
Program of the Sessions

Bloomington, Indiana, April 4–6, 2003

Friday, April 4

Meeting Registration

12:15 PM – 4:00 PM **Conference Lounge,
Indiana Memorial Union**

AMS Exhibit and Book Sale

12:15 PM – 4:00 PM **Distinguished Alumni
Room, Indiana Memorial Union**

Special Session on Holomorphic Dynamics, I

2:00 PM – 5:30 PM **Room 135, Ballantine Hall**

Organizers: **Eric D. Bedford**, Indiana University
Kevin M. Pilgrim, Indiana University

- 2:00PM *On the complexity of some birational*
(1) *transformations.*
Jean-Marie Maillard, Universite Pierre et Marie
Curie, (985-37-217)
- 3:00PM *Plane birational maps and subshifts.*
(2) **Eric Bedford**, Indiana University, and **Jeffrey
Diller***, University of Notre Dame (985-37-64)
- 4:00PM *Critical points in the dynamics of regular*
(3) *polynomial endomorphisms of \mathbb{C}^2 .* Preliminary
report.
Malgorzata S. Stawiska, Purdue University
(985-32-176)
- 5:00PM Discussion

Special Session on Geometric Topology, I

2:00 PM – 5:30 PM **Room 221, Ballantine Hall**

Organizers: **Paul A. Kirk**, Indiana University
Charles Livingston, Indiana University

- 2:00PM *The topology of symplectic 4-manifolds with circle*
(4) *actions.*
Scott Baldrige, Indiana University (985-57-341)

- 3:00PM *Rohlin's invariant and 4-dimensional gauge theory.*
(5) Preliminary report.
Daniel Ruberman*, Brandeis University, and
Nikolai Saveliev, University of Miami (985-57-266)
- 4:00PM Discussion
- 5:00PM *New obstructions to doubly slicing knots.*
(6) **Taehee Kim**, Indiana University, Bloomington
(985-57-189)

Special Session on Probability, I

2:00 PM – 5:20 PM **Sassafras Room, Indiana Memorial Union**

Organizers: **Russell D. Lyons**, Indiana University
Robin A. Pemantle, Ohio State
University

- 2:00PM *Minimal Spanning Trees: Recent Consequences of*
(7) *Combinatorial and Objective Methods.*
J. Michael Steele, University of Pennsylvania
(985-60-179)
- 3:00PM *Phase transitions in phylogeny.*
(8) **Elchanan Mossel**, U.C. Berkeley (985-60-97)
- 3:30PM Break
- 4:00PM *Random weighting, asymptotic counting and*
(9) *inverse isoperimetry.*
Alexander Barvinok, University of Michigan
(985-05-70)
- 5:00PM *Average case analysis of Gosper's algorithm.*
▶ (10) **Olgica Milenkovic**, Electrical and Computer
Engineering Department, Un (985-60-114)

Special Session on Applications of Teichmüller Theory to Dynamics and Geometry, I

2:00 PM – 5:10 PM **Room 244, Ballantine Hall**

Organizers: **Christopher M. Judge**, Indiana
University
Matthias Weber, Indiana University

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 24, 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.

Program of the Sessions – Bloomington, IN, Friday, April 4 (cont'd.)

- 2:00PM *Moduli Spaces of Flat Structures in Minimal Surface Theory*. Preliminary report.
(11) **Michael Wolf**, Rice University (985-32-311)
- 3:00PM *Veech Surfaces and Complete Periodicity in Genus 2*.
(12) **Kariane Calta**, University of Chicago (985-37-256)
- 3:30PM *Flat Structures and Soap Films*. Preliminary report.
(13) **Robert Huff**, Rice University (985-51-178)
- 4:30PM *Surfaces of infinite type with free automorphism groups*.
(14) **Reza Chamanara**, IU, Bloomington (985-51-252)

Special Session on Recent Trend in the Analysis and Computations of Functional Differential Equations, I

2:00 PM – 5:20 PM Maple Room, Indiana Memorial Union

Organizers: **Paul W. Eloe**, University of Dayton
Qin Sheng, University of Dayton

- 2:00PM *Generalized partially relaxed pseudomonotone variational inequalities and general auxiliary problem principle*. Preliminary report.
▶ (15) **Ram U Verma**, University of Toledo (985-49-05)
- 2:30PM *Approximations of Frobenius-Perron Operators via Interpolation*. Preliminary report.
▶ (16) **Jiu Ding***, University of Southern Mississippi, and **Noah Rhee**, University of Missouri at Kansas City (985-65-38)
- 3:00PM *Envelope Norm in L_p Space*.
(17) **Simei Tong***, University of Wisconsin-Eau Claire, and **Dale E. Alspach**, Oklahoma State University (985-46-11)
- 3:30PM Break
- 4:00PM *The Helmholtz, Weyl Composition Equation*.
(18) **Louis Fishman**, MDF International (985-35-140)
- 4:30PM *Higher-order three-point boundary-value problems for functional differential equations*. Preliminary report.
(19) **Douglas R. Anderson**, Concordia College (985-34-49)
- 5:00PM *A splitting approach for two-dimensional sine-Gordon equations*. Preliminary report.
(20) **Qin Sheng***, University of Dayton, **Abdul Khaliq** and **David Voss**, Western Illinois University (985-65-258)

Special Session on Graph and Design Theory, I

2:00 PM – 5:20 PM Room 242, Ballantine Hall

Organizers: **Atif A. Abueida**, University of Dayton
Mike Daven, Mount Saint Mary College

- 2:00PM Discussion
- 2:30PM *Perfect colorings of hypercubes*.
▶ (21) **Dima Fon-Der-Flaass**, Institute of Mathematics (Novosibirsk); University (985-05-153)
- 3:00PM *List partition problem for graphs*.
(22) **Kathie Cameron**, Wilfrid Laurier University, **Elaine Eschen**, West Virginia University, **Chinh T. Hoang**, Wilfrid Laurier University, and **R. Sritharan***, The University of Dayton (985-68-139)
- 3:30PM *Parameter inequalities for orthogonal arrays with mixed levels*.
(23) **Wiebke S Diestelkamp**, University of Dayton (985-05-82)
- 4:00PM *Radio-chromatic numbers for triangular strips and planar grids*. Preliminary report.
▶ (24) **Allen J. Schwenk**, Western Michigan University (985-05-57)

- 4:30PM *Fractional design theory*. Preliminary report.
▶ (25) **Matthew P Walsh**, Indiana-Purdue Fort Wayne (985-05-25)

- 5:00PM *Some Upper Bounds on the Breadth of Convex Subset Lattices in Multipartite Tournaments*. Preliminary report.
(26) **Darren B Parker***, University of Dayton, **Randall F Westhoff** and **Marty J Wolf**, Bemidji State University (985-05-216)

Special Session on Representations of Infinite Dimensional Lie Algebras and Mathematical Physics, I

2:00 PM – 5:15 PM

Room 007, Woodburn Hall

Organizers: **Katrina Deane Barron**, University of Notre Dame
Rinat Kedem, University of Illinois, Urbana-Champaign

- 2:00PM *Kazhdan-Lusztig tensoring, affine Harish-Chandra categories, and Jacquet functors*.
(27) **Milen Yakimov**, Cornell University (985-22-170)
- 3:00PM *Quantum Vertex Algebras*. Preliminary report.
(28) **Iana I Angelova**, UIUC (985-81-281)
- 3:30PM *Bases of representations of type A affine Lie algebras via quiver varieties and statistical mechanics*.
(29) **Igor B Frenkel** and **Alistair Savage***, Yale University (985-17-110)
- 4:00PM *Schiffer Variation in Teichmüller Space and Determinant Line Bundles*. Preliminary report.
(30) **David Radnell*** and **Yi-Zhi Huang**, Rutgers University (985-32-243)
- 4:30PM *Chiral rings of vertex algebras of mirror symmetry*.
(31) **Lev A Borisov**, University of Wisconsin, Madison (985-14-41)

Special Session on Extremal Combinatorics, I

2:00 PM – 5:20 PM

Room 204, Ballantine Hall

Organizers: **Dhruv Mubayi**, University of Illinois at Chicago
Jozef Skokan, University of Illinois at Urbana-Champaign

- 2:00PM *Lower bound on the profile of degree pairs in cross-intersecting systems*. Preliminary report.
(32) **Zsuzsanna Szaniszló***, Valparaiso University, and **Zsolt Tuza**, Computer and Automation Institute, Hungarian Acade (985-05-27)
- 2:30PM *Searching for Dense Graphs without 8-cycles*.
▶ (33) **Vasyl Dmytrenko*** and **Felix Lazebnik**, University of Delaware (985-05-213)
- 3:00PM *Strong Colouring*.
(34) **P E Haxell**, University of Waterloo (985-05-282)
- 3:30PM *On incomparable and uncomplemented families of finite sets*.
▶ (35) **Yuejian Peng*** and **Cheng Zhao**, Indiana State University (985-05-334)
- 4:00PM *On the chromatic number of intersection graphs of convex sets in the plane*.
(36) **Seog-Jin Kim***, **Alexandr Kostochka** and **Kittikorn Nakprasit**, University of Illinois at Urbana-Champaign (985-05-165)
- 4:30PM *Polychromatic cliques and related questions*.
(37) **Ryan R. Martin***, **Tom Bohman**, **Alan Frieze**, Carnegie Mellon University, **Miklos Ruszinko**, Computer and Automation Research Institute, Hungarian Academy of Sciences, and **Cliff Smyth**, Carnegie Mellon University (985-05-269)

- 5:00PM *On Hypergraphs of Girth Five.*
 ▶ (38) **Felix Lazebnik***, Department of Mathematical Sciences, University of Delaware, and **Jacques Verstraëte**, Theory Group, Microsoft Research (985-05-223)

Special Session on Cryptography and Computational and Algorithmic Number Theory, I

2:00 PM – 5:15 PM Room 004, Woodburn Hall

- Organizers: **Joshua Holden**, Rose-Hulman Institute of Technology
John Rickert, Rose-Hulman Institute of Technology
Jonathan Sorenson, Butler University
Andreas Stein, University of Illinois at Urbana-Champaign
- 2:00PM *On fixed points for discrete logarithms.* Preliminary report.
 ▶ (39) **Mariana Campbell***, University of Pennsylvania, and **Carl Pomerance**, Bell Laboratories, Lucent Technologies (985-11-261)
- 2:30PM *A note on the Ramanujan-Nagell equation.*
 ▶ (40) **Emanuel Herrmann**, Universitat des Saarlandes, **Florian Luca**, Instituto de Matematicas UNAM, and **P. G. Walsh***, University of Ottawa (985-11-31)
- 3:00PM Break
- 3:30PM *Randomized primality proving in essentially quartic time.*
 ▶ (41) **Daniel J. Bernstein**, University of Illinois at Chicago (985-11-210)
- 4:30PM *Primality testing with Gaussian periods.* Preliminary report.
 (42) **H. W. Lenstra, Jr.**, University of California at Berkeley and Leiden University, and **Carl Pomerance***, Bell Labs, Lucent Technologies (985-11-287)

