

# Program of the Sessions

Providence, Rhode Island, October 2-3, 1999

## Saturday, October 2

### Meetings Registration

7:30 AM – 4:00 PM Lounge, Slavin Center

### AMS Exhibit and Book Sale

7:30 AM – 4:00 PM Lounge, Slavin Center

### Special Session on Operator K-Theory and its Applications to Geometry and Topology

8:00 AM – 10:55 AM Room 301, Harkins Hall

Organizers: **Guoliang Yu**, University of Colorado, Boulder  
**Carla E. Farsi**, University of Colorado, Boulder  
**Jeffrey S. Fox**, University of Colorado, Boulder

- 8:00AM (1) *Completely Bounded Growth and Exactness of Discrete Groups*. Preliminary report.  
**Erik Guentner\*** and **Jerome Kaminker**, IUPUI (947-46-147)
- 8:45AM (2) *On invariants of Hirzebruch, Atiyah-Patodi-Singer, and Cheeger-Gromov*. Preliminary report.  
**Stanley S Chang\***, Rice University, and **Shmuel A Weinberger**, University of Chicago (947-19-127)
- 9:30AM (3) *Cyclic cohomology of Hopf algebras and secondary characteristic classes*.  
**Alexander Gorokhovsky**, Ohio State University (947-58-118)
- 10:15AM (4) *Self-adjoint perturbed Dirac operators*. Preliminary report.  
**Jeffrey Fox**, University of Colorado, and **Peter Haskell\***, Virginia Tech (947-58-101)

### Special Session on Difference Equations and Applications

8:00 AM – 10:50 AM Room 108, Albertus Magnus Hall

Organizers: **Gerasimos Ladas**, University of Rhode Island

**Jeffrey T. Hoag**, Providence College

- 8:00AM (5) *On the Global Behavior of Solutions of a Biological Model*. Preliminary report.  
**E. A. Grove**, **G. Ladas**, **N. R. Prokup\***, University of Rhode Island, and **R. Levins**, Harvard School of Public Health (947-39-40)
- 8:30AM (6) *The Pre-image Set and Transient Behavior of Delay Difference Equations, with Application to Ecology and Epidemiology*.  
**Richard Levins**, Harvard School of Public Health (947-39-38)
- 9:00AM (7) *Asymptotically Autonomous Difference Equations*.  
**Diana M Thomas**, New Jersey City University (947-37-26)
- 9:30AM (8) *Applications of coupled logistic maps*.  
**Harold M Hastings\***, **Flavio H Fenton** and **Gregory C Levine**, Hofstra University (947-37-24)
- 10:00AM (9) *On the Difference Equation  $x[n+1]=\max\{1/x[n], A[n]/x[n-1]\}$  with a period 3 parameter*. Preliminary report.  
**Edward A Grove**, University of R.I., **Candace M Kent**, Virg. Common. Univ., **Gerasimos Ladas** and **Michael A Radin\***, University of R.I. (947-39-34)
- 10:30AM (10) *Existence and Global Behavior of a Rational System*. Preliminary report.  
**Edward A Grove**, **Gerasimos Ladas**, **Lynn C McGrath** and **Christopher T Teixeira\***, University of Rhode Island (947-39-33)

### Special Session on Algebraic and Geometric Combinatorics

8:30 AM – 10:50 AM Room 317, Harkins Hall

Organizers: **Vesselin N. Gasharov**, Cornell 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 20, Issue 4 of *Abstracts of papers presented to the American Mathematical Society*, ordered according to the numbers in parentheses following the listings. The middle two digits, e.g., 897-20-1136, refer to the Mathematical Reviews subject classification assigned by the individual author. Groups of papers for each subject are listed chronologically in the *Abstracts*. The last one to four digits, e.g., 897-20-1136, refer to the receipt number of the abstract; abstracts are further sorted by the receipt number within each classification.

