelets, II

8:00 AM – 10:50 AM Room 322, Mass Media and Technology Hall

Organizers: **Douglas P. Hardin**, Vanderbilt University
Bruce Kessler, Western Kentucky University

- 8:00AM (163) *Several Multiwavelet Bases Centered on Nonuniform Knot Sequences.* Preliminary report.
Derek Bruff, Harvard University (1004-42-265)
- 8:30AM (164) *Low-pass filters and representations of the Baumslag Solitar group.*
Dorin Ervin Dutkay, Rutgers University (1004-43-35)
- 9:00AM (165) *On localized frames.* Preliminary report.
Fumiko Futamura, Vanderbilt University (1004-42-267)
- 9:30AM (166) *Tight Wavelet Frame Construction over Bounded Domains.* Preliminary report.
Ming-Jun Lai and **Kyunglim Nam***, University of Georgia (1004-42-116)
- 10:00AM (167) *Causal Equivalence of Frames.*
Troy Henderson* and **David R Larson**, Texas A&M University (1004-43-203)

10:30AM (168) *Construction of Orthogonal Framelets*. Preliminary report.
Eric Weber, Iowa State University (1004-42-165)

Special Session on Semigroups of Operators and Applications, III

8:00 AM – 10:20 AM Room 118B, Academic Complex

Organizers: **Khristo Boyadzhiev**, Ohio Northern University
Lan Nguyen, Western Kentucky University
Quoc-Phong Vu, Ohio University

8:00AM (169) *Admissible subspaces and almost periodicity of solutions of degenerate equations*.

Quoc-Phong Vu, Ohio University (1004-34-253)

8:30AM (170) *R-bounded semigroups on L_1 and $C(K)$ spaces*.

Mark Hoffmann, University of South Carolina, **Nigel Kalton** and **Tamara Kucherenko***, University of Missouri-Columbia (1004-46-263)

9:00AM (171) *Sharp uniform decay rates at the L_2 -level of the Schrodinger equation with non-linear boundary dissipation*. Preliminary report.

Irena Lasiecka and **Roberto Triggiani***, Mathematics Department, University of Virginia (1004-35-139)

9:30AM (172) *Existence and Uniqueness of Almost Automorphic Solutions to a Class of Semilinear Differential Equations*. Preliminary report.

Toka Diagana, Department of Mathematics, Howard University (1004-34-22)

10:00AM (173) *Transmutations for Strings*.

Kim Tuan Vu* and **Amin Boumenir**, University of West Georgia (1004-34-126)

Special Session on Topology, Convergence, and Order (in Honor of Darrell Kent), III

8:00 AM – 10:50 AM Room 106, Academic Complex

Organizers: **Gary Richardson**, University of Central Florida

Thomas A. Richmond, Western Kentucky University

8:00AM (174) *Fuzzy Convergence*. Preliminary report.

Gary D. Richardson, University of Central Florida (1004-54-84)

8:30AM (175) *Fuzzy Natural Function Spaces*.

Gerhard Preuss, Freie Universitaet Berlin, I. Mathematisches Institut (1004-54-24)

9:00AM (176) *Partial metrics and metrics with a viewpoint*.

Homeira Pajoohesh, CEOL and BCRI, University College Cork (1004-54-229)

9:30AM (177) *On a paper not published by D. C. Kent*. Preliminary report.

Ralph Kopperman, The City College of New York (1004-54-230)

10:00AM (178) *A Topological Approach to Shape Classification*.

Anne Collins*, Centre College, **Gunnar Carlsson**, **Afra Zomorodian** and **Leo Guibas**, Stanford University (1004-55-262)

10:30AM (179) *Compact spaces with and without semilattice structures*. Preliminary report.

Minakshisundaram Rajagopalan, Tennessee State University ; Nashville (Tn) 37209 (1004-54-98)

Special Session on L-Functions, III

8:00 AM – 10:50 AM

Room 344, Mass Media and Technology Hall

Organizers: **Heather Russell**, Western Kentucky University

Nilabh Sanat, Western Kentucky University

Dominic Lanphier, Western Kentucky University

8:00AM (180) *On the Modularity of Wildly Ramified Galois Representations*.