Special Session on Codimension One Splittings of Manifolds, I

2:00 PM – 4:20 PM Room 236, Ballantine Hall

- Organizers: **James F. Davis**, Indiana University
Andrew A. Ranicki, University of Edinburgh
- 2:00PM *A Calculation of $UNil_3(\mathbb{Z})$ via Twisted Q -Groups.*
 (43) **Markus Banagl***, University of Cincinnati, and **Andrew A Ranicki**, University of Edinburgh (985-57-73)
- 2:30PM *Splitting the Whitehead space of some manifolds.* Preliminary report.
 (44) **Ross E Staffeldt**, New Mexico State University (985-55-183)
- 3:00PM *Twisted doubles of stable thickenings.* Preliminary report.
 (45) **D J Crowley**, State College (985-57-255)
- 3:30PM *Some Computations of lower K -theory of Virtually Cyclic Groups.* Preliminary report.
 (46) **Jim Davis**, Indiana University, Bloomington, and **Bogdan Vajiac***, Indiana University, Northwest (985-19-238)
- 4:00PM *The Surgery Obstruction Groups of the Infinite Dihedral Group.* Preliminary report.
 (47) **Frank X. Connolly***, University of Notre Dame, and **James F. Davis**, Indiana University (985-57-335)

Special Session on Stochastic Analysis with Applications, I

2:00 PM – 5:20 PM Oak Room, Indiana Memorial Union

- Organizers: **Jin Ma**, Purdue University
Frederi Viens, Purdue University
- 2:00PM *Liquidity risk and arbitrage pricing theory.* Preliminary report.
 (48) **Philip Protter***, **Umut Cetin** and **Robert Jarrow**, Cornell University (985-60-161)
- 3:00PM *Optimal portfolio for an Insider.* Preliminary report.
 ▶ (49) **Yaozhong Hu**, University of Kansas (985-60-125)
- 3:30PM *Hedging Claims with Feedback Jumps in the Price Process.*
 (50) **Kiseop Lee**, University of Louisville (985-60-69)
- 4:00PM *Principal-Agent Problems in Continuous Time.* Preliminary report.
 (51) **Jaksa Cvitanic**, USC, Los Angeles (985-90-142)
- 5:00PM *Optimal momentum hedging via hypoelliptic reduced Monge-Ampère PDEs and a new paradigm for pricing options.*
 (52) **Srdjan Stojanovic**, University of Cincinnati (985-60-43)

Special Session on Algebraic Topology, I

2:30 PM – 4:55 PM Room 214, Ballantine Hall

- Organizers: **Randy McCarthy**, University of Illinois, Urban-Champaign
Ayelet Lindenstrauss, Indiana University
- 2:30PM *Characteristic classes for real representations in connective K -theory.* Preliminary report.
 (53) **Robert R. Bruner**, Wayne State University (985-55-128)
- 3:00PM *The Algebra of Stable Operations in p -local K -theory.*
 (54) **Francis W Clarke***, **Martin D Crossley**, University of Wales Swansea, and **Sarah Whitehouse**, University of Sheffield (985-55-32)
- 3:30PM *General linear group homology.*
 (55) **Marian F. Anton**, University of Kentucky (985-55-86)
- 4:00PM *On THH and TAQ of commutative S -algebras.*
 (56) **Vahagn Minasian*** and **Randy McCarthy**, University of Illinois at Urbana Champaign (985-55-91)
- 4:30PM *Localization of Geometric Invariants.*
 (57) **Bruce Williams**, University of Notre Dame (985-55-87)

Special Session on Ergodic Theory and Dynamical Systems, I

3:00 PM – 4:50 PM Room 006, Ballantine Hall

- Organizers: **Roger L. Jones**, DePaul University
Ayse A. Sahin, DePaul University
- 3:00PM *Predictability in Ergodic Theory.* Preliminary report.
 (58) **Joseph Rosenblatt**, University of Illinois at Urbana-Champaign (985-28-135)
- 3:30PM *Besicovitch weights and the necessity of the duality restriction for a.e. convergence of weighted ergodic averages.*
 (59) **Ciprian Demeter**, University of Illinois at Urbana Champaign (985-37-205)

4:00PM *Some results and questions on Besicovitch and Return Times weights in the pointwise ergodic theorem.*

(60) **James H Olsen**, North Dakota State University (985-28-138)

4:30PM *Optimal weights for moving averages and differentiation operators.* Preliminary report.

(61) **Parthena Avramidou**, University of Illinois at Urbana-Champaign (985-37-286)

Special Session on Weak Dependence in Probability and Statistics, I

3:00 PM – 4:50 PM **Walnut Room, Indiana Memorial Union**

Organizers: **Richard C. Bradley**, Indiana University
Lanh T. Tran, Indiana University

3:00PM *On some results of Rosenblatt.* Preliminary report.
(62) **Richard C. Bradley**, Indiana University (985-60-07)

3:30PM *Interest Rate Explosions in HJM Models.*
(63) **Victor W. Goodman**, Indiana University, Bloomington, IN (985-60-130)

4:00PM *Moment Generating Function of the inverse of integral of Geometric Brownian Motion.*
(64) **Kyounghee Kim**, Indiana University, Bloomington, IN (985-60-83)

4:30PM *Weak Dependence in Biology.*
(65) **Elizabeth Ann Housworth**, Indiana University (985-92-54)

Special Session on Differential Geometry, I

3:00 PM – 5:20 PM **Room 140, Ballantine Hall**

Organizers: **Jiri Dadok**, Indiana University
Bruce Solomon, Indiana University
Ji-Ping Sha, Indiana university

3:00PM *Navigation in Riemannian Spaces.*
(66) **Zhongmin Shen**, Indiana University Purdue University Indianapolis (985-53-185)

3:30PM *Soliton surfaces in the mechanical equilibrium of closed membranes.*
(67) **Brian Smyth**, University of Notre Dame (985-53-293)

4:00PM *Universal Equations In Gromov-Witten Invariants.*
(68) **Xiaobo Liu**, Univ. of Notre Dame (985-53-270)

4:30PM *A Theorem of Dominguez Implies a Theorem of Gromov.* Preliminary report.
(69) **Richard H Escobales**, Canisius College (985-53-21)

5:00PM *Spectral Bounds on Orbifold Isotropy.*
(70) **Elizabeth A. Stanhope**, University of Michigan (985-53-20)

Special Session on Harmonic Analysis in the 21st Century, I

3:30 PM – 5:15 PM **Hoosier Room, Indiana Memorial Union**

Organizers: **Winston C. Ou**, Indiana University
Alberto Torchinsky, Indiana University

3:30PM *Uniqueness for multiple trigonometric and Walsh series with convergent rearranged square partial sums.*
▶ (71) **J. Marshall Ash***, DePaul University, and **Sh. T. Tetunashvili**, Georgian Techn. Univer. (985-42-81)

4:30PM *A formula for the Fourier transform of certain odd, differentiable functions.*
▶ (72) **Ryan Berndt**, University of Minnesota (985-42-72)

Invited Address

5:40 PM – 6:30 PM

Room 013, Ballantine Hall

▶ (73) *Prime values of polynomials.* Preliminary report.
Brian D. Conrad, University of Michigan (985-11-02)

Saturday, April 5

Meeting Registration

8:00 AM – 4:00 PM

Conference Lounge, Indiana Memorial Union

AMS Exhibit and Book Sale

8:00 AM – 4:00 PM

Distinguished Alumni Room, Indiana Memorial Union

Special Session on Holomorphic Dynamics, II

8:30 AM – 11:15 AM

Room 135, Ballantine Hall

Organizers: **Eric D. Bedford**, Indiana University
Kevin M. Pilgrim, Indiana University

8:30AM *Cremer Fixed Points and Small Cycles.*
(74) **Lia Petracovici**, University of Illinois at Urbana-Champaign (985-37-13)

9:00AM *Topological Models of Simple Siegel Disk Type -Realization and Rigidity.*
(75) **Gaofei Zhang**, The City University of New York (985-37-33)

9:30AM *Birational involutions associated with geometric cluster algebras.*
(76) **Michael Gekhtman***, University of Notre Dame, **Michael Shapiro**, Michigan State University, and **Alek Vainshtein**, University of Haifa (985-51-149)

10:30AM *Kupka-Smale theorem and heteroclinic intersections for Henon maps.*
(77) **Gregery T. Buzzard***, Purdue University, **Suzanne Lynch Hruska**, SUNY Stony Brook, and **Yulij Ilyashenko**, Cornell University (985-32-145)

Special Session on Geometric Topology, II

8:30 AM – 11:15 AM

Room 246, Ballantine Hall

Organizers: **Paul A. Kirk**, Indiana University
Charles Livingston, Indiana University

8:30AM *Bifurcations, Symmetry, and $SU(n)$ Gauge Theory.*
(78) Preliminary report.
Christopher M Herald, University of Nevada, Reno (985-57-159)

9:30AM *Normal Surface Theory, Character Varieties and Quantum Invariants.*
(79) **Charles D Frohman**, The University of Iowa (985-57-45)

10:30AM *A cut-and-paste approach to contact topology.*
(80) **Ko Honda**, USC, **William H. Kazez*** and **Gordana Matic**, UGA (985-57-214)

Special Session on Particle Models and Their Fluid Limits, I

8:30 AM – 11:20 AM

Redbud Room, Indiana Memorial Union

Organizers: **Robert T. Glassey**, Indiana University
David C. Hoff, Indiana University