## Program of the Sessions – Providence, RI, Saturday, October 2 (cont'd.)

---

- Ira M. Gessel**, Brandeis University
- 8:30AM ▶ (11) *On the Varchenko bilinear form associated to a hyperplane arrangement.*  
**Benjamin S Joseph**, MIT (947-05-165)
- 9:00AM (12) *Kazhdan-Lusztig and  $R$ -polynomials, Young's lattice, and Catalan partitions.* Preliminary report.  
**Francesco Brenti**, Università di Roma "Tor Vergata" (947-05-88)
- 9:30AM (13) *Compressed polytopes.*  
**Takayuki Hibi**, Osaka University (947-52-87)
- 10:00AM (14) *Generalized riffle shuffles and quasisymmetric functions.*  
**Richard P. Stanley**, M.I.T. (947-05-47)
- 10:30AM (15) *The coset poset and the probabilistic zeta function of a finite group.* Preliminary report.  
**Kenneth S. Brown**, Cornell University (947-20-65)

### Special Session on Number Theory

---

- 8:30 AM – 10:50 AM **Room III, Moore Hall**
- Organizers: **Michael I. Rosen**, Brown University  
**Siman Wong**, Brown University
- 8:30AM (16) *Galois pro- $p$  groups unramified at  $p$ ; explicit computations.*  
**Nigel Boston**, University of Illinois at Urbana-Champaign (947-11-71)
- 9:00AM (17) *Universal deformation rings and cyclic blocks.*  
**Ted C Chinburg\***, Univ. of Pennsylvania, and **Frauke M Bleher**, Southern Illinois University (947-11-61)
- 9:30AM (18) *The number of rational points on genus 3 curves over finite fields.* Preliminary report.  
**Kristin E Lauter**, Microsoft Research (947-11-95)
- 10:00AM (19) *How to align Brumer-Stark elements into a Hecke character (preliminary report).* Preliminary report.  
**David R Hayes**, University of Massachusetts at Amherst (947-11-85)
- 10:30AM (20)  *$p$ -adic Gamma functions and pro- $p$  Groups.*  
**Keith Conrad**, Ohio State University (947-11-125)

### Special Session on Representation Theory of Reductive Groups

---

- 9:00 AM – 10:50 AM **Room 327, Harkins Hall**
- Organizers: **Dan M. Barbasch**, Cornell University  
**Birgit Speh**, Cornell University
- 9:00AM (21) *Functions on Nilpotent Orbit Covers.* Preliminary report.  
**Eric N Sommers**, Harvard University (947-22-83)
- 9:30AM (22) *Invariant distributions supported by topologically nilpotent elements.*  
**Clifton Cunningham**, University of Massachusetts at Amherst (947-22-116)
- 10:00AM (23) *Star product quantization of nilpotent orbits.* Preliminary report.  
**Ranee K Brylinski**, Penn State University (947-81-128)
- 10:30AM (24) *Component Groups of Centralizers of Nilpotents in Complex Symmetric Space.* Preliminary report.  
**Donald R King\***, Northeastern University, and **Alfred G Noel**, University of Massachusetts, Boston (947-20-109)

### Special Session on Geometry and Representation Theory of Algebraic Groups

---

- 9:00 AM – 10:50 AM **Room 328, Harkins Hall**
- Organizers: **James E. Humphreys**, University of Massachusetts

- Ivan Mirkovic**, University of Massachusetts
- 9:00AM (25) *Traces of intertwiners for quantum groups and difference equations.*  
**Pavel I Etingof\***, MIT, and **Alexander N Varchenko**, UNC at Chapel Hill (947-17-100)
- 9:30AM (26) *Integral properties of the modular functor.*  
**Alexander Kirillov**, SUNY Stony Brook (947-14-153)
- 10:00AM (27) *Algebraic Construction of the Uhlenbeck Space.* Preliminary report.  
**Vladimir Baranovsky**, University of Chicago (947-14-136)
- 10:30AM (28) *Verma modules for  $\mathfrak{g}_n^1$  and Hall algebras.*  
**Alexander G Kuznetsov**, Independent Moscow University (947-22-151)

