
Program of the Sessions

Lawrence, Kansas, March 30–31, 2001

Friday, March 30

Meeting Registration

8:00 AM – 4:30 PM Third Floor Lobby, Snow Hall

AMS Exhibit and Book Sale

8:00 AM – 4:30 PM Room 408, Snow Hall

Special Session on Commutative Algebra, I

8:30 AM – 11:20 AM Room 350, Strong Hall

Organizers: **Craig Huneke**, University of Kansas
Daniel Katz, University of Kansas

- 8:30AM **▶** (1) *Algorithms on Parametric Decomposition of Monomial Ideals.*
Jung-Chen Liu, National Taiwan Normal University (964-13-47)
- 9:00AM (2) *Cohen-Macaulayness of special fiber rings and integral closure of ideals.* Preliminary report.
Claudia Polini, University of Oregon (964-13-159)
- 9:30AM (3) *Monoidal Extensions of a Cohen-Macaulay Unique Factorization Domain.*
William J Heinzer*, Purdue University, **Aihua Li**, Loyola Univ., **Louis J Ratliff** and **David E Rush**, Univ. of California, Riverside (964-13-40)
- 10:00AM (4) *On a conjecture of Auslander and Reiten.*
Graham J Leuschke, University of Kansas (964-13-222)
- 10:30AM (5) *Gorenstein Artin Algebras and their Hilbert Functions.* Preliminary report.
Hema Srinivasan*, University of Missouri-Columbia, and **Anthony Iarrabino**, Northeastern University (964-13-134)
- 11:00AM (6) *The Tor Game.* Preliminary report.
Craig L Huneke, University of Kansas, and **Roger A Wiegand***, University of Nebraska (964-13-145)

Special Session on Optimal Control, Calculus of Variations, and Nonsmooth Analysis, I

8:30 AM – 11:20 AM Room 554, Snow Hall

Organizers: **Michael Malisoff**, Texas A&M University, Corpus Christi
Peter R. Wolenski, Louisiana State University

- 8:30AM (7) *Necessary Conditions of Optimality for Impulsive Control Problems with State Constraints.*
Fernando Pereira*, Porto University, and **Geraldo da Silva**, Universidade Estadual Paulista (964-49-200)
- 9:00AM (8) *Sub-Lipschitz Mappings and Connections to Optimal Control and the Hamilton-Jacobi Equation.*
Grant N. Galbraith, University of California, Davis (964-49-205)
- 9:30AM (9) *Recent Results on Viscosity Solutions of the Bellman Equation for Optimal Control Problems with Exit Times.*
Michael A. Malisoff, Texas A & M University-Corpus Christi (964-49-238)
- 10:00AM (10) *Optimal Control and Hamilton-Jacobi Equations with Discontinuous Data Dependence.*
Dan Ostrov, Santa Clara University (964-49-193)
- 10:30AM (11) *Necessary Conditions for Constrained Optimization Problems, their Applications and a Variational Proof.* Preliminary report.
Qiji J Zhu, Western Michigan University (964-49-111)
- 11:00AM Discussion

Special Session on Algebraic Geometry, I

9:00 AM – 11:20 AM Room 339, Strong Hall

Organizers: **Christopher Peterson**, Colorado State University
B. P. Purnaprajna, University of Kansas

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 22, 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.

- 9:00AM (12) *Secants and Fulton's conjecture on the ample cone of the space of marked curves.*
Pete Vermeire, Oklahoma State University (964-14-155)
- 9:30AM (13) *Hodge and Tate cycles on the moduli space of vector bundles.* Preliminary report.
Donu Arapura, Purdue University (964-14-102)
- 10:00AM (14) *On a problem of Raynaud for canonical curves.* Preliminary report.
Mircea I Mustata*, U.C. Berkeley, and **Mihnea Popa**, University of Michigan (964-14-162)
- 10:30AM (15) *Construction of vector bundles on Projective Spaces in positive characteristics.* Preliminary report.
Mohan Kumar*, Washington University, **Chris Peterson**, Colorado State University, and **Prabhakar Rao**, University of Missouri, St. Louis (964-14-135)
- 11:00AM (16) *Linear systems with multiple base points in P^2 .*
Brian Harbourne*, University of Nebraska-Lincoln, and **Joaquim Roé**, Universitat de Barcelona (964-14-34)

Special Session on Number Theory, I

9:00 AM – 11:25 AM Room 337, Strong Hall

Organizers: **Ken Ono**, University of Wisconsin, Madison
Cristian Popescu, University of Texas at Austin
Tonghai Yang, Harvard University

- 9:00AM (17) *On the average of central values of symmetric square L-functions in weight aspect.* Preliminary report.
Winfried Kohnen, Mathematisches Institut, Universitaet Heidelberg, Germany (964-11-105)
- 9:30AM Break
- 10:00AM (18) *Average Frobenius distributions of elliptic curves with prescribed torsion subgroups.* Preliminary report.
Kevin L James, Clemson University (964-11-73)
- 10:30AM (19) *Zeta functions of an infinite family of K3 surfaces.*
David K Penniston*, Furman University, **Scott Ahlgren**, Colgate University, and **Ken Ono**, University of Wisconsin (964-11-114)
- 11:00AM (20) *A q-series identity which reveals the arithmetic of the Hurwitz zeta function.*
Gwynneth G.H. Coogan* and **Ken Ono**, University of Wisconsin, Madison (964-11-75)

Special Session on Progress in Numerical Linear Algebra, I

9:00 AM – 11:20 AM Room 454, Snow Hall

- Organizer: **Ralph Byers**, University of Kansas
- 9:00AM (21) *Is Every Matrix Similar to a Toeplitz Matrix?*
D. Steven Mackey*, Kalamazoo College, **Niloufer Mackey** and **Srdjan Petrovic**, Western Michigan University (964-15-65)
- 9:30AM (22) *A review of non-orthogonal methods in matrix eigenvalue computations.* Preliminary report.
Frank Uhlig, Auburn University (964-65-37)
- 10:15AM Break
- 10:30AM (23) *Toward a Recursive QR Algorithm.*
Karen S Braman, University of Kansas (964-65-49)
- 11:00AM (24) *An Efficient Implementation of the QR algorithm for Computing Zeros of Szegő Polynomials.* Preliminary report.
Gregory S. Ammar, Northern Illinois University (964-65-67)

Special Session on PDEs and Geometry, I

9:00 AM – 11:30 AM Room 321, Snow Hall

Organizers: **Marianne Korten**, Kansas State University
Lev Kapitanski, Kansas State University

- 9:00AM (25) *A Criteria for Compactness in Some Overdetermined Problems and Its Application to the Boundary Regularity of Contact Sets.*
Ivan A Blank*, Rutgers University, and **Henrik Shahgholian**, Royal Inst. of Technology Stockholm (964-35-210)
- 9:40AM (26) *The subelliptic obstacle problem.* Preliminary report.
Donatella Danielli*, **Nicola Garofalo**, Johns Hopkins University, and **Sandro Salsa**, Polytechnic of Milan (964-35-227)
- 10:20AM (27) *Nonlinear Hyperbolic Conservative PDEs and Divergence-Measure Vector Fields.*
Gui-Qiang G Chen, Northwestern University (964-35-110)
- 11:00AM (28) *On the existence of convex classical solutions for the generalized Prandtl-Batchelor free boundary problem.*
Andrew F Acker, Wichita State University (964-35-246)