- 8:30AM *On A Class of Parabolic Equations with Nonlocal Boundary Conditions.*
(81) **Hong-Ming Yin**, Washington State University (985-35-62)
- 9:00AM *Cosmology, Black Holes, and Shock Waves Beyond the Hubble Length.*
(82) **Joel A Smoller**, Univ. of Michigan (985-83-66)
- 9:30AM *On Steady States in Galactic Dynamics.*
(83) **Jack W Schaeffer**, Carnegie Mellon University (985-35-77)
- 10:00AM Break
- 10:30AM *Initial- Boundary Value Problem in Plasmas.*
(84) **Marshall Slemrod**, University of Wisconsin-Madison (985-35-67)
- 11:00AM *Approximation of the Vlasov-Poisson-Fokker-Planck System by a Deterministic Particle Method.*
(85) **Stephen Wollman*** and **Ercument Ozizmir**, College of Staten Island, CUNY (985-65-76)

Special Session on Mathematical and Computational Problems in Fluid Dynamics and Geophysical Fluid Dynamics, I

- 8:30 AM – 11:20 AM **Persimmon Room, Indiana Memorial Union**
- Organizers: **Roger Temam**, Indiana University
Shouhong Wang, Indiana University
- 8:30AM *Theory and applications of initial-boundary-value problems for nonlinear wave equations.*
▶ (86) **Jerry Bona**, University of Illinois at Chicago (985-35-338)
- 9:00AM *Decomposing Atmospheric Weather Patterns.*
(87) **Paul K. Newton**, University of Southern California (985-76-160)
- 9:30AM *Small-Rossby Number Asymptotics in Rotating Fluid Systems.* Preliminary report.
(88) **Djoko Wirosoetisno**, Indiana University (985-76-276)
- 10:00AM Break
- 10:30AM *Instabilities in the Quasi Geostrophic Equation.*
(89) **Susan Friedlander**, U of Illinois-Chicago (985-76-127)
- 11:00AM *Energy budgets in Charney–Hasegawa–Mima and surface quasi-geostrophic turbulence.*
(90) **Chuong V Tran*** and **John C Bowman**, University of Alberta (985-76-257)

Special Session on Operator Algebras and Free Probability, I

- 8:30 AM – 11:10 AM **Room 215, Ballantine Hall**
- Organizers: **Hari Bercovici**, Indiana University
Marius Dadarlat, Purdue University
- 8:30AM *Connes' Embedding Problem, Lance's WEP and the Noncommutative Stone-Weierstrass Problem.*
(91) **Nate Brown**, Penn State University (985-46-61)
- 9:30AM *Invariant subspaces for operators modeled by certain upper triangular random matrices.*
(92) **Ken Dykema***, Texas A&M University, and **Uffe Haagerup**, University of Southern Denmark (985-47-231)
- 10:30AM *On Voiculescu's non-microstates free entropy.*
(93) Preliminary report.
Dimitri Y Shlyakhtenko, UCLA (985-46-151)

Special Session on Applications of Teichmüller Theory to Dynamics and Geometry, II

- 8:30 AM – 11:15 AM **Room 247, Ballantine Hall**
- Organizers: **Christopher M. Judge**, Indiana University
Matthias Weber, Indiana University
- 8:30AM *Counting Problems on Translation Surfaces.*
(94) **Howard Masur**, University of Illinois at Chicago (985-32-226)
- 9:30AM *Relative isoperimetric inequality: an extension of the classical isoperimetric inequality.* Preliminary report.
(95) **Jaigyoung Choe**, Seoul National University (985-58-250)
- 10:30AM *Infinitely Generated Veech Groups.*
(96) **Pascal Hubert**, Institut de Mathematiques de Luminy, and **Thomas A Schmidt***, Oregon State University (985-37-152)

Special Session on Differential Geometry, II

- 8:30 AM – 11:20 AM **Room 140, Ballantine Hall**
- Organizers: **Jiri Dadok**, Indiana University
Bruce Solomon, Indiana University
Ji-Ping Sha, Indiana university
- 8:30AM *Minimal surfaces and Ricci flow.* Preliminary report.
(97) **Ian Agol**, University of Illinois at Chicago (985-53-55)
- 9:00AM *Classification of hyperbolic 3-manifolds.* Preliminary report.
(98) **Jeff Brock**, University of Chicago, **Dick Canary***, University of Michigan, and **Yair Minsky**, SUNY-Stony Brook (985-57-301)
- 9:30AM *Marden's tameness conjecture and limits of hyperbolic 3-manifolds.* Preliminary report.
(99) **Jeffrey F. Brock***, University of Chicago, and **Juan Souto**, Universität Bonn (985-53-304)
- 10:00AM *A geometric condition for topological tameness.*
(100) **Chris Connell**, University of Chicago (985-58-264)
- 10:30AM *Conformally invariant differential operators.*
(101) **Thomas P Branson**, University of Iowa (985-53-303)
- 11:00AM *Constructing locally non-isometric, simply-connected isospectral manifolds via Sunada's method.*
(102) **Craig J. Sutton**, University of Pennsylvania (985-53-296)

Special Session on Recent Trend in the Analysis and Computations of Functional Differential Equations, II

- 8:30 AM – 11:20 AM **Maple Room, Indiana Memorial Union**
- Organizers: **Paul W. Eloe**, University of Dayton
Qin Sheng, University of Dayton
- 8:30AM *Positive Solutions of a Three-Point Boundary Value Problem on a Time Scale.* Preliminary report.
(103) **Eric R. Kaufmann**, University of Arkansas at Little Rock (985-34-267)
- 9:00AM *Existence Results for Impulsive Functional Differential Equations.* Preliminary report.
(104) **John M Davis**, Baylor University (985-39-271)

- 9:30AM *A Quasilinearization Approach for Nonlinear Boundary Value Problems on Time Scales.*
 ▶ (105) Preliminary report.
Elvan Akin-Bohner*, University of Missouri-Rolla, and **Ferhan Merdivenci Atici**, Western Kentucky University (985-39-295)
- 10:00AM Break
- 10:30AM *Positive Solutions for Singular Three Point Boundary Value Problems.*
 (106) **Parmjeet K Singh**, Baylor University (985-34-18)
- 11:00AM *Stability properties of linear Volterra integrodifferential equations.* Preliminary report.
 (107) **Muhammad Islam*** and **Youssef Raffoul**, University of Dayton (985-45-34)

Special Session on Graph and Design Theory, II

8:30 AM – 11:20 AM Room 144, Ballantine Hall

Organizers: **Atif A. Abueida**, University of Dayton
Mike Daven, Mount Saint Mary College

- 8:30AM *On Rosa-type Labelings and Graph Decompositions.*
 ▶ (108) Preliminary report.
Saad I. El-Zanati*, Illinois State University, **Andrew D. Blinco**, University of Queensland, and **Charles L. Vanden Eynden**, Illinois State University (985-05-320)
- 9:00AM *Orthomorphisms of finite groups.* Preliminary report.
 (109) **Anthony B Evans**, Wright State University (985-05-239)
- 9:30AM *On a simple group of order 504, its automorphism group, and related combinatorial structures.*
 (110) Preliminary report.
M H Klin, **S Reichard**, University of Delaware, and **A J Woldar***, Villanova University (985-05-206)
- 10:00AM *Siamese association schemes in miniature: A link between generalized quadrangles, graphs and Steiner designs.* Preliminary report.
 (111) **Mikhail H Klin*** and **Sven Reichard**, Department of Mathematical Sciences, University of Delaware (985-05-232)
- 10:30AM *Rotational Symmetries, Chain and Skipless Path Decompositions of the Boolean Lattice.*
 (112) **Peter Hamburger**, IPFW (985-05-71)
- 11:00AM *Triple Arrays.*
 (113) **W. D. Wallis**, Department of Mathematics, Southern Illinois University, Carbondale, IL62901-4408 (985-05-188)

Special Session on Representations of Infinite Dimensional Lie Algebras and Mathematical Physics, II

8:30 AM – 11:15 AM Room 219, Ballantine Hall

Organizers: **Katrina Deane Barron**, University of Notre Dame
Rinat Kedem, University of Illinois, Urbana-Champaign

- 8:30AM *Bosonic realizations of higher level toroidal Lie algebras.*
 (114) **Kailash C. Misra**, North Carolina State University (985-17-249)
- 9:30AM *Logarithmic operators and vertex operator algebras.* Preliminary report.
 (115) **Antun Milas**, University of Arizona (985-17-278)

- 10:00AM *D-Log's and Formal Flows of analytic maps and Rooted Trees.*
 (116) **Wenhua Zhao**, Washington University in St. Louis (985-17-315)
- 10:30AM *Intertwining operators for vertex operator algebras and recursions for q-series.*
 (117) **S. Capparelli**, Universit'a di Roma, **J. Lepowsky***, Rutgers University, and **A. Milas**, University of Arizona (985-17-302)

Special Session on Graph Theory, I

8:30 AM – 11:25 AM

Room 209, Ballantine Hall

Organizers: **Tao Jiang**, Miami University
Zevi Miller, Miami University
Dan Pritikin, Miami University

- 8:30AM *Eulerian Subgraphs Containing Given Vertices or Edges.*
 (118) **Zhi-Hong Chen**, Butler University (985-05-112)
- 9:00AM *Hamiltonian Claw-free graphs.*
 ▶ (119) **Hong-Jian Lai***, West Virginia University, **Yehong Shao**, West Virginia Univrsity, and **Mingquan Zhan**, West Virginia University (985-05-37)
- 9:30AM *Forbidden Subgraphs for Pancyclic and Subpancyclic Graphs.* Preliminary report.
 (120) **Ronald J. Gould***, Emory University, **Tomasz Luczak**, Adam Mickiewicz University, and **Florian Pfender**, Emory University (985-05-123)
- 10:00AM *Forbidden Subgraphs that Imply 2-Factors.*
 ▶ (121) **J. R. Faudree**, University of Alaska - Fairbanks, and **R. J. Faudree***, University of Memphis (985-05-218)
- 10:30AM *Long Cycles in Graphs Without $K(3,t)$ -minor.*
 ▶ (122) Preliminary report.
Guantao Chen*, Georgia State University, **Laura Sheppardson**, Xingxing Yu, Georgia Tech, and **Wenan Zang**, Hong Kong University (985-05-136)
- 11:00AM *Generalizing Pancyclic and k-ordered graphs.*
 (123) **Ralph J Faudree**, University of Memphis, **Ronald J Gould**, Emory University, **Michael S Jacobson***, University of Louisville and University of Colorado at Denver, and **Linda Lesniak**, Drew University (985-05-279)

Special Session on Extremal Combinatorics, II

8:30 AM – 11:20 AM

Room 208, Ballantine Hall

Organizers: **Dhruv Mubayi**, University of Illinois at Chicago
Jozef Skokan, University of Illinois at Urbana-Champaign