Edray Herber Goins, Purdue University (1004-11-144)

8:30AM (181) *Anticyclotomic Iwasawa invariants of elliptic curves*. Preliminary report.

Robert Pollack, Boston University, and **Tom Weston***, University of Massachusetts, Amherst (1004-11-138)

9:00AM (182) *The cuspidal structure of certain ternary theta functions*.

Jonathan Hanke, Duke University (1004-11-274)

9:30AM (183) *Zeta functions and theta lifts*.

Ze-Li Dou, Texas Christian University (1004-11-169)

10:00AM (184) *The Siegel-Weil formula, L-functions, and arithmeticity of cuspforms on Hermitian orthogonal groups*.

Cetin Urtis, University of Arizona (1004-11-215)

10:30AM (185) *Liftings from \widetilde{SL}_2 to $Spin(1,4)$* .

Ameya Pitale, The Ohio State University, Columbus, Ohio (1004-11-188)

Special Session on Hopf Algebras and Related Topics, III

8:30 AM – 10:50 AM

Room 249, Mass Media and Technology Hall

Organizers: **David E. Radford**, University of Illinois at Chicago

Bettina Richmond, Western Kentucky University

8:30AM (186) *Multiplier Hopf algebras with integrals*.

Alfons Van Daele, University of Leuven, Belgium (1004-16-54)

9:00AM (187) *Oriented Quantum Algebras Derived from Yetter-Drinfel'd Modules*. Preliminary report.

David E. Radford, University of Illinois at Chicago (1004-16-248)

9:30AM (188) *Picard-Vessiot extensions of artinian simple module algebras*.

Akira Masuoka, Institute of Mathematics, University of Tsukuba (1004-16-45)

10:00AM (189) *Semisimple Hopf algebras of dimension 2^n and their groups of grouplikes*. Preliminary report.

Yevgenia Kashina, DePaul University (1004-16-258)

10:30AM (190) *Cauchy's theorem for Hopf algebras*.

Yorck Sommerhäuser, Universität München (1004-16-256)

Special Session on Nonlinear Analysis and Applied Mathematics, III

8:30 AM – 10:50 AM Room 118, Mass Media and Technology Hall

Organizers: **Robert J. McCann**, University of Toronto

Daniel P. Spirn, University of Minnesota

8:30AM *Vortex Sheets in 3D fluids*. Preliminary report. (191) **David M Ambrose**, Courant Institute (1004-76-77)

9:00AM *Sharp nonlinear stability criterion for Relativistic Vlasov-Maxwell system*. Preliminary report. (192) **Zhiwu Lin**, Courant Institute, New York University (1004-35-233)

9:30AM *The Emergence of Large Scale Structure Under Small Scale Random Bombardments*. (193) **Xiaoming Wang***, Department of Mathematics, Florida State University, and **Andrew J. Majda**, Courant Institute, New York University (1004-35-238)

10:00AM *On the Solutions to the Normal Form of the Navier-Stokes Equations*. (194) **Ciprian Foias**, **Luan Hoang***, Texas A&M University, **Eric Olson**, University of Nevada, and **Mohammed Ziane**, University of Southern California (1004-35-21)

10:30AM *Pinning and De-Pinning Phenomena in Materials Phase Boundary Motions*. (195) **Nicolas Dirr**, Max-Planck Institute, Leipzig, Germany, and **Nung Kwan Yip***, Purdue University (1004-35-156)

Special Session on Geometric Topology and Group Theory, III

8:30 AM – 10:50 AM Room 118A, Academic Complex

Organizer: **Jens E. Harlander**, Western Kentucky University

8:30AM *First and second order isoperimetric exponents of groups*. (196) **Noel Brady**, University of Oklahoma, **Martin Bridson**, Imperial College London, **Max Forester*** and **Krishnan Shankar**, University of Oklahoma (1004-20-65)

9:00AM *Topological complexity and motion planning in certain real Grassmannians*. (197) **Tan Zhang*** and **Kelly J Pearson**, Murray State University (1004-55-113)

9:30AM *The dimension of the colohomogy groups of the Orlik-Solomon Algebras*. (198) **Kelly Jeanne Pearson*** and **Tan Zhang**, Murray State University (1004-05-86)