Special Session on Polytopes, I

9:00 AM – 11:20 AM Room 335, Strong Hall

Organizers: **Margaret Bayer**, University of Kansas
Carl Lee, University of Kentucky

- 9:00AM (29) *Counting faces in the extended Shi arrangement.*
Richard Ehrenborg, University of Kentucky (964-05-46)
- 9:30AM (30) *Bases for the Flag f-Vectors of Eulerian Posets.*
Nathan P Reading, University of Minnesota (964-05-25)
- 10:00AM (31) *Relating flag f-vector inequalities from the cd-index and toric g-vector.* Preliminary report.
Catherine Stenson, Juniata College (964-52-199)
- 10:30AM (32) *Meaning and uses of the ℓ -vector.* Preliminary report.
Gábor Hetyei, UNC Charlotte (964-06-216)
- 11:00AM (33) *The Manin ring in string theory.*
Margaret A Readdy, University of Kentucky (964-05-44)

Special Session on Quantization and Operator Algebras, I

9:00 AM – 11:20 AM Room 120, Snow Hall

Organizer: **Albert Sheu**, University of Kansas

- 9:00AM (34) *The Haar measure on locally compact quantum groups.*
Alfons Van Daele, University of Leuven (Belgium) (964-46-128)
- 9:30AM (35) *Transverse Groupoids.* Preliminary report.
Jerome Kaminker, IUPUI (964-19-241)
- 10:00AM (36) *Classical limits of C^* -bundles and groupoid bundles.* Preliminary report.
Birant Ramazan, IUPUI (964-81-232)
- 10:30AM (37) *Isomorphisms of crossed products by minimal diffeomorphisms.* Preliminary report.
N. Christopher Phillips, University of Oregon (964-46-142)

- 11:00AM (38) *Construction of C^* -algebraic quantum groups via generalized crossed products.* Preliminary report.
Byung-Jay Kahng, University of Kansas (964-46-174)

Special Session on Complex Variables, I

9:00 AM – 11:20 AM Room 302, Snow Hall

- Organizer: **Pietro Poggi-Corradini**, Kansas State University
- 9:00AM (39) *Caloric Measure in Parabolic Flat Domains.* Preliminary report.
Steve Hofmann, University of Missouri, **John L Lewis***, University of Kentucky, and **Kaj Mystrom**, University of Umea (964-30-38)
- 9:30AM (40) *L^p Regularity of the Szego and Bergman Projections on Non-Smooth Planar Domains.*
Loredana Lanzani*, University of Arkansas, and **Elias M. Stein**, Princeton University (964-30-108)
- 10:00AM (41) *A symmetrization problem for Green functions in the plane.* Preliminary report.
Albert Baernstein, II, Washington University (964-30-116)
- 10:30AM (42) *Convergence properties of harmonic measure distributions for planar domains.*
Marie A. Snipes and **Lesley A. Ward***, Harvey Mudd College (964-30-163)
- 11:00AM (43) *Harmonic Measures for Symmetric Stable Processes.*
Jang-Mei G Wu, University of Illinois (964-31-107)

Special Session on Set Theoretic Topology and Boolean Algebra, I

9:30 AM – 11:20 AM Room 552, Snow Hall

- Organizer: **William Fleissner**, University of Kansas
- 9:30AM (44) *Axiom F: its status and uses.*
Peter J Nyikos, University of South Carolina (964-54-203)
- 10:00AM (45) *κ -normality in products of ordinals.*
Lutfi Kalantan, King Abdulaziz University, and **Paul J Szeptycki***, York University (964-54-64)
- 10:30AM (46) *Selection principles in topology.* Preliminary report.
Liljana Babinkostova, St.Cyril and Methodius University, **Ljubisa Kocinac**, University of Nis, and **Marion Scheepers***, Boise State University (964-54-86)
- 11:00AM (47) *Possibly every real function is continuous on a non-null set.* Preliminary report.
Andrzej Roslanowski*, University of Nebraska at Omaha, and **Saharon Shelah**, The Hebrew University of Jerusalem (964-03-115)

Special Session on Harmonic Analysis and Applications, I

9:30 AM – 11:25 AM Room 306, Snow Hall

- Organizer: **Rodolfo Torres**, University of Kansas
- 9:30AM (48) *Best constants for the Moser-Trudinger inequalities on the Heisenberg group.*
William S Cohn and **Guozhen Lu***, Wayne State University (964-35-36)
- 10:00AM (49) *Poincaré-Sobolev inequalities without derivatives.*
Carlos Pérez, Universidad Autónoma de Madrid (964-42-130)

- 10:30AM (50) *Carleson Measures for the Dirichlet Space.* Preliminary report.
Richard Rochberg*, Washington University, St. Louis, and **Nicola Arcozzi**, Università di Bologna (964-46-188)

- 11:00AM (51) *Continuous Wavelets and their Discretizations.*
Guido L Weiss, Washington University (964-42-20)

Special Session on Deformation Theory, I

9:30 AM – 11:15 AM Room 452, Snow Hall

- Organizers: **Yan Soibelman**, Kansas State University
David Yetter, Kansas State University
- 9:30AM (52) *Deformation Theory for Monoidal Categories, Functors and Natural Transformations.*
D. N. Yetter, Kansas State University (964-18-132)
- 10:30AM (53) *Deformation Quantization - Old and New.*
Jim Stasheff, UNC-CH (964-81-168)

Invited Address

11:40 AM – 12:30 PM Room 330, Strong Hall

- (54) *Rational functions with real critical points.*
Alexandre Eremenko, Purdue University

Invited Address

2:00 PM – 2:50 PM Room 330, Strong Hall

- (55) *Number theory and partitions: The legacy of Dyson and Ramanujan.*
Ken Ono, University of Wisconsin-Madison (964-11-01)

Special Session on Commutative Algebra, II

3:00 PM – 5:50 PM Room 350, Strong Hall

- Organizers: **Craig Huneke**, University of Kansas
Daniel Katz, University of Kansas
- 3:00PM (56) *Seven questions about tight closure.* Preliminary report.
Melvin Hochster, University of Michigan (964-13-185)
- 3:30PM (57) *Frobenius Powers of Complete Intersections.*
Luchezar L Avramov, Purdue University, and **Claudia Miller***, Michigan State University (964-13-234)
- 4:00PM (58) *Cyclic covers of rings with rational singularities.*
Anurag K Singh, University of Utah (964-13-100)
- 4:30PM (59) *Bounding the action of Frobenius on $\text{Ext}^i(M, -)$.* Preliminary report.
Maira A McDermott*, Gustavus Adolphus College, and **Carolyn A Yackel**, Indiana University (964-13-239)
- 5:00PM (60) *Test ideals and base change problems in tight closure theory.* Preliminary report.
Ian M Aberbach*, University of Missouri, and **Florian Enescu**, University of Michigan (964-13-192)
- 5:30PM (61) *Test ideals and base change problems in tight closure theory.* Preliminary report.
Ian M Aberbach, University of Missouri, Columbia, and **Florian Enescu***, University of Michigan, Ann Arbor (964-13-204)