- 8:30AM *Bounds on the Turan density of $PG(3,2)$.* Preliminary report.
 ▶ (124) **M Cioaba Sebastian**, Queen's University (985-05-51)
- 9:00AM *On the number of edges in uniform hypergraphs with no even cycles.* Preliminary report.
 ▶ (125) **Alexandr Kostochka***, University of Illinois, and **Jacques Verstraete**, Microsoft Research (985-05-63)
- 9:30AM *Essentially infinite colourings of hypergraphs.*
 (126) **Béla Bollobás**, The University of Memphis and Trinity College, Cambridge, **Yoshiharu Kohayakawa***, Universidade de São Paulo and Emory University, **Vojtěch Rödl**, Emory University, and **Anusch Taraz**, Humboldt-Universität zu Berlin (985-05-305)

- 10:00AM *An optimal algorithm for checking regularity.*
(127) **Y. Kohayakawa**, University of Sao Paulo, **V. Rodl**, Emory University, and **L. Thoma***, University of Rhode Island (985-05-289)
- 10:30AM *A Construction of Extremal Graphs Using Finite Geometry.* Preliminary report.
(128) **Keith E Mellinger*** and **Dhruv Mubayi**, University of Illinois at Chicago (985-05-60)
- 11:00AM *Coloring with no 2-colored P_4 's.*
▶ (129) **Radhika Ramamurthi***, California State University San Marcos, **Michael Albertson**, Smith College, **Glenn Chappell**, University of Alaska Fairbanks, **H.A. Kierstead**, Arizona State University, and **Andre Kundgen**, California State University San Marcos (985-05-329)

Special Session on Cryptography and Computational and Algorithmic Number Theory, II

8:30 AM – 11:20 AM Room 205, Ballantine Hall

Organizers: **Joshua Holden**, Rose-Hulman Institute of Technology
John Rickert, Rose-Hulman Institute of Technology
Jonathan Sorenson, Butler University
Andreas Stein, University of Illinois at Urbana-Champaign

- 8:30AM *NUCOMP I - Idea and Algorithm.*
(130) **Renate Scheidler**, University of Calgary (985-11-245)
- 9:00AM *NUCOMP II - Implementation and Applications.*
▶ (131) **Michael J Jacobson**, University of Calgary / CISaC (985-11-204)
- 9:30AM *Some results concerning periodic continued fractions.*
(132) **Roger Patterson**, **Alf J van der Poorten**, Macquarie University, and **Hugh C Williams***, University of Calgary (985-11-244)
- 10:00AM Break
- 10:30AM *Tate-pairing implementations for tripartite key-agreement.* Preliminary report.
(133) **Iwan M Duursma***, Univ of Illinois at U-C, and **Hyang-Sook Lee**, Ewha Womans University (985-11-265)
- 11:00AM *Permutation-Sensitive Signatures.*
(134) **Eric Bach**, University of Wisconsin (985-11-280)

Special Session on Operator Algebras and Their Applications, I

8:30 AM – 11:20 AM Room 217, Ballantine Hall

Organizers: **Jerry Kaminker**, Indiana University-Purdue University Indianapolis
Ronghui Ji, Indiana University-Purdue University Indianapolis

- 8:30AM *Oriented Λ -trees and their C^* -algebras, preliminary report.* Preliminary report.
(135) **Jack Spielberg**, Arizona State University (985-46-219)
- 9:00AM *KMS states on C^* -algebras associated to expansive maps.* Preliminary report.
(136) **Alex Kumjian***, University of Nevada, and **Jean Renault**, Université d'Orléans (985-46-107)
- 9:30AM *Geodesic laminations and noncommutative geometry.* Preliminary report.
▶ (137) **Igor Nikolaev**, University of Calgary (985-46-35)

- 10:00AM *Smooth Subalgebras, Group C^* -algebras and Cyclic Cohomology.* Preliminary report.
(138) **Ronghui Ji**, IUPUI (985-46-211)
- 10:30AM *A note on noncommutative harmonic functions.* Preliminary report.
▶ (139) **Slawomir Klimek**, IUPUI (985-47-174)
- 11:00AM *Trees, Ultrametrics and Noncommutative Geometry.* Preliminary report.
(140) **Bruce Hughes**, Vanderbilt University (985-47-119)

Special Session on Stochastic Analysis with Applications, II

8:30 AM – 11:20 AM Oak Room, Indiana Memorial Union

Organizers: **Jin Ma**, Purdue University
Frederi Viens, Purdue University

- 8:30AM *On Bounded Solutions of Some Semilinear Stochastic Wave Equations.* Preliminary report.
(141) **Pao-Liu Chow**, Wayne State University (985-60-148)
- 9:30AM *Moments for a stochastic wave equation.* Preliminary report.
(142) **Carl E Mueller***, University of Rochester, and **Robert Dalang**, Ecole Polytechnique Federale Lausanne (985-60-30)
- 10:00AM *Some Stochastic Partial Differential Equations with Multiplicative Fractional Gaussian Noise.* Preliminary report.
(143) **Bozenna J. Pasik-Duncan***, University of Kansas, **Bohdan Maslowski**, Czech Academy of Sciences, and **Tyrone E. Duncan**, University of Kansas (985-60-309)
- 10:30AM *Large deviations for stochastic Navier-Stokes equations.* Preliminary report.
(144) **Padmanabhan Sundar**, Louisiana State University (985-60-220)
- 11:00AM *Additive Summable Processes and the Stochastic Integral.*
(145) **Oana Mocioalca**, Purdue University (985-60-253)

Special Session on Harmonic Analysis in the 21st Century, II

9:00 AM – 11:15 AM Hoosier Room, Indiana Memorial Union

Organizers: **Winston C. Ou**, Indiana University
Alberto Torchinsky, Indiana University

- 9:00AM *Fixed Points of Holomorphic Mappings.*
(146) **Steven G. Krantz**, Washington University in St. Louis (985-32-36)
- 10:00AM *A Tauberian Theorem for Ergodic Averages, Maximal Estimates, and Spectral Decomposability for Positive Invertible Operators.*
(147) **Earl R. Berkson***, University of Illinois, and **T. A. Gillespie**, University of Edinburgh (985-42-108)
- 10:30AM *Bellman functions with Wavelets.* Preliminary report.
(148) **Janine Wittwer**, Williams College (985-46-53)

Special Session on Probability, II

9:00 AM – 11:15 AM Sassafras Room, Indiana Memorial Union

Organizers: **Russell D. Lyons**, Indiana University
Robin A. Pemantle, Ohio State University

- 9:00AM *Optimization of shape in continuum percolation.*
▶ (149) **Johan Jonasson**, Chalmers University of Technology (985-60-115)

Program of the Sessions – Bloomington, IN, Saturday, April 5 (cont'd.)

- 10:00AM *Percolation on Finite Cayley Graphs.*
(150) **Igor Pak**, MIT (985-60-200)
- 10:30AM *What do bootstrap percolation and integer partitions have in common?* Preliminary report.
(151) **Thomas M Liggett***, UCLA, **A E Holroyd**, UC Berkeley, and **Dan Romik**, Weizmann Institute (985-60-56)

Special Session on Codimension One Splittings of Manifolds, II

9:00 AM – 11:20 AM Room 236, Ballantine Hall

- Organizers: **James F. Davis**, Indiana University
Andrew A. Ranicki, University of Edinburgh
- 9:00AM *Twisting diagrams, codimension 1 splittings and Unil.*
(152) **Ian Hambleton**, McMaster University (985-57-134)
- 9:30AM *Unil(Z,Z,Z) and 4-manifolds.* Preliminary report.
(153) **Bjoern Jahren***, University of Oslo, and **Slawomir Kwasik**, Tulane University (985-57-262)
- 10:00AM Break
- 10:30AM *The block structure space of the infinite-dimensional real projective space.*
(154) **Tibor Macko**, University of Aberdeen, Scotland, UK (985-57-129)
- 11:00AM *Splitting Theorems for Connected Sums.*
(155) **James F. Davis***, Indiana University, and **Francis X Connolly**, University of Notre Dame (985-57-299)

Special Session on Algebraic Topology, II

9:00 AM – 11:25 AM Room 214, Ballantine Hall

- Organizers: **Randy McCarthy**, University of Illinois, Urbana-Champaign
Ayelet Lindenstrauss, Indiana University
- 9:00AM *Recent progress understanding the algebraic Goodwillie tower.*
(156) **Andrew Mauer-Oats**, Purdue University (985-55-94)
- 9:30AM *Classification of Polynomial functors.*
(157) **Greg Arone**, University of Virginia (985-55-90)
- 10:30AM *"Taylor towers and symmetric powers."*
(158) **Brenda Johnson**, Johns Hopkins University (985-55-92)
- 11:00AM *A dual construction of Tamaki's spectral sequence.*
(159) **Stephen Ahearn**, Macalester College Macalester College (985-55-117)

Special Session on Weak Dependence in Probability and Statistics, II

9:30 AM – 11:20 AM Walnut Room, Indiana Memorial Union

- Organizers: **Richard C. Bradley**, Indiana University
Lanh T. Tran, Indiana University
- 9:30AM *Weak dependence, Poisson limits and U-statistics.* Preliminary report.
(160) **Andre R Dabrowski**, University of Ottawa (985-60-12)
- 10:00AM *Local limit theorems for non-Markov maps.*
(161) **M Denker**, Institut fuer Mathematische Stochastik, University of Goettingen (985-37-116)
- 10:30AM *Invariance principles for sums of mixing random elements and the multivariate empirical process II.* Preliminary report.
(162) **Walter V. Philipp**, University of Illinois at Urbana-Champaign (985-60-121)

- 11:00AM *Moderate Deviation Probabilities for Open Convex Sets: Non-logarithmic Behavior.*
(163) **James Kuelbs***, University of Wisconsin-Madison, and **Uwe Einmahl**, Vrije Universiteit of Brussel (985-60-10)

Special Session on Ergodic Theory and Dynamical Systems, II

10:00 AM – 11:20 AM Room 006, Ballantine Hall

- Organizers: **Roger L. Jones**, DePaul University
Ayse A. Sahin, DePaul University
- 9:30AM *Generalized Polynomials and Mild Mixing.* Preliminary report.
(164) **Randall G McCutcheon**, University of Memphis (985-28-307)
- 10:00AM *The helical transform revisited.*
(165) **James T Campbell**, University of Memphis (985-37-291)
- 10:30AM *Genericity in powers of the Morse system.*
(166) **Emmanuel Lesigne**, Université de Tours, **Anthony Quas*** and **Máté Wierdl**, University of Memphis (985-37-306)
- 11:00AM *Amenable group actions and partitions with independent iterates.* Preliminary report.
(167) **Andres del Junco*** and **Boris Begun**, University of Toronto (985-28-273)