10:00AM *JSJ Decompositions of Coxeter Groups*. (199) **Michael L. Mihalik*** and **Steven Tschantz**, Vanderbilt University (1004-20-132)

10:30AM *On the Isomorphism Problem for Finitely Generated Coxeter Groups. I, Basic Matching*. (200) **John Ratcliffe***, **Michael Mihalik** and **Steven Tschantz**, Vanderbilt University (1004-20-153)

Special Session on Recent Advances in Noncommutative Algebra, III

9:00 AM – 10:50 AM Room 250, Mass Media and Technology Hall

Organizer: **Ellen E. Kirkman**, Wake Forest University

9:00AM *On a question of Happel*. (201) **Ragnar Buchweitz**, University of Toronto, **Edward L. Green***, Virginia Tech, **Dag Madsen** and **Oeyvind Solberg**, NTNU (1004-16-96)

9:30AM *Fixed Rings of Artin-Schelter Regular Algebras*. Preliminary report. (202) **Ellen Kirkman** and **James Kuzmanovich***, Wake Forest University (1004-16-227)

10:00AM *An Equivalence of Categories for Deformations of Type A Kleinian Singularities*. (203) **Ian M. Musson**, University of Wisconsin-Milwaukee (1004-16-152)

10:30AM *Non-commutative covers of weighted projective varieties*. Preliminary report. (204) **S Paul Smith**, University of Washington (1004-16-88)

Special Session on Dynamic Equations on Time Scales and Applications, II

9:00 AM – 10:50 AM Room 227, Mass Media and Technology Hall

Organizers: **Ferhan M. Atici**, Western Kentucky University

Daniel C. Biles, Western Kentucky University

Billür Kaymakçalan, Georgia Southern University

9:00AM *Henstock-Kurzweil Delta Integral*. Preliminary report. (205) **Allan C. Peterson***, University of Nebraska-Lincoln, and **Bevan B. Thompson**, University of Queensland (1004-39-62)

9:30AM *An Operational Calculus for Discrete Time Scales*. (206) **John Davis** and **Billy Jackson***, Baylor University (1004-39-195)

10:00AM *A continuing approach of the diamond- α dynamic derivatives*. Preliminary report. (207) **Qin Sheng**, University of Dayton (1004-39-57)

10:30AM *Higher Order Self Adjoint Problems on Time Scales*. (208) **Jo Hoffacker***, Clemson University, and **Doug Anderson**, Concordia College (1004-34-141)

Special Session on Representation Theory, I

9:00 AM – 10:50 AM Room 257, Mass Media and Technology Hall

Organizer: **Markus Hunziker**, Baylor University

9:00AM *Differential Systems of Type (1,1) on Symmetric Spaces*. (209) **Chal Benson**, East Carolina University, **Dariusz Buraczewski**, **Ewa Damek**, University of Wrocław, and **Gail Ratcliff***, East Carolina University (1004-22-120)

9:30AM *Differential Operators, Lie Symmetries and Representations of $SL(2, \mathbb{R}) \times O(n)$* . Preliminary report. (210) **Ronald J. Stanke*** and **Mark R. Sepanski**, Baylor University (1004-22-243)

10:00AM *Invariant Tensor Product and Parabolic Induction*. (211) **Hongyu He**, Atlanta, GA 30303 (1004-22-78)

10:30AM *Small Unitary Representations and Decay of Matrix Coefficients*. Preliminary report. (212) **Hadi Salmasian**, PhD Candidate, Yale University, Department of Mathematics (1004-22-14)

Session for Contributed Papers**9:00 AM – 10:25 AM** **Room 203, Academic Complex**

- 9:00AM (213) *On the Shields-Harary Numbers of a Tree.*
Preliminary report.
S H Holliday*, **John Holliday**, University of Tennessee at Martin, and **P D Johnson**, Auburn University (1004-05-193)
- 9:15AM (214) *On proofs of certain combinatorial identities.*
George Grossman*, Central Michigan University, **Akalu Tefera**, Grand Valley State University, and **Aklilu Zeleke**, Alma College (1004-05-55)
- 9:30AM (215) *A Upper Bound for Brun's Constant.* Preliminary report.
Andy D Martin, Department of Mathematics, University of Kentucky (1004-11-123)
- 9:45AM (216) *Preserving Properties in a Ring Extension.* Preliminary report.
Jason P Huffman, Georgia College & State University (1004-16-206)
- 10:00AM (217) *Path-Connected Group Extensions.*
Laurie A. Edler*, Georgia College & State University, and **Victor Schneider**, University of Louisiana, Lafayette (1004-22-204)
- 10:15AM (218) *Results of Blow-up of Solutions of Degenerate Parabolic Problems.*
W. Y. Chan, Southeast Missouri State University, MO 63701 (1004-35-67)