Special Session on Set Theoretic Topology and Boolean Algebra, II

3:00 PM – 5:50 PM Room 552, Snow Hall

Organizer: **William Fleissner**, University of Kansas

- 3:00PM *Locally nice spaces and Axiom R.* Preliminary report.
(62) **Zoltan T Balogh**, Miami University, Oxford, Ohio (964-54-225)
- 3:30PM *Small compact spaces and the Pseudoradial property.* Preliminary report.
(63) **Alan S Dow**, University of North Carolina at Charlotte (964-54-88)
- 4:00PM *PFA and perfect preimages of ω_1 .* Preliminary report.
(64) **Erick T Eisworth**, University of Northern Iowa (964-54-27)
- 4:30PM *Lindelof Sigma spaces with a small diagonal.*
(65) **Gary Gruenhagen**, Auburn University (964-54-218)
- 5:00PM *Bohr Topologies and Compact Function Spaces.*
(66) **Joan E Hart***, University of Dayton, and **Kenneth Kunen**, University of Wisconsin-Madison (964-54-33)
- 5:30PM *Partition relations for partially ordered sets via elementary substructures.*
(67) **Albin L Jones**, Kenyon College (964-03-173)

Special Session on Algebraic Geometry, II

3:00 PM – 5:20 PM Room 339, Strong Hall

Organizers: **Christopher Peterson**, Colorado State University
B. P. Purnaprajna, University of Kansas

- 3:00PM *On the analytic rigidity of K-trivial extremal contractions of smooth threefolds.* Preliminary report.
(68) **Csilla Tamás**, Purdue University (964-14-123)
- 3:30PM *On a conjecture of Iitaka.* Preliminary report.
(69) **Qi Zhang**, University of Missouri (964-14-160)
- 4:00PM *Resolution, Factorization and Toroidalization.* Preliminary report.
(70) **Kenji Matsuki**, Purdue University (964-14-83)
- 4:30PM *Vanishing of differentials along ideals.*
(71) **Steven D Cutkosky***, University of Missouri, and **Reinhold Huebl**, University of Regensburg (964-14-129)
- 5:00PM *Cohomology on toric varieties.* Preliminary report.
(72) **Gregory G Smith**, UC Berkeley (964-14-127)

Special Session on Number Theory, II

3:00 PM – 5:25 PM Room 337, Strong Hall

Organizers: **Ken Ono**, University of Wisconsin, Madison
Cristian Popescu, University of Texas at Austin
Tonghai Yang, Harvard University

- 3:00PM *Equidistribution of Hecke eigenforms on the modular surface.* Preliminary report.
(73) **Wenzhi Luo***, The Ohio State University, and **Peter Sarnak**, Princeton University (964-11-30)
- 3:30PM *Unipotent cuspidal representations of G_2 .* Preliminary report.
(74) **Wee Teck Gan***, **Nadya Gurevich**, Princeton University, and **Dihua Jiang**, University of Minnesota (964-11-221)

- 4:00PM *Local models for some Shimura varieties with bad reduction.*
(75) **Thomas J. Haines***, Institute for Advanced Study/University of Toronto, and **Bao Chau Ngo**, CNRS/Universite Paris-Nord (964-11-180)
- 4:30PM *Periodicity Properties for Fourier Coefficients of Half Integral Weight Modular Forms.*
(76) **Alexandru Tupan**, Johns Hopkins University (964-11-112)
- 5:00PM *Local duality for unitary groups $U(1)$ and $U(2)$.*
(77) **Manouchehr Misaghian**, JCSU (964-11-26)

Special Session on Progress in Numerical Linear Algebra, II

3:00 PM – 5:50 PM Room 454, Snow Hall

Organizer: **Ralph Byers**, University of Kansas

- 3:00PM *A Perplectic Family of Eigenproblems.* Preliminary report.
(78) **Niloufer Mackey***, Western Michigan University, **D. Steven Mackey**, Kalamazoo College, and **Danny Dunlavy**, Western Michigan University (964-15-55)
- 3:30PM *An Efficient Numerical Algorithm for Large and Sparse Algebraic Riccati Equations.* Preliminary report.
(79) **Peter Benner***, University of Bremen, and **Thilo Penzl**, University of Calgary (last affiliation) (964-65-48)
- 4:15PM Break
- 4:30PM *On solving certain quadratic eigenproblems.*
(80) **Heike Fassbender**, TU München, Germany (964-65-41)
- 5:00PM *Structured URV Decompositions and Structured Eigenvalue Problems.* Preliminary report.
(81) **Hongguo Xu**, The University of Kansas (964-65-58)
- 5:30PM *Numerical Solution of Nonsymmetric Algebraic Riccati Equations.*
(82) **Chun-Hua Guo**, University of Regina (964-65-35)

Special Session on PDEs and Geometry, II

3:00 PM – 6:10 PM Room 321, Snow Hall

Organizers: **Marianne Korten**, Kansas State University
Lev Kapitanski, Kansas State University

- 3:00PM *A singular minimizer in two dimensional elasticity.*
▶ (83) **Xiaodong Yan**, Courant Institute of Mathematical Sciences (964-35-54)
- 3:40PM *Local energy minimality of capillary surfaces in the presence of symmetry.* Preliminary report.
(84) **Thomas I Vogel**, Texas A&M University (964-51-10)
- 4:20PM *Differential properties of X-ray functions of convex bodies.* Preliminary report.
(85) **Alexander Koldobsky**, University of Missouri-Columbia (964-52-22)
- 5:00PM *Timelike surfaces of constant mean curvature and their corresponding PDEs.* Preliminary report.
(86) **Josef Dorfmeister**, Technische Universität München, **Jun-ichi Inoguchi**, Fukuoka University, and **Magdalena Toda***, Ball State University (964-53-186)
- 5:40PM *Integrable Geometric Evolution Equations for Curves.* Preliminary report.
(87) **Thomas A. Ivey**, College of Charleston (964-53-69)

Special Session on Polytopes, II

3:00 PM – 5:50 PM Room 335, Strong Hall

Organizers: **Margaret Bayer**, University of Kansas
Carl Lee, University of Kentucky

- 3:00PM *Orthogonal Matroids.*
(88) **Andrew Vince** and **Neil L White***, University of Florida (964-05-85)
- 3:30PM *Recovering Lexicographic Triangulations from their z-vectors.* Preliminary report.
(89) **Wendy A Weber***, Central College, and **Carl W Lee**, University of Kentucky (964-52-201)
- 4:00PM *Permutahedra Relative to a Regular Polytope.*
▶ (90) Preliminary report.
Vincent J Matsko, Quincy University (964-52-153)
- 4:30PM *Discrete Morse functions from lexicographic orders.*
(91) Preliminary report.
Eric K Babson and **Patricia L Hersh***, University of Washington (964-05-198)
- 5:00PM *Alexander duality for projections of polytopes.*
(92) **Xun Dong**, University of Minnesota (964-52-14)
- 5:30PM *Revisiting bicyclic 4-polytopes.*
(93) **Ted Bisztriczky**, University of Calgary (964-52-23)