Invited Address

11:40 AM – 12:30 PM Whittenberger Auditorium, Indiana Memorial Union

- (168) *More rigorous results on the NK model.* Preliminary report.
V. Limic, University of British Columbia, and **R. Pemantle***, Ohio State University (985-60-163)

Invited Address

2:00 PM – 2:50 PM Room 013, Ballantine Hall

- (169) *On the asphericity of hyperplane complements.*
Daniel J. Allcock, University of Texas

Special Session on Ergodic Theory and Dynamical Systems, III

3:00 PM – 4:50 PM Room 006, Ballantine Hall

- Organizers: **Roger L. Jones**, DePaul University
Ayse A. Sahin, DePaul University
- 3:00PM *Lyapunov theorem on vector measures and Alpern multitower theorem for minimal Cantor homeomorphisms.* Preliminary report.
(170) **Isaac Kornfeld**, North Dakota State University (985-37-120)
- 3:30PM *A classification of regularly almost periodic compact minimal flows up to isomorphism and up to orbit-equivalence.* Preliminary report.
(171) **Alica Miller*** and **Joseph Rosenblatt**, University of Illinois at Urbana-Champaign (985-37-326)
- 4:00PM *Bounded orbit equivalence and flow equivalence for minimal \mathbb{Z}^2 -actions.* Preliminary report.
(172) **Nicholas S Ormes***, University of Denver, and **Samuel J Lightwood**, George Washington University (985-37-275)
- 4:30PM *Entropy and isomorphism of random walks on random sceneries.*
(173) **Karen T. Ball**, Indiana University, Bloomington (985-37-248)

Special Session on Holomorphic Dynamics, III

3:00 PM – 4:45 PM Room 135, Ballantine Hall

Organizers: **Eric D. Bedford**, Indiana University
Kevin M. Pilgrim, Indiana University

- 3:00PM *On Geometrically Finite Branched Covering Maps.*
(174) **Guizhen Cui**, Academy of Mathematics and System Sciences, **Yunping Jiang***, CUNY Graduate Center and Queens College, and **Dennis Sullivan**, CUNY Graduate Center (985-30-118)
- 4:00PM *Random Iteration and Degenerate Domains.*
(175) **Linda Keen*** and **Nikola Lakic**, Lehman College, CUNY (985-30-104)

Special Session on Weak Dependence in Probability and Statistics, III

3:00 PM – 4:50 PM Walnut Room, Indiana Memorial Union

Organizers: **Richard C. Bradley**, Indiana University
Lanh T. Tran, Indiana University

- 3:00PM *Weighted Approximations to Some Dependent Processes and Applications.*
(176) **David M Mason**, University of Delaware (985-60-17)
- 3:30PM *On Rice's formulae for level crossings by stationary processes, and recent extensions and applications.* Preliminary report.
(177) **Malcolm Ross Leadbetter**, University of North Carolina, Chapel Hill (985-60-102)
- 4:00PM *The invariance principle for stationary sequences.* Preliminary report.
(178) **Sergey Utev**, School of Mathematical Sciences, University of Nottingham (985-60-221)
- 4:30PM *Strong mixing coefficients for non-commutative Gaussian processes.*
(179) **Włodzimierz Bryc*** and **Victor Kaftal**, University of Cincinnati (985-60-09)

Special Session on Geometric Topology, III

3:00 PM – 4:45 PM Room 246, Ballantine Hall

Organizers: **Paul A. Kirk**, Indiana University
Charles Livingston, Indiana University

- 3:00PM *An index two subcategory of a certain cobordism category.*
(180) **Patrick Gilmer**, Louisiana State University (985-57-175)
- 4:00PM *Links of complex surface singularities.*
(181) **Liviu I Nicolaescu**, University of Notre Dame (985-57-40)

Special Session on Harmonic Analysis in the 21st Century, III

3:00 PM – 4:45 PM Hoosier Room, Indiana Memorial Union

Organizers: **Winston C. Ou**, Indiana University
Alberto Torchinsky, Indiana University

- 3:00PM *Lipschitz Spaces and Calderon Zygmund Operators associated to Non-doubling Measures.*
▶ (182) **A. Eduardo Gatto***, DePaul University, and **Jose Garcia-Cuerva**, Univ. Autonoma de Madrid (985-42-68)
- 4:00PM *L^p -estimates for singular integrals of even kernels.*
(183) **Rodrigo Banuelos***, Purdue University, and **Pedro J Mendez-Hernandez**, University of Utah (985-42-52)

Special Session on Particle Models and Their Fluid Limits, II

3:00 PM – 4:50 PM Redbud Room, Indiana Memorial Union

Organizers: **Robert T. Glassey**, Indiana University
David C. Hoff, Indiana University

- 3:00PM *The Incompressible Navier-Stokes Limit for the Boltzmann Equation.*
(184) **Francois J Golse**, Ecole Normale Superieure, DMA (985-35-186)
- 3:30PM *Fluid Dynamical Limits for the Boltzmann Equation.*
(185) **D Levermore**, University of Maryland (985-35-193)
- 4:00PM *Computations of multiphase solutions of the semiclassical Schrodinger equations and related problems.*
(186) **Shi Jin**, University of Wisconsin-Madison (985-65-137)
- 4:30PM *On the Convergence of Particle Methods for Three-Dimensional Relativistic Vlasov-Maxwell Systems.*
(187) **H.D. Victory**, texas tech university (985-35-192)

Special Session on Probability, III

3:00 PM – 4:50 PM Sassafras Room, Indiana Memorial Union

Organizers: **Russell D. Lyons**, Indiana University
Robin A. Pemantle, Ohio State University

- 3:00PM *Entropy and graph homomorphisms.*
(188) **David Galvin***, Microsoft Research, and **Prasad Tetali**, Georgia Tech (985-60-184)
- 3:30PM *Some Ideas in Scenery Reconstruction.*
(189) **Heinrich Felix Matzinger**, University of Bielefeld, Germany (985-60-212)
- 4:30PM *A threshold routing system in heavy traffic.*
(190) **Vlada Limic***, British Columbia, and **Ruth Williams**, UC San Diego (985-60-228)

Special Session on Mathematical and Computational Problems in Fluid Dynamics and Geophysical Fluid Dynamics, II

3:00 PM – 4:50 PM Persimmon Room, Indiana Memorial Union

Organizers: **Roger Temam**, Indiana University
Shouhong Wang, Indiana University

- 3:00PM *Active reactive flow.*
(191) **Peter Constantin***, The University of Chicago, **Alexander Kiselev**, University of Wisconsin, Madison, and **Lenya Ryzhik**, The University of Chicago (985-35-236)
- 3:30PM *Spatial complexity of solutions of the Kuramoto-Sivashinsky equation.* Preliminary report.
(192) **Igor Kukavica**, University of Southern California (985-35-318)
- 4:00PM *A Homogenization of the Navier-Stokes Equation, Obtaining the Viscous Moore-Greitzer Equation for Aeroengine Flow.*
(193) **Bjorn Birnir***, UCSB, **Songming Hou**, UCI, and **Niklas Wellander**, UCSB (985-35-290)
- 4:30PM *Numerical Issues in the Primitive Equations of Large-Scale Oceanic Circulation.*
(194) **Cheng Wang**, Indiana University (985-65-230)

Special Session on Operator Algebras and Free Probability, II

3:00 PM – 5:10 PM Room 215, Ballantine Hall

Organizers: **Hari Bercovici**, Indiana University
Marius Dadarlat, Purdue University

- 3:00PM *Operator algebras and the Novikov conjecture.*
(195) **Jerome Kaminker**, IUPUI (985-46-324)
- 4:00PM *Non-commutative L_p spaces and their operator space structures.*
(196) **Zhong-Jin Ruan**, University of Illinois (985-46-207)
- 4:30PM *On free semigroupoid algebras.*
(197) **David W. Kribs**, Purdue University (985-47-48)

Special Session on Applications of Teichmüller Theory to Dynamics and Geometry, III

3:00 PM – 4:45 PM Room 247, Ballantine Hall

Organizers: **Christopher M. Judge**, Indiana University
Matthias Weber, Indiana University

- 3:00PM *Moduli spaces of constant mean curvature surfaces properly embedded in R^3 .* Preliminary report.
(198) **Rob Kusner**, University of Massachusetts at Amherst (985-53-158)
- 4:00PM *Dynamics on branched covers of Veech surfaces.* Preliminary report.
(199) **Alex Eskin***, University of Chicago, **J Marklof**, University of Bristol, and **D Witte**, Oklahoma State University (985-37-328)

Special Session on Differential Geometry, III

3:00 PM – 4:50 PM Room 140, Ballantine Hall

Organizers: **Jiri Dadok**, Indiana University
Bruce Solomon, Indiana University
Ji-Ping Sha, Indiana university

- 3:00PM *Tangent bundle embeddings of manifolds in Euclidean space.*
▶ (200) **Mohammad Ghomi**, University of South Carolina (985-53-105)
- 3:30PM *Totally skew Euclidean submanifolds and non-singular bilinear maps.* Preliminary report.
▶ (201) **Serge Tabachnikov**, Penn State (985-53-202)
- 4:00PM *The tight clasp.* Preliminary report.
▶ (202) **John M Sullivan**, Univ. of Illinois, Urbana (985-51-180)
- 4:30PM *Ropelength Criticality and the “Simple” Clasp.* Preliminary report.
▶ (203) **Jason Cantarella***, **Joseph H. G. Fu**, University of Georgia, **Robert B Kusner**, University of Massachusetts, **John M Sullivan**, University of Illinois, and **Nancy C. Wrinkle**, University of Georgia (985-49-42)

Special Session on Recent Trend in the Analysis and Computations of Functional Differential Equations, III

3:00 PM – 4:50 PM Maple Room, Indiana Memorial Union

Organizers: **Paul W. Eloe**, University of Dayton
Qin Sheng, University of Dayton

- 3:00PM *Bendixson’s Formula for Difference Equations.*
▶ (204) Preliminary report.
Martin J Bohner, University of Missouri-Rolla (985-39-294)