### Special Session on The History of Mathematics

---

- 9:00 AM – 10:50 AM **Room I, Moore Hall**
- Organizers: **Daniel Otero**, Xavier University  
**C. Edward Sandifer**, Western Connecticut State University
- 9:00AM ▶ (29) *The Tenure of Charles Loewner at the University of Louisville: 1939-1944.* Preliminary report.  
**Richard M Davitt**, University of Louisville (947-98-30)
- 9:40AM (30) *The Indirect Influence of Andre Weil on Computational Electromagnetics.* Preliminary report.  
**P Robert Kotiuga**, Boston University (947-78-142)
- 10:20AM ▶ (31) *Euler's "Example of the Use of Observation in Pure Mathematics".*  
**Edward Sandifer**, Western Connecticut State University (947-01-107)

### Special Session on Algebraic Dynamics

---

- 9:00 AM – 10:50 AM **Room 109, Albertus Magnus Hall**
- Organizers: **Jonathan Lubin**, Brown University  
**Joseph H. Silverman**, Brown University
- 9:00AM ▶ (32) *Rapidity of approach to the identity of the  $p$ -power iterates of an automorphism of a field  $k[[t]]$  of characteristic  $p$ .* Preliminary report.  
**Jonathan Lubin**, Brown University (947-11-23)
- 9:30AM (33) *Fatou components in non-archimedean dynamics.*  
**Robert L Benedetto**, University of Rochester (947-37-51)
- 10:00AM ▶ (34) *Local and Global Polynomial Dynamics.* Preliminary report.  
**Susan Goldstone**, McMaster University (947-11-68)
- 10:30AM ▶ (35) *On Preperiodic Points of Morphisms over Number Fields and Function Fields.* Preliminary report.  
**Gregory S Call**, Amherst College (947-11-69)

### Special Session on Geometric Properties of Nonlinear Elliptic PDEs

---

- 9:00 AM – 10:50 AM **Room 135, Albertus Magnus Hall**
- Organizers: **Henri Berestycki**, Université Paris VI and École Normale Supérieure  
**Yanyan Li**, Rutgers University
- 9:00AM (36) *Entire solutions of semilinear elliptic equations in  $\mathbb{R}^3$  and a conjecture of De Giorgi.* Preliminary report.  
**Luigi Ambrosio**, Scuola Normale Superiore di Pisa, and **Xavier Cabré\***, Università Politecnica de Catalunya (947-35-41)

- 9:30AM *The Averaged Equation for a Dispersion Managed Optical Fiber and its Ground State.* (37) **Christopher K Jones\*** and **Vadim Zharnitsky**, Brown University (947-35-161)
- 10:00AM *Long-wave unstable thin film equations — the linear and nonlinear stability of steady states .* Preliminary report. (38) **Richard S Laugesen**, University of Illinois at Urbana-Champaign, and **Mary C Pugh\***, University of Pennsylvania (947-35-35)
- 10:30AM *Inverse Boundary Value Problems for Quasilinear Elliptic Equations.* Preliminary report. (39) **Ziqi Sun**, Wichita State University (947-35-141)

**Session for Contributed Papers**

9:15 AM – 10:40 AM Room 305, Harkins Hall

- 9:15AM *Differential Inequalities and Local Valency.* Preliminary report. (40) **Ram M Goel**, Punjabi University, Patiala (India) (947-30-94)
- 9:30AM *Continuation Method for  $\alpha$ -sublinear Mappings.* (41) **Yong-Zhuo Chen**, University of Pittsburgh at Bradford (947-47-132)
- 9:45AM *Balls in Boxes: On the Asymptotic Uniqueness of Maximal Discrete Order Statistics.* Preliminary report. (42) **Jayadev S Athreya\***, Iowa State University, and **Lukasz M Fidkowski**, Harvard University (947-60-137)
- 10:00AM *A closer look at the lower bound of the Van der Waerden numbers.* (43) **Erin M Boyer\***, Bard College, **Anitashree Balaji**, Wellesley College, **Tze Yi Chan**, Trinity College, **Tricia Frantti**, Chassell High School, and **Anant P Godbole**, Michigan Technological University (947-60-158)
- 10:15AM *Threshold Functions for Random Sidon Sequences.* (44) **Lukasz Fidkowski\***, Harvard University, **Anant Godbole**, Michigan Technological University, **Fumei Lam**, Berkeley, and **Donald Ying**, Stanford (947-60-159)
- 10:30AM *Shift Filters for Bayesian Categories and the Fulda /COMMON/ Gap.* (45) **Barbara P. Landry**, University of Santa Cruz (947-60-11)