Special Session on Optimal Control, Calculus of Variations, and Nonsmooth Analysis, II

3:00 PM – 6:30 PM Room 554, Snow Hall

Organizers: **Michael Malisoff**, Texas A&M University, Corpus Christi
Peter R. Wolenski, Louisiana State University

- 3:00PM *Convergence Questions for Augmented Lagrangian Methods in an Optimal Control Setting.*
(94) **Joe Dunn**, North Carolina State University (964-49-214)
- 4:00PM *Direct Transcription Solution of Inequality Constrained Optimal Control Problems.*
(95) **Stephen L Campbell***, **Neil Biehn**, North Carolina State University, and **John T Betts**, Boeing Corporation (964-65-138)
- 4:30PM *A Lyapunov Characterization of a Notion of Detectability for Nonlinear Systems.*
(96) **Brian P Ingalls**, Rutgers University (964-93-156)
- 5:00PM *Nonlinear Observer Design in the Siegel Domain.*
(97) **Arthur Krener**, University of California, Davis, and **Mingqing Xiao***, Southern Illinois University, Carbondale (964-49-140)
- 5:30PM *Faithful representations for convex Hamilton-Jacobi equations.*
(98) **Franco Rampazzo**, Universita' di Padova (Italy) (964-49-175)
- 6:00PM Discussion

Special Session on Harmonic Analysis and Applications, II

3:00 PM – 5:25 PM Room 306, Snow Hall

Organizer: **Rodolfo Torres**, University of Kansas

- 3:00PM *The Marcinkiewicz multiplier condition for bilinear operators.*
(99) **Loukas Grafakos** and **Nigel J Kalton***, University of Missouri (964-46-28)

- 3:30PM *Segment multiplier and truncated Hilbert transform on rearrangement-invariant spaces.* Preliminary report.
(100) **Ron Kerman**, Brock University, and **Jan Lang***, University of Missouri (964-42-12)
- 4:00PM *Uniform bounds for the bilinear Hilbert transforms.*
(101) **Loukas Grafakos** and **Li Xiaoqun***, University of Missouri-Columbia (964-42-62)
- 4:30PM *Schrodinger Maps.* Preliminary report.
(102) **Andrea Nahmod***, **Atanas Stefanov**, University of Massachusetts at Amherst, and **Karen Uhlenbeck**, University of Texas at Austin (964-35-182)
- 5:00PM *L^p estimates for operators appearing in eigenfunction expansions of Schroedinger operators.* Preliminary report.
(103) **Camil Muscalu**, **Terence Tao** and **Christoph Thiele***, UCLA (964-42-148)

Special Session on Quantization and Operator Algebras, II

3:00 PM – 5:20 PM Room 120, Snow Hall

Organizer: **Albert Sheu**, University of Kansas

- 3:00PM *Approximation properties of non-commutative $L_p(VN(G))$ spaces.*
(104) **Marius Junge** and **Zhong-Jin Ruan***, University of Illinois (964-46-147)
- 3:30PM *A relativistic quantum line.*
(105) **Nik Weaver**, Washington University/MSRI (964-46-84)
- 4:00PM *Into isometries of C^* -algebras.*
(106) **Cho-Ho Chu**, Goldsmiths' College, University of London, and **Ngai-Ching Wong***, National Sun Yat-sen University (964-46-08)
- 4:30PM *Boundary Value Problems in Noncommutative Geometry.* Preliminary report.
(107) **Slawomir Klimek**, IUPUI (964-47-170)
- 5:00PM *Fredholm modules over certain group C^* -algebras.* Preliminary report.
(108) **Tom Hadfield**, University of California at Berkeley (964-46-231)

Special Session on Complex Variables, II

3:00 PM – 5:50 PM Room 302, Snow Hall

Organizer: **Pietro Poggi-Corradini**, Kansas State University

- 3:00PM *Multiplicator Problem and Characteristics of Growth of Entire Functions.*
(109) **Vladimir Azarin**, Bar-Ilan University, Israel (964-30-07)
- 3:30PM *Sets of asymptotic values for entire meromorphic functions of finite order.* Preliminary report.
(110) **Alicia Canton***, University of Washington, **David Drasin**, Purdue University, and **Ana Granados**, University of Washington (964-30-74)
- 4:00PM *Inner functions and Rajchman measures.*
(111) **Alexei G Poltoratski**, Texas A&M (964-30-81)
- 4:30PM *Index theorems for the shift and a note on harmonic polynomial approximation.*
(112) **John R Akeroyd**, University of Arkansas (964-30-21)
- 5:00PM *On the failure of a generalized Denjoy-Wolff Theorem.* Preliminary report.
(113) **Pietro Poggi-Corradini**, Kansas State University (964-30-161)

- 5:30PM *Minimal Area Problems and Local Variations.*
 ▶ (114) Preliminary report.
Roger W Barnard*, Kent Pearce and Alexander Yu. Solynin, Texas Tech University (964-30-80)

Special Session on Deformation Theory, II

3:00 PM – 5:45 PM Room 452, Snow Hall

Organizers: **Yan Soibelman**, Kansas State University
David Yetter, Kansas State University

- 3:00PM *A_∞ structures on the homogeneous coordinate ring of an elliptic curve.* Preliminary report.
 (115) **Alexander Polishchuk**, Boston University (964-14-117)
 4:00PM *String Topology Revisited.* Preliminary report.
 (116) **Alexander A. Voronov**, Michigan State University (964-55-228)
 5:00PM *Deformations of vertex algebras and quantum cohomology of projective spaces.*
 (117) **Feodor Malikov**, USC (964-14-223)

Session for Contributed Papers

3:00 PM – 3:25 PM Room 558, Snow Hall

- 3:00PM *A Comparison Theorem for 4th Order Boundary Value Problems.* Preliminary report.
 (118) **Kathleen M Goeden-Fick**, Auburn University (964-34-92)
 3:15PM *Analytic solution of second order diffrential equation and riccati's equation.*
 (119) **Ali a Salim**, Amman-Jordan (964-34-97)

Special Session on C^* -Algebras and Crossed Products, I

4:00 PM – 5:20 PM Room 301, Snow Hall

Organizers: **Steve Kaliszewski**, Arizona State University
May Nilsen, Texas A&M University

- 4:00PM *Approximation properties of crossed products.*
 (120) **May M Nilsen*** and **Roger Smith**, Texas A&M (964-47-190)
 4:30PM *Numerical Ranges of Some Special Classes of Operators.*
 (121) **Valentin Matache**, University of Nebraska (964-47-213)
 5:00PM *On The Generalized Numerical Range and The Representation Spectrum.*
 (122) **Norberto Salinas**, University of Kansas (964-47-82)