- 3:30PM *Eigenvalue Comparisons for Three-Point Boundary Value Problems.* Preliminary report.
(205) **Basant K Karna**, Baylor University (985-34-50)
- 4:00PM *Global solutions to the Lake equations.*
(206) **Chaocheng Huang**, Wright State University (985-35-109)
- 4:30PM *Solving PDEs Using Smooth Interpolation Methods.* Preliminary report.
▶ (207) **Joseph Kolibal**, The University of Southern Mississippi (985-35-173)

Special Session on Graph and Design Theory, III

3:00 PM – 4:50 PM Room 144, Ballantine Hall

Organizers: **Atif A. Abueida**, University of Dayton
Mike Daven, Mount Saint Mary College

- 3:00PM *Counting closed walks in vertex-transitive graphs.*
(208) **Robert Jajcay**, Indiana State University (985-05-199)
- 3:30PM *Displacement phenomena for finite universal graphs.* Preliminary report.
(209) **Roger B. Eggleton***, Illinois State University, and **James A. MacDougall**, University of Newcastle, NSW, Australia (985-05-310)
- 4:00PM *Chordal bipartite analogs of 2-trees and isolated failure immune networks.*
(210) **Terry A McKee**, Wright State University (985-05-16)
- 4:30PM *Application of visibility graphs to robot navigation.*
▶ (211) **N Manickam***, DePauw University, and **Nagi Rao**, Oak Ridge National Lab (985-05-155)

Special Session on Representations of Infinite Dimensional Lie Algebras and Mathematical Physics, III

3:00 PM – 4:45 PM Room 219, Ballantine Hall

Organizers: **Katrina Deane Barron**, University of Notre Dame
Rinat Kedem, University of Illinois, Urbana-Champaign

- 3:00PM *C_2 -cofiniteness of the vertex operator algebra V_L^+ when L is a rank one lattice.*
(212) **Gaywalee - Yamskulna**, SUNY at Binghamton (985-17-237)
- 3:30PM *Affinization of commutative algebras.*
(213) **Michael Roitman**, University of Michigan (985-17-182)
- 4:00PM *Framed VOAs and frame stabilizers.*
(214) **Robert L. Griess**, University of Michigan (985-17-316)

Special Session on Graph Theory, II

3:00 PM – 4:55 PM Room 209, Ballantine Hall

Organizers: **Tao Jiang**, Miami University
Zevi Miller, Miami University
Dan Pritikin, Miami University

- 3:00PM *Irreducible hypergraphs for Hall-type conditions and edge-minimal expanders.* Preliminary report.
▶ (215) **Alexandr Kostochka***, University of Illinois, and **Douglas R. Woodall**, University of Nottingham (985-05-47)
- 3:30PM *Counterexamples to the nonorientable genus conjecture for complete tripartite graphs.*
▶ (216) **Mark N. Ellingham***, **Chris Stephens**, Vanderbilt University, and **Xiaoya Zha**, Middle Tennessee State University (985-05-143)

- 4:00PM *Tournaments in which every arc is in a Hamiltonian path*. Preliminary report.
 ▶ (217) **K. Brooks Reid**, Calif. State Univ. San Marcos and Univ. Colorado at Denver (985-05-297)
- 4:30PM *On the wide diameter of the Cayley graph $G(Sn, T)$* . Preliminary report.
 (218) **D. Frank Hsu**, Fordham University (985-05-272)

Special Session on Extremal Combinatorics, III

3:00 PM – 4:50 PM Room 208, Ballantine Hall

Organizers: **Dhruv Mubayi**, University of Illinois at Chicago
Jozef Skokan, University of Illinois at Urbana-Champaign

- 3:00PM *The number of edge colorings with no monochromatic cliques*.
 (219) **Noga Alon**, IAS, Princeton, **Jozsef Balogh***, Ohio State University, **Peter Keevash** and **Benny Sudakov**, Princeton (985-05-229)
- 3:30PM *Venn Diagrams and Symmetric Chain Decompositions in the Boolean Lattice*.
 ▶ (220) **Jerrold R. Griggs***, University of South Carolina, **Charles E Killian** and **Carla D Savage**, North Carolina State University (985-05-195)
- 4:00PM *A bound on the sum of squares of degrees in a monotone graph family*.
 (221) **Zoltan Furedi**, University of Illinois, Urbana-Champaign and Renyi Institute, Budapest, and **Andre Kundgen***, Cal State San Marcos (985-05-327)
- 4:30PM *On Randomly Generated Intersecting Hypergraphs*.
 (222) **Tom Bohman**, **Colin Cooper**, **Alan Frieze**, **Ryan Martin** and **Miklos Ruszinko***, Carnegie Mellon University (985-05-337)

Special Session on Cryptography and Computational and Algorithmic Number Theory, III

3:00 PM – 4:50 PM Room 205, Ballantine Hall

Organizers: **Joshua Holden**, Rose-Hulman Institute of Technology
John Rickert, Rose-Hulman Institute of Technology
Jonathan Sorenson, Butler University
Andreas Stein, University of Illinois at Urbana-Champaign

- 3:00PM *On the Computation of Cube Roots Modulo p* . Preliminary report.
 (223) **Siguna M.S. Müller**, University of Calgary (985-11-312)
- 3:30PM *A Numerical Technique for the Number Field Sieve Square Root*. Preliminary report.
 (224) **Chris Monico**, University of Notre Dame (985-11-215)
- 4:00PM *Computing the nesting depth of a nested radical*. Preliminary report.
 (225) **Oliver A Schirokauer**, Oberlin College (985-11-308)
- 4:30PM *On Class Group Computations Using the Number Field Sieve*.
 (226) **Safuat Hamdy**, University of Calgary (985-11-191)

Special Session on Operator Algebras and Their Applications, II

3:00 PM – 4:50 PM Room 217, Ballantine Hall

Organizers: **Jerry Kaminker**, Indiana University-Purdue University Indianapolis
Ronghui Ji, Indiana University-Purdue University Indianapolis

- 3:00PM Discussion
- 3:30PM *Euler characteristics of manifolds of bounded geometry*. Preliminary report.
 (227) **John G Miller**, IUPUI (985-58-284)
- 4:00PM *Hyperbolic groups, bounded cohomology and orbit equivalence superrigidity*. Preliminary report.
 (228) **Igor Mineyev**, University of Illinois at Urbana-Champaign (985-20-190)
- 4:30PM *Uniformly embedding discrete groups into Hilbert space*. Preliminary report.
 (229) **Erik Guentner***, University of Hawaii, Manoa, **Nigel Higson**, Pennsylvania State University, and **Shmuel Weinberger**, University of Chicago (985-46-323)

Special Session on Codimension One Splittings of Manifolds, III

3:00 PM – 4:20 PM Room 236, Ballantine Hall

Organizers: **James F. Davis**, Indiana University
Andrew A. Ranicki, University of Edinburgh

- 3:00PM *A homotopic approach to the Isomorphism Conjecture*. Preliminary report.
 (230) **Daniel Juan-Pineda**, Instituto de Matematicas, UNAM, Campus Morelia, and **Stratos Prassidis***, Canisius College (985-19-122)
- 3:30PM *Codimension 1 splitting and noncommutative localization*. Preliminary report.
 (231) **Andrew A Ranicki**, University of Edinburgh (985-57-39)
- 4:00PM *Seifert Surfaces and Characteristic Polynomials*.
 (232) **Desmond Sheiham**, University of California, Riverside (985-19-208)

Special Session on Stochastic Analysis with Applications, III

3:00 PM – 4:50 PM Oak Room, Indiana Memorial Union

Organizers: **Jin Ma**, Purdue University
Frederi Viens, Purdue University

- 3:00PM *Particle representations for measure-valued branching processes*. Preliminary report.
 (233) **Thomas G. Kurtz***, University of Wisconsin-Madison, and **Eliane R. Rodrigues**, National Autonomous University of Mexico (985-60-164)
- 4:00PM *Particle approximations of Lyapunov exponents connected to Schrödinger operators and Feynman-Kac semigroups*. Preliminary report.
 (234) **Pierre Del Moral**, LSP Université Paul Sabatier Toulouse, France (985-60-332)
- 4:30PM *On spin glasses systems and stochastic calculus*.
 (235) **Samy Tindel**, University of Paris 13 (985-60-331)

Special Session on Algebraic Topology, III

3:00 PM – 4:45 PM Room 214, Ballantine Hall

Organizers: **Randy McCarthy**, University of Illinois, Urban-Champaign
Ayelet Lindenstrauss, Indiana University

- 3:00PM *p*-compact groups and *p*-local groups. (236) **Jesper Grodal**, University of Chicago (985-55-98)
- 3:30PM (Homological?) decompositions of $Out F_n$. (237) **Daniel Biss**, University of Chicago (985-55-93)
- 4:00PM *A correspondence between atomic H spaces and atomic co-H spaces.* (238) **Brayton Gray**, University of Illinois at Chicago (985-55-103)

Session for Contributed Papers

3:00 PM – 4:10 PM Room 229, Ballantine Hall

- 3:00PM *Approximation of parabolic PDEs on Euclidean spheres using spherical basis functions.* Preliminary report. (239) **Quoc T Le Gia***, Texas A&M University - Mathematics, and **Joseph D Ward**, Texas A&M University (985-35-19)
- 3:15PM *The Length of the Longest Head-Run in a Model with Long-Range Dependence.* (240) **Thomas M. Lewis**, Furman University (985-60-285)
- 3:30PM *A Class of Processes on the Path Space over a Compact Riemannian Manifold with Unbounded Diffusion.* (241) **Joerg-Uwe Loebus**, University of Toledo (985-60-288)
- 4:00PM *Percolation Threshold Bounds, Counterexamples, and Conjectures.* (242) **John C. Wierman**, Johns Hopkins University (985-60-23)

Invited Address

5:10 PM – 6:00 PM Room 013, Ballantine Hall

- (243) *On the motion of the interface of the two phase flows.* **Sijue Wu**, University of Maryland, College Park/Harvard University (985-35-166)

Reception (Hosted by the Department of Mathematics)

6:15 PM – 7:30 PM Alumni Hall, Indiana Memorial Union

Sunday, April 6

Special Session on Applications of Teichmüller Theory to Dynamics and Geometry, IV

8:30 AM – 11:45 AM Room 247, Ballantine Hall

Organizers: **Christopher M. Judge**, Indiana University
Matthias Weber, Indiana University

- 8:30AM *X*-minimal surfaces in the Heisenberg group. (244) **Scott D. Pauls**, Dartmouth College (985-53-235)
- 9:00AM *Polygonal outer billiards in the Euclidean and the hyperbolic plane.* (245) **Serge Tabachnikov**, Penn State (985-37-203)