Invited Address**11:10 AM – NOON** **Auditorium, Mass Media and Technology Hall**

- (219) *On some connections between finite groups and Hopf algebras.*
M. Susan Montgomery, University of Southern California (1004-16-01)

Invited Address**2:00 PM – 2:50 PM** **Auditorium, Mass Media and Technology Hall**

- (220) *Optimal convergence rates for the fastest conservative nonlinear diffusions.*
Robert J. McCann, University of Toronto (1004-35-17)

Special Session on Hopf Algebras and Related Topics, IV**3:00 PM – 5:20 PM** **Room 249, Mass Media and Technology Hall**

Organizers: **David E. Radford**, University of Illinois at Chicago
Bettina Richmond, Western Kentucky University

- 3:00PM (221) *Varieties for modules of noncocommutative Hopf algebras.* Preliminary report.
Julia Pevtsova, University of Oregon, and **Sarah Witherspoon***, Texas A&M University (1004-16-242)
- 3:30PM (222) *Fully bounded noetherian rings and Frobenius extensions.*
Stefaan Caenepeel* and **Thomas Guédénon**, Vrije Universiteit Brussel (1004-16-168)

- 4:00PM (223) *Rank 1 Hopf Algebras and Their Doubles.*
Leonid Krop*, Department of Mathematical Sciences, DePaul University, and **David E Radford**, Department of Mathematics, statistics and Computer Science, University Of Illinois at Chicago (1004-16-52)
- 4:30PM (224) *Hopf algebras of dimension 2p.*
Siu-Hung Ng, Iowa State University (1004-16-197)
- 5:00PM (225) *Applications of graphical calculi to Hopf superalgebras.* Preliminary report.
Fernando J. O. Souza, University of Iowa (1004-16-271)

Special Session on Commutative Ring Theory, IV**3:00 PM – 5:20 PM** **Room 236, Mass Media and Technology Hall**

Organizers: **Michael C. Axtell**, Wabash College
Joe Alyn Stickles, Jr., University of Evansville

- 3:00PM (226) *A general theory of factorization, I.* Preliminary report.
Andrea M. Frazier* and **D. D. Anderson**, University of Iowa (1004-13-72)
- 3:30PM (227) *A general theory of factorization, II.* Preliminary report.
D. D. Anderson* and **Andrea M. Frazier**, University of Iowa (1004-13-73)
- 4:00PM (228) *Almost splitting sets in integral domains.* Preliminary report.
David F. Anderson*, University of Tennessee, and **Gyu Whan Chang**, University of Incheon (1004-13-97)
- 4:30PM (229) *Realizing sets of prime divisors.* Preliminary report.
Steve McAdam, University of Texas at Austin (1004-13-08)
- 5:00PM Discussion.

Special Session on Nonlinear Analysis and Applied Mathematics, IV**3:00 PM – 5:50 PM** **Room 118, Mass Media and Technology Hall**

Organizers: **Robert J. McCann**, University of Toronto
Daniel P. Spirn, University of Minnesota

- 3:00PM (230) *Universality in Burgers turbulence.*
Govind Menon, Brown University (1004-35-80)
- 3:30PM (231) *Coarsening in a thin-film equation: A rigorous upper bound on coarsening rate.* Preliminary report.
Felix Otto, **Tobias Rump**, Bonn University, and **Dejan Slepcev***, UCLA (1004-35-201)
- 4:00PM (232) *The Existence of Weak Solutions of a Polymer Crystal Growth Model.*
Bo Su, Iowa State University (1004-35-82)
- 4:30PM (233) *$C^{1,\alpha}$ regularity of the free boundary in a subelliptic obstacle problem.*
Arshak Petrosyan, Purdue University (1004-35-216)
- 5:00PM (234) *On a Characterization of Some Flow-invariant Sets.* Preliminary report.
Elena Constantin, Ohio University (1004-34-61)
- 5:30PM (235) *Dynamics of a critical-case generalized thin film equation.*
Thomas P Witelski, Dept of Math, Duke University (1004-35-36)