Department of Mathematics Reception

6:30 PM – 8:30 PM 1266 Oread Ave, Alumni Center

Saturday, March 31

Meeting Registration

8:00 AM – NOON Third Floor Lobby, Snow Hall

AMS Exhibit and Book Sale

8:00 AM – NOON Room 408, Snow Hall

Special Session on Commutative Algebra, III

8:30 AM – 11:20 AM Room 350, Strong Hall

Organizers: **Craig Huneke**, University of Kansas
Daniel Katz, University of Kansas

- 8:30AM *Henselian-like prime ideals.*
 (123) **Stephen McAdam**, University of Texas at Austin, Austin, TX (964-13-51)
 9:00AM *Some Results in Complete Intersections.*
 (124) **Satya Mandal**, University of Kansas (964-13-122)
 9:30AM *Local cohomology of syzygies of the residue field.* Preliminary report.
 (125) **Sankar P. Dutta**, University of Illinois at Urbana-Champaign (964-13-76)
 10:00AM *Extensions of Plus Closure.*
 (126) **Raymond C Heitmann**, University of Texas at Austin (964-13-202)
 10:30AM Discussion
 11:00AM *Modules of finite length and finite projective dimension.*
 (127) **Paul C. Roberts**, University of Utah (964-13-91)

Special Session on Set Theoretic Topology and Boolean Algebra, III

8:30 AM – 11:20 AM Room 552, Snow Hall

Organizer: **William Fleissner**, University of Kansas

- 8:30AM *On extent and star-Lindelöf number.*
 (128) **Mikhail V Matveev**, Irvine, California (964-54-109)
 9:00AM *An observation on the extent of normal star-Lindelöf spaces.* Preliminary report.
 (129) **Ronnie Levy**, George Mason University (964-54-43)
 9:30AM *Almost disjoint families and maximal abelian subgroups.* Preliminary report.
 (130) **Juris Steprāns**, York University (964-03-61)
 10:00AM *Open colorings, the continuum, and the second uncountable cardinal.*
 (131) **Justin Tatch Moore**, University of East Anglia (964-03-32)
 10:30AM *Is there an antidowker subset of $(\omega_1)^2$?*
 (132) **Oleg I Pavlov**, Wesleyan College (964-54-167)
 11:00AM *Applications of Elementary Submodels on the space $C_p(X)$.* Preliminary report.
 (133) **Adrienne M Stanley**, University of Northern Iowa (964-54-220)

Special Session on Algebraic Geometry, III

8:30 AM – 11:20 AM Room 339, Strong Hall

Organizers: **Christopher Peterson**, Colorado State University
B. P. Purnaprajna, University of Kansas

- 8:30AM *Detecting flat normal cones using Segre classes.*
 (134) **Susan J Colley***, Oberlin College, and **Gary Kennedy**, Ohio State University at Mansfield (964-14-96)
 9:00AM *Monomial Ideals and the Gorenstein Liaison Class of a Complete Intersection.*
 (135) **Juan C. Migliore***, University of Notre Dame, and **Uwe Nagel**, University of Paderborn (964-14-90)
 9:30AM *Multiplicity at a singular point on a Schubert variety.* Preliminary report.
 (136) **Vankatramani Lakshmbai*** and **Victor Kreiman**, Northeastern University (964-14-171)

- 10:00AM *Exterior algebra methods for the Minimal Resolution Conjecture.*
(137) **David Eisenbud**, University of California, Berkeley, **Sorin Popescu***, SUNY at Stony Brook, **Frank-Olaf Schreyer**, University of Bayreuth, and **Charles Walter**, University of Nice (964-14-157)
- 10:30AM *Affine Surfaces Fibered By Affine Lines Over The Projective Line.* Preliminary report.
(138) **David L Wright**, Washington University (964-14-113)
- 11:00AM *Milnor K-theory of smooth algebraic schemes.*
(139) **Reza Akhtar**, Miami University (964-14-229)

Special Session on Optimal Control, Calculus of Variations, and Nonsmooth Analysis, III

8:30 AM – 11:20 AM Room 554, Snow Hall

- Organizers: **Michael Malisoff**, Texas A&M University, Corpus Christi
Peter R. Wolenski, Louisiana State University
- 8:30AM *Discontinuous solutions and comparison results for a class of Hamilton-Jacobi equations.*
(140) **Antonio Siconolfi**, Univ. di Roma "La Sapienza" (964-49-195)
- 9:00AM *Numerical Analysis in Optimal Control.*
(141) **William W Hager**, University of Florida (964-49-250)
- 10:00AM Discussion
- 10:30AM *Viscosity solutions of Hamilton-Jacobi-Bellman equations for the optimal control of Navier-Stokes equations.*
(142) **Andzej Swiech***, Georgia Institute of Technology, **F. Gozzi**, Universita di Pisa, and **S. S. Sritharan**, Space & Naval Warfare Systems Center (964-49-165)
- 11:00AM *Optimal Stochastic Control Applied to Mathematical Finance.*
(143) **Agnes Tourin***, University of Toronto, and **Thaleia Zariphopoulou**, University of Texas at Austin (964-93-126)

Special Session on Quantization and Operator Algebras, III

8:30 AM – 11:20 AM Room 120, Snow Hall

- Organizer: **Albert Sheu**, University of Kansas
- 8:30AM *Constructing non commutative instantons from coisotropic subgroups.*
(144) **Nicola Ciccoli***, Dipartimento di Matematica, Universita' di Perugia, **Francesco Bonechi** and **Marco Tarlini**, INFN, Firenze (964-58-181)
- 9:00AM *Wavelets, spin vectors, and representation theory.*
▶ (145) **Palle E.T. Jorgensen**, The University of Iowa (964-46-06)
- 9:30AM *Some Geometric Aspects of Free Semigroup Algebras.*
(146) **Kenneth R Davidson**, University of Waterloo, **Elias Katsoulis**, East Carolina University, and **David R Pitts***, University of Nebraska (964-47-183)
- 10:00AM *Automatic Closure of Invariant Linear Manifolds.*
(147) **Allan P Donsig***, University of Nebraska, Lincoln, **Alan Hopenwasser**, University of Alabama, and **David R Pitts**, University of Nebraska, Lincoln (964-47-236)
- 10:30AM *Structure and Isomorphism Classification of Compact Quantum Groups $A_u(Q)$ and $B_u(Q)$.*
(148) **Shuzhou Wang**, University of Georgia (964-46-42)
- 11:00AM *Extreme Points of Triangular Toeplitz Matrices.*
▶ (149) **Raul E Curto**, The University of Iowa (964-47-166)