- 10:00AM *Spectral Curves of 2-Tori in the 4-Sphere.* Preliminary report. (246) **Franz Pedit**, University of Massachusetts (985-53-58)

- 11:00AM *Recent results on classical minimal surface theory.* (247) **William H. Meeks**, Univ. of Massachusetts (985-53-156)

Special Session on Graph Theory, III

8:30 AM – 12:25 PM Room 209, Ballantine Hall

Organizers: **Tao Jiang**, Miami University
Zevi Miller, Miami University
Dan Pritikin, Miami University

- 8:30AM *Real Number Channel Assignments with Distance Conditions.* Preliminary report. (248) **Jerrold R. Griggs*** and **Teresa Xiaohua Jin**, University of South Carolina (985-05-194)
- 9:00AM *On graph coloring extensions and list-colorings.* (249) **Maria Alex Axenovich**, Iowa State University (985-05-59)
- 9:30AM *Adjacent Vertex Distinguishing Edge-Colorings.* Preliminary report. (250) **Richard H. Schelp***, **Paul N. Balister**, University of Memphis, **Ervin Gyori**, Renyi Institute of Mathematics, and **Jeno Lehel**, University of Memphis (985-05-154)
- 10:00AM *Optimal decomposition of complete graphs into many parts: extensions of the Nordhaus–Gaddum Theorem.* (251) **Zoltán Füredi**, Univ. of Illinois and Rényi Institute, **Alexandr V Kostochka**, Univ. of Illinois and Institute of Mathematics (Novosibirsk), **Riste Škrekovski**, Charles Univ. and Univ. of Ljubljana, **Michael Stiebitz**, Technische Universität Ilmenau, and **Douglas B West***, University of Illinois (985-05-100)
- 10:30AM *Embedding Complete Binary Trees into Grids.* (252) **Y.-B. Lin**, University of Texas at Dallas, **Zevi Miller**, Miami University, **Manley Perkel***, Wright State University, **Dan Pritikin**, Miami University, and **Hal Sudborough**, University of Texas at Dallas (985-05-168)
- 11:00AM *A Transformation of Kotzig’s Tree Decomposition Conjecture.* Preliminary report. (253) **Andre E. Kezdy**, University of Louisville (985-05-225)
- 11:30AM *A short proof of a characterization of strongly chordal graphs.* (254) **Michael J. Pelsmayer***, Illinois Institute of Technology, and **Douglas B. West**, University of Illinois, Urbana-Champaign (985-05-254)
- NOON *Convexity in graphs: Steiner sets, Hull sets and Geodesic sets.* (255) **Ignacio M Pelayo***, **Merce Mora**, **Carmen Hernando** and **Carlos Seara**, Universitat Politècnica de Catalunya (985-05-162)

Special Session on Holomorphic Dynamics, IV

9:00 AM – 12:30 PM Room 135, Ballantine Hall

Organizers: **Eric D. Bedford**, Indiana University
Kevin M. Pilgrim, Indiana University

- 9:00AM *Schwarzian in complex analytic iteration theory.* (256) **Julian I. Palmore**, University of Illinois at Urbana-Champaign (985-37-342)
- 10:00AM Discussion

Special Session on Weak Dependence in Probability and Statistics, IV

9:00 AM – 11:20 AM Walnut Room, Indiana Memorial Union

Organizers: **Richard C. Bradley**, Indiana University
Lanh T. Tran, Indiana University

- 9:00AM *Least Squares Estimators For The Spatial Regression Model.* (257)
Jin Zhu, Indiana University (985-62-46)
- 9:30AM *Nonparametric estimation for nonlinear autoregressive processes.* (258)
Eunju Hwang, University of Mississippi (985-62-198)
- 10:00AM *Some results on estimating a spectral density for a wavelet basis.* Preliminary report. (259)
Curtis P Miller, Iowa State University (985-60-242)
- 10:30AM *Robust Procedures for Semiparametric Partly Linear Autoregression.* Preliminary report. (260)
Graciela L. Boente*, Universidad de Buenos Aires and CONICET, and **Ana M. Bianco**, Universidad de Buenos Aires (985-62-80)
- 11:00AM *Nonparametric estimation of regression and dependence coefficients.* (261)
Lanh Tat Tran, Indiana University, Bloomington, Indiana (985-62-144)

Special Session on Mathematical and Computational Problems in Fluid Dynamics and Geophysical Fluid Dynamics, III

9:00 AM – 11:50 AM Persimmon Room, Indiana Memorial Union

Organizers: **Roger Temam**, Indiana University
Shouhong Wang, Indiana University

- 9:00AM *Remarks on the Control of Problems Related to Climate.* Preliminary report. (262)
Roger Temam* and **Djoko Wirosoetisno**, Indiana University (985-49-283)
- 9:30AM *A Class of Truly Consistent Splitting Schemes for Incompressible Flows.* (263)
Jie Shen, Purdue University (985-65-75)
- 10:00AM *Small Scales and Inviscid Limit of Viscous Compressible Flows.* Preliminary report. (264)
Xiaoming Wang, Iowa State University (985-76-234)
- 10:30AM Break
- 11:00AM *Vortex Sheets with Surface Tension.* (265)
David M. Ambrose, Courant Institute, NYU (985-76-157)
- 11:30AM *Regularity results for linear elliptic problems and applications to the Primitive Equations of the ocean.* (266)
Mohammed B Ziane*, University of Southern California, and **Roger M Temam**, Indiana University (985-35-330)
- AM *Rigorous characterization of boundary layer separations of 2D incompressible flows and its applications.* (267)
Tian Ma, Sichuan University & Indiana University, and **Shouhong Wang***, Indiana University (985-76-147)

Special Session on Operator Algebras and Free Probability, III

9:00 AM – 12:20 PM Room 215, Ballantine Hall

Organizers: **Hari Bercovici**, Indiana University
Marius Dadarlat, Purdue University

- 9:00AM *Remarks on projections in C*-algebras.* Preliminary report. (268)
Lawrence G. Brown, Purdue University (985-46-298)
- 10:00AM *Some quantitative results on the spectrum of almost Mathieu operators.* Preliminary report. (269)
Florin P Boca* and **Alexandru Zaharescu**, University of Illinois Urbana-Champaign (985-47-169)
- 11:00AM *A Majorization Theory for Infinite Sequences Arising From Traces, Ideals, Arithmetic Means and Commutators.* (270)
Gary Weiss* and **Victor Kaftal**, University of Cincinnati (985-47-233)
- NOON *K-theory of Certain C*-algebras associated with free products of cyclic groups.* (271)
Shuang Zhang*, University of Cincinnati, and **Wojciech Szymanski**, University of Newcastle (985-46-196)

Special Session on Differential Geometry, IV

9:00 AM – 11:50 AM Room 140, Ballantine Hall

Organizers: **Jiri Dadok**, Indiana University
Bruce Solomon, Indiana University
Ji-Ping Sha, Indiana university

- 9:00AM *Geometry of $L^p([0, 1], \mathbb{Z})$.* (272)
Valera I Berestovskii, **Victor Gichev**, Omsk State University, and **Conrad Plaut***, University of Tennessee (985-53-246)
- 9:30AM *Hypersurfaces of constant Gauss curvature in Minkowski space.* (273)
Bo Guan*, Department of Mathematics, University of Tennessee, and **Huaiyu Jian**, Tsinghua University, China (985-53-292)
- 10:00AM *Spectral theory for tensor products of Hermitian holomorphic line bundles.* (274)
Harold G. Donnelly, Purdue University (985-53-44)
- 10:30AM *Bonnet pairs revisited.* Preliminary report. (275)
Gary R. Jensen, Washington University (985-53-201)
- 11:00AM *Torsion-free G_3 -connections that are not analytic.* Preliminary report. (276)
Quo-Shin Chi, Washington University, St. Louis (985-53-84)
- 11:30AM *A moduli curve for compact conformally-Einstein Kähler manifolds.* (277)
Andrzej Derdzinski*, Ohio State University, and **Gideon Maschler**, University of Toronto (985-53-251)

Special Session on Recent Trend in the Analysis and Computations of Functional Differential Equations, IV

9:00 AM – 11:20 AM Maple Room, Indiana Memorial Union

Organizers: **Paul W. Eloe**, University of Dayton
Qin Sheng, University of Dayton

- 9:00AM *First Order Dynamic Equations on Analysis of Algorithms.* (278)
Ferhan M. Atici* and **Daniel C. Biles**, Western Kentucky University (985-39-171)
- 9:30AM *Boundedness In Nonlinear Differential Equations.* (279)
Youssef N Raffoul, University of Dayton (985-34-15)

Program of the Sessions – Bloomington, IN, Sunday, April 6 (cont'd.)

- 10:00AM *Blow-up of Solutions for Degenerate Semilinear Parabolic Problems.* (280)
C. Y. Chan, University of Louisiana at Lafayette, and **W. Y. Chan***, University of Science and Arts of Oklahoma (985-35-141)
- 10:30AM *Periodic Solutions In Neutral Nonlinear Difference Equations with Delay.* Preliminary report. (281)
Mariette R Maroun* and **Youssef N Raffoul**, University of Dayton (985-34-133)
- 11:00AM *Dynamic Equations for Fourth Order Conjugate Boundary Value Problems.* Preliminary report. (282)
Johnny Henderson, Baylor University, and **William Yin***, LaGrange College (985-34-14)

- 11:00AM *A New Degree Condition For Graph Tiling.* (292)
Ali Shokoufandeh, Drexel University, and **Yi Zhao***, University of Illinois at Chicago (985-05-177)
- 11:30AM *Embedding graphs with bounded degree in pseudorandom sparse graphs.* (293)
Yoshiharu Kohayakawa, University of Sao Paulo, **Vojtech Rodl** and **Papa Amar Sissokho***, Emory University (985-05-333)
- NOON *An extremal function for K_9 minors.* (294)
Zixia Song*, School of Mathematics, Georgia Institute of Technology, and **Robin Thomas**, School Of Mathematics, Georgia Institute of Technology (985-05-227)

Special Session on Representations of Infinite Dimensional Lie Algebras and Mathematical Physics, IV

9:00 AM – 12:50 PM Room 219, Ballantine Hall

Organizers: **Katrina Deane Barron**, University of Notre Dame
Rinat Kedem, University of Illinois, Urbana-Champaign