Special Session on Geometric Topology and Group Theory, IV

3:00 PM – 5:20 PM Room 118A, Academic Complex

Organizer: **Jens E. Harlander**, Western Kentucky University

- 3:00PM (236) *Local homotopy properties of boundaries of CAT(0) complexes.* Preliminary report.
Nikolay Brodskiy, The University of Tennessee (1004-57-200)
- 3:30PM (237) *On the growth of iterated monodromy groups.*
Kai-Uwe Bux*, University of Virginia, and **Rodrigo Perez**, Cornell University (1004-20-199)
- 4:00PM (238) *Separable Subsets of Gferf Nngatively Curved Groups.*
Ashot Minasyan, Vanderbilt University (1004-20-180)
- 4:30PM (239) *On one question about torsion-free groups with file bases.* Preliminary report.
Alexey Muranov, Vanderbilt University (1004-20-40)
- 5:00PM (240) *Groups with small Dehn functions.*
Alexander Yurievich Olshanskii*, Vanderbilt University, Moscow State University, and **Mark Valentinovich Sapir**, Vanderbilt University (1004-20-214)

Special Session on Numerical Analysis, Approximation, and Computational Complexity: Interdisciplinary Aspects, II

3:00 PM – 4:50 PM Room 314, Mass Media and Technology Hall

Organizers: **David Benko**, Western Kentucky University
Steven B. Damelin, Georgia Southern University

- 3:00PM (241) *Multivariate C^1 Piecewise Quadratic Interpolation Schemes.*
Andrew J Worsey*, Middle Tennessee State University, and **Tanya Sorokina**, University of Georgia (1004-65-150)
- 3:30PM (242) *The support of the logarithmic equilibrium measure on revolutionary sets.* Preliminary report.
D. P. Hardin*, **E. B. Saff** and **H. Stahl**, TN (1004-31-247)
- 4:00PM (243) *Approximation methods and stability of singular integral equations for Freud exponential weights on the line.*
Steven B Damelin*, Georgia Southern University, and **Kai Diethelm**, University of Braunschweig (1004-45-103)
- 4:30PM (244) *Unbounded extremal measures.* Preliminary report.
David Benko, Western Kentucky University (1004-41-163)

Special Session on Dynamic Equations on Time Scales and Applications, III

3:00 PM – 4:20 PM Room 227, Mass Media and Technology Hall

Organizers: **Ferhan M. Atici**, Western Kentucky University
Daniel C. Biles, Western Kentucky University
Billür Kaymakçalan, Georgia Southern University

- 3:00PM (245) *Langenhop's Inequality and Applications for Dynamic Equations.* Preliminary report.
Billur Kaymakçalan*, Georgia Southern University, and **Agacik Zafer**, Middle East Technical University (1004-39-183)
- 3:30PM (246) *Stability In Neutral Nonlinear Dynamic Equations on a Time Scale With Functional Delay.*
Eric R Kaufmann, University of Arkansa at Little Rock, and **Youssef Naim Raffoul***, University of Dayton (1004-34-43)
- 4:00PM (247) *Asymptotic Stability for Second-Order Differential Equations.*
Gro Hovhannisyan, Kent State University, Stark campus (1004-34-244)

Special Session on Knot Theory and Its Applications, IV

3:00 PM – 4:50 PM Room 107, Academic Complex

Organizers: **Yuanan Diao**, University of North Carolina Charlotte
Claus Ernst, Western Kentucky University

- 3:00PM (248) *Tensegrities, constrained optimization, and the theory of numerical knot-tightening.* Preliminary report.
Jason H Cantarella*, University of Georgia, **Eric Rawdon** and **Michael Piatek**, Duquesne University (1004-52-192)
- 3:30PM (249) *Essential arcs of knots.*
John M Sullivan, U Illinois Urbana / TU Berlin (1004-57-104)
- 4:00PM (250) *The Distortion of a Knotted Curve.*
Elizabeth Denne*, Harvard University, and **John M Sullivan**, Technische Universitat, Berlin (1004-57-59)
- 4:30PM (251) *Distortion in S^3 .* Preliminary report.
Elizabeth Denne, Harvard University, and **Robert B Kusner***, University Massachusetts at Amerst (1004-57-185)