Special Session on Complex Variables, III

8:30 AM – 11:20 AM Room 302, Snow Hall

- Organizer: **Pietro Poggi-Corradini**, Kansas State University
- 8:30AM *Hyperbolic sets for holomorphic endomorphisms of \mathbb{P}^k .*
(150) **Malgorzata S. Stawiska**, Northwestern University (964-32-211)
- 9:00AM *Gehring-Hayman, Slice and Gromov.*
(151) **Zoltan M Balogh***, Pittsburgh University, and **Stephen M Buckley**, National University of Ireland, Maynooth (964-30-179)
- 9:30AM *Wolff Potential and self-improvement property of uniformly p -fat sets to metric measure spaces.*
(152) **Nageswari Shanmugalingam**, University of Texas at Austin (964-31-87)
- 10:00AM *Quasiconformal groups with small dilatation.*
(153) Preliminary report.
Petra Bonfert-Taylor*, Wesleyan University, and **Gaven J Martin**, University of Auckland (964-30-56)
- 10:30AM *Quasihyperbolic geometry, Poincaré inequalities and Hölder continuity of quasiconformal maps.*
(154) **Pekka Koskela**, **Jani Onninen**, University of Jyväskylä, and **Jeremy T Tyson***, State University of New York at Stony Brook (964-30-71)
- 11:00AM *Riemann Surfaces and Circle Packings.*
(155) **G. Brock Williams**, Texas Tech University (964-30-194)

Special Session on Number Theory, III

9:00 AM – 11:25 AM Room 337, Strong Hall

- Organizers: **Ken Ono**, University of Wisconsin, Madison
Cristian Popescu, University of Texas at Austin
Tonghai Yang, Harvard University
- 9:00AM *Independence of Function Field Gamma Values.*
(156) Preliminary report.
W Dale Brownawell*, Penn State University, and **Matthew A Papanikolas**, Brown University (964-11-152)
- 9:30AM *t -Modules with Complex Multiplication.* Preliminary report.
(157) **Dale Brownawell**, Penn State University, and **Matthew Papanikolas***, Brown University (964-11-103)
- 10:00AM *Modular Q -curves and a generalized Fermat equation.*
(158) **Jordan S Ellenberg**, Princeton University (964-11-144)
- 10:30AM *On relations between induced representations for $GL_2(\mathbb{Z}/p^2\mathbb{Z})$.* Preliminary report.
(159) **Imin Chen***, Simon Fraser University, **Bart deSmit**, Leiden University, and **Martin Grabitz**, Humboldt University (964-11-89)
- 11:00AM *On the rank of Jacobian fibrations.* Preliminary report.
(160) **Siman Wong**, University of Massachusetts at Amherst (964-11-63)

Special Session on Progress in Numerical Linear Algebra, III

9:00 AM – 11:20 AM Room 454, Snow Hall

- Organizer: **Ralph Byers**, University of Kansas

- 9:00AM *The Definite Generalized Eigenvalue Problem: A Reworked Perturbation Theory.*
(161) **Roy Mathias*** and **Chi-Kwong Li**, William and Mary (964-65-57)
- 9:30AM *Geometry of linear subspaces.*
(162) **Chandler Davis**, University of Toronto (964-15-60)
- 10:00AM Break
- 10:30AM *Some Observations on Subset Selection.* Preliminary report.
(163) **Ilse C.F. Ipsen**, North Carolina State University (964-15-18)
- 11:00AM *An Evaluation of Gram-Schmidt-like Downdating Techniques.*
(164) **Jesse L Barlow***, The Pennsylvania State University, **Alicja Smoktunowicz**, Warsaw University of Technology, and **Hasan Erbay**, Kirikkale University (964-65-66)

Special Session on PDEs and Geometry, III

9:00 AM – 10:50 AM Room 321, Snow Hall

Organizers: **Marianne Korten**, Kansas State University
Lev Kapitanski, Kansas State University

- 9:00AM *Rearrangements of Functions in Carnot Groups.*
(165) Preliminary report.
Juan J Manfredi*, University of Pittsburgh, and **Virginia N Vera de Serio**, Universidad Nacional de Cuyo (964-35-78)
- 9:40AM *Wave maps with target in the Heisenberg group.*
(166) Preliminary report.
Luca Capogna, University of Arkansas (964-35-17)
- 10:20AM *Harnack inequalities and Gaussian estimates for solutions of second order parabolic equations.*
(167) Preliminary report.
Mikhail V Safonov, University of Minnesota (964-35-249)

Special Session on Polytopes, III

9:00 AM – 11:20 AM Room 335, Strong Hall

Organizers: **Margaret Bayer**, University of Kansas
Carl Lee, University of Kentucky

- 9:00AM *First-order and Convex Rigidity of Polyhedra in Euclidean, Spherical and Hyperbolic Spaces I.*
▶ (168) Preliminary report.
Franco V. Saliola, Cornell University, and **Walter J. Whiteley***, York University (964-52-219)
- 9:30AM *First-Order and Convex Rigidity of Polyhedra in Euclidean, Spherical and Hyperbolic Spaces II.*
▶ (169) Preliminary report.
Franco V Saliola*, Cornell University, and **Walter J Whiteley**, York University (964-52-212)
- 10:00AM *Perfect Delaunay Polytopes for Lattices.* Preliminary report.
▶ (170) **Robert M Erdahl**, Queen's University (964-52-164)
- 10:30AM *Edge maximal unit distance graphs in the plane.*
▶ (171) Preliminary report.
Brigitte Servatius, Worcester Polytechnic Institute (964-05-235)
- 11:00AM *Commensurate Delaunay Tilings of \mathbb{Z}^n and Voronoi's Theory of L-types.* Preliminary report.
▶ (172) **Robert M Erdahl**, Queen's University, and **Konstantin Rybnikov***, Cornell University (964-52-240)

Special Session on Harmonic Analysis and Applications, III

9:00 AM – 11:25 AM Room 306, Snow Hall

Organizer: **Rodolfo Torres**, University of Kansas

- 9:00AM *The Boundedness of the Hilbert Transform along Vector Curves.* Preliminary report.
(173) **Sanja Hukovic*** and **Andrea Nahmod**, University of Massachusetts (964-42-169)
- 9:30AM *Distribution of lattice points in convex domains.*
(174) **Alex Iosevich**, University of Missouri-Columbia (964-42-217)
- 10:00AM *Integral Transforms Controlled by Maximal Functions.*
(175) **Mircea Martin***, Baker University, and **Pawel Szeptycki**, University of Kansas (964-43-172)
- 10:30AM *Weak type estimates for maximal functions.*
▶ (176) **Alexander Stokolos**, Louisiana State University (964-42-139)
- 11:00AM *L^p improving estimates for averages along curves.*
(177) **Terence C Tao***, UCLA, and **Jim Wright**, U. Edinburgh (964-42-184)

Special Session on Deformation Theory, III

9:30 AM – 11:15 AM Room 452, Snow Hall

Organizers: **Yan Soibelman**, Kansas State University

David Yetter, Kansas State University

- 9:30AM *The nonabelian bar resolution.* Preliminary report.
(178) **Lucian M Ionescu**, University of Northern Colorado (964-18-151)
- 10:30AM *Presentation of Schur algebras as quotients of the quantized enveloping algebra of $gl(n)$.*
(179) **Stephen Doty** and **Anthony Giaquinto***, Loyola University Chicago (964-16-208)