- 9:00AM *Sklyanin Poisson brackets and refined Bruhat cells in real Grassmannians.* (283)
Michael Gekhtman*, University of Notre Dame, **Michael Shapiro**, Michigan State University, and **Alek Vainshtein**, University of Haifa (985-57-150)
- 10:00AM *Infinite Toda lattice and New Vertex Algebras.* (284)
Maarten J. Bergvelt, Dept. of Mathematics, UIUC (985-17-240)
- 10:30AM *Algebra in tensor categories and conformal field theory* (285)
Christoph Schweigert, Rheinisch-Westfälische Technische Hochschule Aache (985-17-313)
- 11:30AM *Virasoro highest-weight vectors in vertex operator algebras.* Preliminary report. (286)
Katherine L Hurley, University of South Carolina (985-17-224)
- NOON *Differential equations and conformal field theories.* (287)
Yi-Zhi Huang, Rutgers University (985-17-181)

Special Session on Extremal Combinatorics, IV

9:00 AM – 12:20 PM Room 208, Ballantine Hall

Organizers: **Dhruv Mubayi**, University of Illinois at Chicago
Jozef Skokan, University of Illinois at Urbana-Champaign

- 9:00AM *An Improved Extremal Function for Graph Linkages.* (288)
Robin Thomas and **Paul Wollan***, Georgia Inst. of Tech. (985-05-260)
- 9:30AM *A hypercube covering problem, or DNF with exceptions.* Preliminary report. (289)
Dhruv Mubayi, **Gyorgy Turan*** and **Yi Zhao**, Univ. of Illinois at Chicago (985-05-241)
- 10:00AM *Nontrivial Intersecting Families.* (290)
Jacques Alain Verstraete*, Microsoft Research, and **Dhruv Mubayi**, University of Illinois, Chicago (985-05-339)
- 10:30AM *Tree representations of $K_{n,n}$.* Preliminary report. (291)
Nancy Eaton*, University of Rhode Island, **Zoltan Furedi**, University of Illinois at Urbana-Champaign, **Alexandr V. Kostochka**, University of Illinois Urbana-Champaign, and **Jozef Skokan**, University of Illinois at Urbana-Champaign (985-05-274)

Special Session on Cryptography and Computational and Algorithmic Number Theory, IV

9:00 AM – 11:50 AM Room 205, Ballantine Hall

Organizers: **Joshua Holden**, Rose-Hulman Institute of Technology
John Rickert, Rose-Hulman Institute of Technology
Jonathan Sorenson, Butler University
Andreas Stein, University of Illinois at Urbana-Champaign

- 9:00AM *Are there enough primes for cryptography?* (295)
Preliminary report.
Samuel S Wagstaff, Purdue University (985-11-28)
- 9:30AM *FPGA-Based Hyperelliptic Curve Cryptosystems.* (296)
T. Charles Clancy, University of Illinois (985-94-78)
- 10:00AM Break
- 10:30AM *Asymptotically fast group operations on Jacobians of general curves.* (297)
Kamal Khuri-Makdisi, Center for Advanced Mathematical Sciences, American University of Beirut (985-14-187)
- 11:30AM *Some comments on group independent secret sharing schemes.* Preliminary report. (298)
Brian S King, Purdue School of Eng. & Tech., IUPUI (985-94-24)

Special Session on Operator Algebras and Their Applications, III

9:00 AM – 11:20 AM Room 217, Ballantine Hall

Organizers: **Jerry Kaminker**, Indiana University-Purdue University Indianapolis
Ronghui Ji, Indiana University-Purdue University Indianapolis

- 9:00AM *Heat kernels for perturbed Dirac operators.* (299)
Preliminary report.
Jeffrey Fox, University of Colorado, and **Peter Haskell***, Virginia Tech (985-58-106)
- 9:30AM *Some remarks on the universal coefficient theorem in KK-theory.* (300)
Marius Dadarlat, Purdue University (985-46-124)
- 10:00AM *The Kadison-Singer problem as a combinatorial problem.* (301)
Nik Weaver, Washington University (985-05-96)
- 10:30AM *Operator Trigonometry.* (302)
Morteza Seddighin, Indiana University-East (985-47-26)
- 11:00AM *Rectifiable diameters of the Grassmann spaces of certain von Neumann algebras and C^* -algebras.* (303)
Shuang Zhang, University of Cincinnati (985-46-197)

Special Session on Codimension One Splittings of Manifolds, IV

9:00 AM – 12:20 PM Room 236, Ballantine Hall

Organizers: **James F. Davis**, Indiana University
Andrew A. Ranicki, University of Edinburgh

- 9:00AM *Controlled algebraic K-theory.*
(304) **Frank S Quinn**, Virginia Tech (985-19-79)
- 9:30AM *On the rho invariant for manifolds with boundary.*
(305) Preliminary report.
Paul Kirk*, Indiana University, and **Matthias Lesch**,
Universitat zu Koln (985-57-74)
- 10:00AM *Eta-invariants as obstructions to a knot in S^3 being*
(306) *slice or ribbon.*
Stefan K Friedl, Brandeis University (985-54-65)
- 10:30AM Break
- 11:00AM *Examples of Exotic Stratifications.*
(307) **Bruce Hughes**, Vanderbilt University (985-57-113)
- 11:30AM *Applications of codimension one splittings of*
(308) *analytic invariants.*
Sylvain Cappell*, New York University, **Ronnie Lee**,
Yale University, and **Edward Miller**, Polytechnic
University (985-57-340)
- NOON Discussion

Special Session on Stochastic Analysis with Applications, IV

9:00 AM – 11:20 AM Oak Room, Indiana Memorial Union

Organizers: **Jin Ma**, Purdue University
Frederi Viens, Purdue University

- 9:00AM *Some Processes Associated with a Fractional*
(309) *Brownian Motion.* Preliminary report.
Tyrone E. Duncan, University of Kansas
(985-60-99)
- 10:00AM *How to solve a Dirichlet problem via RBSDEs.*
(310) **Ziyu Zheng**, Assistant Prof./University of
Wisconsin-Milwaukee (985-60-22)
- 10:30AM *Representation of Solutions to Backward SDEs*
(311) *Associated with a Degenerate Forward SDE.*
Jianfeng Zhang, University of Minnesota
(985-60-132)
- 11:00AM *On conformal images of reflecting Brownian*
(312) *motions in smooth domains and applications.*
Preliminary report.
Mihai N Pascu, Department of Mathematics,
Purdue University (985-60-259)

Special Session on Algebraic Topology, IV

9:00 AM – 12:25 PM Room 214, Ballantine Hall

Organizers: **Randy McCarthy**, University of Illinois,
Urban-Champaign
Ayelet Lindenstrauss, Indiana
University

- 9:00AM *Refining topological realization of A-algebras by*
(313) *cobordism.*
Donald Yau, University of Illinois at Urbana
Champaign (985-55-85)
- 10:00AM *The tensor product of permutative categories.*
(314) Preliminary report.
A. D. Elmendorf, Purdue University Calumet
(985-55-95)

- 11:00AM *An operad that acts on cochains of a spectrum.*
(315) Preliminary report.
Jim McClure*, Purdue University, **Stefan Schwede**,
University of Muenster, and **Jeff Smith**, Purdue
University (985-55-89)

- NOON *Controlled homotopy theory of simplicial sets.*
(316) **Dan Isaksen***, University of Notre Dame, and **Dan**
Christensen, University of Western Ontario
(985-55-88)

Special Session on Ergodic Theory and Dynamical Systems, IV

9:30 AM – 11:50 AM Room 006, Ballantine Hall

Organizers: **Roger L. Jones**, DePaul University
Ayse A. Sahin, DePaul University

- 9:30AM *Full bubble growth rate and the embedding of finite*
(317) *to one extensions of non-periodic Z^2 subshifts into*
the domino tiling shift.
Sam Lightwood*, The George Washington
University, and **Ayse Sahin**, DePaul University
(985-37-322)
- 10:00AM *Ordered full shifts.*
(318) **William Geller*** and **Michal Misiurewicz**, Indiana
Univ.-Purdue Univ. Indianapolis (985-37-317)
- 10:30AM *Asymptotic Randomization of Multidimensional*
(319) *Finite-type Subshifts by Linear Cellular Automata.*
Marcus Pivato* and **Reem Yassawi**, Trent
University (985-37-101)
- 11:00AM *Ergodic Averages with Generalized Weights.*
(320) **Dogan Comez***, North Dakota State University, and
Semyon N Litvinov, Penn State University-Hazleton
(985-37-300)
- 11:30AM *A new look at strong sweeping out for lacunary*
(321) *sequences.*
Roger L Jones, DePaul University (985-37-222)

Special Session on Probability, IV

9:30 AM – 11:45 PM Sassafra Room,
Indiana Memorial Union

Organizers: **Russell D. Lyons**, Indiana University
Robin A. Pemantle, Ohio State
University

- 9:30AM *Crossing numbers and the probabilistic method.*
(322) **Laszlo A Szekely**, NCBI/NLM/NIH and USC
(985-05-167)
- 10:30AM *Projection of measures and geodesic flows.*
(323) **Elon B. Lindenstrauss**, Stanford University
(985-60-209)
- 11:00AM *The Connection between Randomness Extractors*
(324) *and Expander Graphs.*
Salil P Vadhan, Harvard University (985-05-277)

Special Session on Stochastic Analysis with Applications, V

12:30 PM – 3:20 PM Oak Room, Indiana Memorial Union

Organizers: **Jin Ma**, Purdue University
Frederi Viens, Purdue University

- 12:30PM *A measure-theoretic approach to stochastic*
(325) *integration.* Preliminary report.
Ron Blei, University of Connecticut (985-60-325)

- 1:00PM *Stationary busy period distributions in queues and exit problems for Levy processes.* Preliminary report.
▶ (326) **Parijat Dube**, IBM Research, **Fabrice M Guillemin**, France Telecom R & D, and **Ravi R Mazumdar***, Purdue University (985-60-336)
- 1:30PM *Weak survival of anisotropic contact processes on trees.*
(327) **Thomas M Sellke***, Purdue University, and **Steven P. Lalley**, Univ. of Chicago (985-60-319)
- 2:00PM *Options and Discontinuity: An asymptotic decomposition of hedging errors.*
(328) **Seongjoo Song**, Purdue University (985-60-111)
- 2:30PM *Extreme events in financial markets.*
▶ (329) **Maria Cristina Mariani**, Department of Statistics - Purdue University (985-60-247)
- 3:00PM Discussion

Susan J. Friedlander
Associate Secretary
Chicago, Illinois