Special Session on Representation Theory, II

3:00 PM – 5:20 PM Room 257, Mass Media and Technology Hall

Organizer: **Markus Hunziker**, Baylor University

- 3:00PM (252) *Small semisimple subalgebras of semisimple Lie algebras.*
Jeb F. Willenbring*, University of Wisconsin - Milwaukee, and **Gregg Zuckerman**, Yale University (1004-17-81)
- 3:30PM (253) *Relative Extremal Projectors.*
Mark R Sepanski*, Baylor University, and **Charles C Conley**, University of North Texas (1004-17-114)
- 4:00PM (254) *On rank-two complex reflection groups.*
Pramod N Achar*, Louisiana State University, and **Anne-Marie Aubert**, Institut de Mathematiques de Jussieu (1004-20-108)
- 4:30PM (255) *Some invariant polynomials of a matrix argument.* Preliminary report.
Chal Benson*, East Carolina University, **R. Michael Howe**, University of Wisconsin-Eau Claire, and **Gail Ratcliff**, East Carolina University (1004-20-48)
- 5:00PM (256) *Multiplication of polynomials on Hermitian symmetric spaces and Littlewood-Richardson coefficients.*
William Graham*, University of Georgia, and **Markus Hunziker**, Baylor University (1004-22-194)

**Special Session on Topology, Convergence, and Order
(in Honor of Darrell Kent), IV**

3:00 PM – 5:50 PM **Room 106, Academic Complex**

Organizers: **Gary Richardson**, University of Central
Florida
Thomas A. Richmond, Western
Kentucky University

- 3:00PM *Extension of measures: a topological approach.*
(257) **Roman Fric**, Mathematical Institute of the Slovak
Academy of Sciences (1004-54-157)
- 3:30PM *Extensions and ultrafilters.* Preliminary report.
▶ (258) **Ellen E Reed**, Trinity School at Greenlawn
(1004-54-74)
- 4:00PM *Hyper-real maps and nearly realcompact spaces.*
(259) **John J. Schommer***, University of Tennessee at
Martin, and **Biswajit Mitra**, University of Calcutta
(1004-54-101)
- 4:30PM *T_i -ordered Reflections.*
(260) **Hans-Peter A. Kunzi**, University of Cape Town, and
Tom Richmond*, Western Kentucky University
(1004-54-31)
- 5:00PM *Continued Radicals.*
▶ (261) **Jamie Johnson**, Western Kentucky University
(1004-40-147)
- 5:30PM *On γ -semi-open sets.*
(262) **Asli Guldurdek***, Western Kentucky University, and
Oya Ozbakir, Ege University (1004-54-272)

Special Session on L-Functions, IV

3:00 PM – 5:20 PM **Room 344, Mass Media
and Technology Hall**

Organizers: **Heather Russell**, Western Kentucky
University
Nilabh Sanat, Western Kentucky
University
Dominic Lanphier, Western Kentucky
University

- 3:00PM *Subconvexity for L-functions.*
(263) **Akshay Venkatesh**, Clay Mathematics Institute
(1004-11-122)
- 3:30PM *Local Newforms for $GSp(4)$.* Preliminary report.
(264) **Brooks Roberts**, University of Idaho, and **Ralf
Schmidt***, University of Oklahoma (1004-11-76)
- 4:00PM *Global newforms for $GSp(4)$.* Preliminary report.
(265) **Brooks Roberts***, University of Idaho, and **Ralf
Schmidt**, University of Oklahoma (1004-11-60)
- 4:30PM *Evaluations of a Class of Double L-values.*
(266) **David Terhune**, Pennsylvania State University
(1004-11-16)
- 5:00PM *p -divisibility of Bernoulli numbers and diophantine
equations.*
▶ (267) **Sankar Sitaraman**, Howard University, Washington
DC (1004-11-79)

Matthew Miller
Associate Secretary
Columbia, South Carolina