Special Session on C^* -Algebras and Crossed Products, II

10:00 AM – 11:20 AM Room 301, Snow Hall

Organizers: **Steve Kaliszewski**, Arizona State University

May Nilsen, Texas A&M University

- 10:00AM *Completely positive maps in dilation and wavelet decompositions.*
(180) **David W Kribs**, University of Iowa (964-47-31)
- 10:30AM *The Fourier algebra for locally compact groupoids.*
(181) Preliminary report.
Karla J. Oty, Southeastern Oklahoma State University, and **Alan L. T. Paterson***, University of Mississippi (964-46-124)
- 11:00AM *Maximal coactions.* Preliminary report.
(182) **Siegfried Echterhoff**, University of Muenster, **S Kaliszewski** and **John Quigg***, Arizona State University (964-46-178)

Invited Address

11:40 AM – 12:30 PM Room 330, Strong Hall

- (183) *Stringy geometry and topology of orbifolds.*
Yongbin Ruan, University of Wisconsin-Madison

Invited Address

2:00 PM – 2:50 PM Room 330, Strong Hall

- (184) *Monomialization of morphisms.*
Steven D. Cutkosky, University of Missouri
 (964-14-04)

Special Session on Commutative Algebra, IV

3:00 PM – 5:20 PM Room 350, Strong Hall

Organizers: **Craig Huneke**, University of Kansas
Daniel Katz, University of Kansas

- 3:00PM *Codimension, multiplicity and integral extensions.*
 (185) Preliminary report.
Aron Simis, Universidade Federal de Pernambuco,
Bernd Ulrich*, Michigan State University, and
Wolmer Vasconcelos, Rutgers University
 (964-13-143)
- 3:30PM *Splitting in Galois extensions of regular rings.*
 (186) Preliminary report.
Nandini Ranganathan, University of Texas at
 Austin (964-13-187)
- 4:00PM *Core of ideals and integrality.*
 (187) **Alberto Corso**, University of Kentucky (964-13-237)
- 4:30PM *Symmetry in vanishing Ext over certain Gorenstein
 rings.* Preliminary report.
 (188) **Craig Huneke**, University of Kansas, and **David A
 Jorgensen***, University of Texas at Arlington
 (964-13-189)
- 5:00PM *On the associated primes of local cohomology
 modules.*
 (189) **Tom Marley**, University of Nebraska-Lincoln
 (964-13-93)

Special Session on Set Theoretic Topology and Boolean Algebra, IV

3:00 PM – 4:50 PM Room 552, Snow Hall

Organizer: **William Fleissner**, University of Kansas

- 3:00PM *Some problems concerning modified compactness
 conditions.* Preliminary report.
 ► (190) **Robert M. Stephenson, Jr.**, University of South
 Carolina (964-54-79)
- 3:30PM *A solution to Katetov's problem.*
 ► (191) **Paul B. Larson***, University of Toronto, and **Stevó
 Todorčević**, University of Toronto/University of
 Paris VII (964-54-72)
- 4:00PM *A Lindelof space of size \aleph_2 with no Lindelof
 subspace of size \aleph_1 .*
 (192) **Piotr Koszmider**, University of Sao Paulo, and
Franklin D Tall*, University of Toronto (964-54-70)
- 4:30PM *Minimal regular ring extensions of $C(X)$.*
 (193) **Melvin Henriksen**, Harvey Mudd College, **Robert M
 Raphael**, Concordia University, and **R. Grant
 Woods***, University of Manitoba (964-54-29)

Special Session on Algebraic Geometry, IV

3:00 PM – 5:20 PM Room 339, Strong Hall

Organizers: **Christopher Peterson**, Colorado State
 University
B. P. Purnaprajna, University of Kansas

- 3:00PM *Brauer groups and quotient stacks.*
 (194) **Dan Edidin***, University of Missouri-Columbia,
Brendan Hassett, Chinese University of Hong
 Kong/Rice University, **Andrew Kresch**, University of
 Pennsylvania, and **Angelo Vistoli**, University of
 Utah, University of Bologna (964-14-95)

- 3:30PM *Optimal Bound for the Number of (-1)-Curves on
 Extremal Rational Surfaces.*
 (195) **Mustapha Lahyane**, International Centre for
 Theoretical Physics (Trieste, Italy) (964-14-133)
- 4:00PM *Vertex algebras and the cohomology ring structure
 of Hilbert schemes of points on surfaces.*
 ► (196) **Wei-Ping Li**, Hong Kong University of Science and
 Technology, **Zhenbo Qin***, University of Missouri at
 Columbia, and **Weiqliang Wang**, North Carolina
 State University at Raleigh (964-14-45)
- 4:30PM *Better relations among Gromov-Witten invariants.*
 (197) **Aaron Bertram**, University of Utah, and **Holger P
 Kley***, Colorado State University (964-14-154)
- 5:00PM *On Normal Monomial Ideals.* Preliminary report.
 (198) **Les Reid**, Southwest Missouri State University,
Leslie Roberts, Queen's University, and **Marie A
 Vitulli***, University of Oregon (964-13-206)

Special Session on Number Theory, IV

3:00 PM – 5:25 PM Room 337, Strong Hall

Organizers: **Ken Ono**, University of Wisconsin,
 Madison
Cristian Popescu, University of Texas
 at Austin
Tonghai Yang, Harvard University

- 3:00PM *The Birch and Swinnerton-Dyer formula for
 modular abelian varieties.*
 (199) **Amod S. Agashe**, University of Texas, Austin
 (964-11-141)
- 3:30PM *Euler Products on the Critical Line.* Preliminary
 report.
 (200) **Keith Conrad**, UC San Diego (964-11-101)
- 4:00PM *The Quadratic Nature of the Markoff Spectrum in
 $(3+, \sqrt{13}]$.* Preliminary report.
 (201) **Thomas A Schmidt**, Oregon State University, and
Mark Sheingorn*, CUNY-Baruch (964-11-05)
- 4:30PM *On the converse theorem in the theory of Borchers
 products.*
 (202) **Jan H. Bruinier**, UW-Madison (964-11-247)
- 5:00PM *Modular forms and partitions.*
 ► (203) **Scott D Ahlgren**, Colgate University (964-11-248)

Special Session on Progress in Numerical Linear Algebra, IV

3:00 PM – 5:20 PM Room 454, Snow Hall

Organizer: **Ralph Byers**, University of Kansas

- 3:00PM *Eigenvalue Verification: Tracing the Spectral
 Projection.* Preliminary report.
 (204) **Ralph Byers***, University of Kansas, and **C. He**,
 SPRINT Corporation (964-65-59)
- 3:30PM *Algebraic Theory of Schwarz Methods for Domain
 Decomposition.*
 (205) **Michele Benzi**, Emory University, **Andreas
 Frommer**, Wuppertal, **Reinhard Nabben**, Bielefeld,
 and **Daniel B Szyld***, Temple University (964-65-50)
- 4:15PM Break
- 4:30PM *Numerical algorithms for Three-dimensional Image
 Reconstruction of Macromolecular Assemblies.*
 ► (206) **Chao Yang**, Lawrence Berkeley National Laboratory
 (964-65-52)
- 5:00PM *A Block Arnoldi Method for Reduced-Order
 Sylvester-Observer Equation.* Preliminary report.
 (207) **Biswa N Datta*** and **Joao B Carvalho**, Northern
 Illinois University (964-65-53)

Special Session on PDEs and Geometry, IV

3:00 PM – 5:30 PM Room 321, Snow Hall

Organizers: **Marianne Korten**, Kansas State University
Lev Kapitanski, Kansas State University

- 3:00PM (208) *Finite time blow up for a Navier-Stokes like equation.*
Stephen J Montgomery-Smith, University of Missouri-Columbia (964-35-11)
- 3:40PM (209) *Vortex filament dynamics for Gross-Pitaevsky type equations.*
Robert L Jerrard, University of Illinois at Urbana-Champaign (964-35-13)
- 4:20PM (210) *Thin fluid film PDEs — new dissipated energies, and film “rupture”.* Preliminary report.
Richard S Laugesen, University of Illinois, Urbana-Champaign (964-35-104)
- 5:00PM (211) *Robin Boundary condition for the Laplacian on Lipschitz domains in \mathbb{R}^n .* Preliminary report.
Loredana Lanzani*, University of Arkansas, and **Zhongwei Shen**, University of Kentucky (964-35-16)

Special Session on C^* -Algebras and Crossed Products, III

3:00 PM – 5:20 PM Room 301, Snow Hall

Organizers: **Steve Kaliszewski**, Arizona State University
May Nilsen, Texas A&M University

- 3:00PM (212) *John von Neumann and two letters on operator algebras.* Preliminary report.
Randall Crist* and **Eileen Dugan**, Creighton University (964-01-230)
- 3:30PM (213) *Finite sums of commutators.*
Ciprian S Pop, Texas A&M University (964-46-191)
- 4:00PM (214) *The Effect of Absolute Continuity on Feynman’s Operational Calculus.* Preliminary report.
Lance W Nielsen, Creighton University (964-47-226)
- 4:30PM (215) *Reduced pure eigenstates for a linear combination of generators of the free group.* Preliminary report.
William L Paschke, University of Kansas (964-46-94)
- 5:00PM (216) *Actions of \mathbb{Z}^k associated to higher rank graphs.* Preliminary report.
Alex Kumjian, University of Nevada (964-46-233)

Special Session on Polytopes, IV

3:00 PM – 5:20 PM Room 335, Strong Hall

Organizers: **Margaret Bayer**, University of Kansas
Carl Lee, University of Kentucky

- 3:00PM (217) *A positive semidefinite version of a simple polytope does not exist in some dimensions.*
Alexander Barvinok, University of Michigan (964-52-118)
- 3:30PM (218) *Linear Programming with no Right Hand Side.*
Walter Morris, George Mason University (964-90-196)
- 4:00PM (219) *Some results on the dominating set polytope.* Preliminary report.
Teresa M Contenza, University of Montevallo (964-52-149)

- 4:30PM (220) *Lattice points of Flow polytopes.* Preliminary report.
Jesus A De Loera*, Univ. of California, Davis, and **Bernd Sturmfels**, Univ. of California, Berkeley (964-52-121)
- 5:00PM (221) *Toward Characterizing the Mutation Count Matrices.*
Jim Lawrence, George Mason University (964-52-242)

Special Session on Optimal Control, Calculus of Variations, and Nonsmooth Analysis, IV

3:00 PM – 5:45 PM Room 554, Snow Hall

Organizers: **Michael Malisoff**, Texas A&M University, Corpus Christi
Peter R. Wolenski, Louisiana State University

- 3:30PM (222) *Minimal Curves of Constant Torsion.*
Thomas A. Ivey, College of Charleston (964-49-68)
- 4:00PM (223) *Discrete Optimal Control and the Dynamics of Rigid Bodies.*
Anthony M Bloch*, University of Michigan, **Peter E Crouch**, Arizona State University, **Jerrold E Marsden**, California Institute of Technology, and **Tudor S Ratiu**, Ecole Polytechnique Federale de Lausanne (964-49-150)
- 4:30PM (224) *High-order conditions for optimality and high-order approximating cones using a geometric language.*
Matthias Kowski, Arizona State University (964-93-215)
- 5:00PM (225) *Path-Integral generalized differentials and the maximum principle of optimal control theory.* Preliminary report.
Héctor J Sussmann, Rutgers, the State University of New Jersey (964-49-207)

Special Session on Harmonic Analysis and Applications, IV

3:00 PM – 5:25 PM Room 306, Snow Hall

Organizer: **Rodolfo Torres**, University of Kansas

- 3:00PM (226) *Estimates for a scattering map associated to a two-dimensional first order system.*
Russell M Brown, University of Kentucky (964-35-177)
- 3:30PM (227) *The solution of the square root problem of Kato.*
Steve C Hofmann, Univ. of Missouri (Columbia) (964-42-209)
- 4:00PM (228) *Strichartz-type estimates for the wave operator on the torus.*
Akos Magyar, University of Wisconsin (964-42-245)
- 4:30PM (229) *Recent progress for the biharmonic equation on Lipschitz domains.*
Atanas G Stefanov*, University of Massachusetts, and **Greg Verchota**, Syracuse University (964-35-137)
- 5:00PM (230) *Relative form boundedness and compactness criteria for the Schrödinger operator.*
Vladimir G Maz’ya, Linköping University, and **Igor E Verbitsky***, University of Missouri-Columbia (964-42-158)

Special Session on Complex Variables, IV

3:00 PM – 4:20 PM Room 302, Snow Hall

Organizer: **Pietro Poggi-Corradini**, Kansas State University

- 3:00PM *Classification Theorems for General Orthogonal Polynomials.*
(231) **Sergei V Khrushchev**, St.Petersburg and Purdue University (964-30-99)
- 3:30PM *Small polynomials with integer coefficients.*
(232) **Igor E Pritsker**, Oklahoma State University (964-30-39)
- 4:00PM *Holomorphic Extension of H^p CR Functions on Quadrics.*
(233) **Albert Boggess**, Texas A&M University (964-32-77)

Special Session on Deformation Theory, IV

3:00 PM – 5:45 PM **Room 452, Snow Hall**

Organizers: **Yan Soibelman**, Kansas State University
David Yetter, Kansas State University

- 3:00PM *Noncommutative spaces and schemes.*
(234) **Alexander L Rosenberg**, Kansas State University (964-14-243)
- 4:00PM *Quadratic algebras generated by pseudo-roots of noncommutative polynomials.* Preliminary report.
(235) **Vladimir Retakh**, Rutgers University (964-16-197)
- 5:00PM *Q-analog of Berezin quantization method.*
▶ (236) **Dmitrii Shklyarov**, FTINT (964-22-224)

Susan J. Friedlander
Associate Secretary
Chicago, Illinois