**Invited Address**

11:00 AM – 11:50 AM '64 Hall, Slavin Center

- (46) *The maximum principle and qualitative properties of solutions to nonlinear partial differential equations.* **Henri Berestycki**, Université Pierre et Marie Curie (Paris VI)

**Invited Address**

1:30 PM – 2:20 PM '64 Hall, Slavin Center

- (47) *What is the right mathematical/statistical model for natural images?* **David Mumford**, Brown University

**Special Session on Algebraic and Geometric Combinatorics**

2:30 PM – 6:20 PM Room 317, Harkins Hall

- Organizers: **Vesselin N. Gasharov**, Cornell University  
**Ira M. Gessel**, Brandeis University

- 2:30PM *Minuscule elements of Weyl groups.* Preliminary report. (48) **John R Stembridge**, University of Michigan (947-05-90)
- 3:00PM *Dumont's statistic on words.* (49) **Mark A. Skandera**, MIT (947-05-81)
- 3:30PM *Spaces of trees.* Preliminary report. (50) **Louis J Billera**, Cornell University, **Susan Holmes**, Stanford University, and **Karen Vogtmann\***, Cornell University (947-05-98)
- 4:00PM *Unimodality and Association Schemes.* (51) **John S Caughman, IV** and **Bruce E Sagan\***, Michigan State University (947-05-62)
- 4:30PM *A new interpretation for the Tutte polynomial.* (52) **Victor S. Reiner**, Univ. of Minnesota (947-05-06)
- 5:00PM *A new combinatorial invariant for geometric lattices.* Preliminary report. (53) **Hélène Barcelo\***, Arizona State University, and **Reinhard Laubenbacher**, New Mexico State University (947-05-84)
- 5:30PM *Triangulations and Ehrhart Polynomials of Polytopes Associated with Root Systems.* (54) **Wungkum Fong**, Massachusetts Institute of Technology (947-05-86)
- 6:00PM *Iterated Homology and Decompositions of Simplicial Complexes.* (55) **Art Duval\***, University of Texas at El Paso, and **Ping Zhang**, Western Michigan University (947-05-129)

**Special Session on Representation Theory of Reductive Groups**

2:30 PM – 4:50 PM Room 327, Harkins Hall

- Organizers: **Dan M. Barbasch**, Cornell University  
**Birgit Speh**, Cornell University
- 2:30PM *Germs of characters.* Preliminary report. (56) **Fiona Murnaghan**, University of Toronto (947-22-76)
- 3:00PM *Hecke algebras and parabolic induction.* Preliminary report. (57) **Anne-Marie Aubert**, Ecole Normale Supérieure, **Philip K Kutzko**, University of Iowa, and **Lawrence E Morris\***, Clark University (947-22-148)
- 3:30PM *Rational Quadratic Divisors and Automorphic Forms.* (58) **Jens P Funke**, Indiana University (947-11-56)
- 4:00PM *Twisted Torsion on Compact Hyperbolic Spaces.* (59) **Maria G Fung**, Cornell University (947-22-122)
- 4:30PM *Cohomological meaning of  $G/\Gamma$ -multiplicities of certain unitary representations.* Preliminary report. (60) **Floyd L. Williams**, University of Massachusetts (947-22-99)

**Special Session on Geometry and Representation Theory of Algebraic Groups**

2:30 PM – 4:50 PM Room 328, Harkins Hall

- Organizers: **James E. Humphreys**, University of Massachusetts  
**Ivan Mirkovic**, University of Massachusetts
- 2:30PM *Geometry and unrestricted representations.* (61) **Dmitriy Rumynin**, University of Warwick (947-17-46)
- 3:00PM *Structure of some Springer fibers of  $\mathfrak{gl}_n(\mathbb{C})$  and relations to Kazhdan-Lusztig theory.* (62) **Francis Y. Fung**, Odyssey Research Associates (947-14-121)

## Program of the Sessions – Providence, RI, Saturday, October 2 (cont'd.)

---

- 3:30PM *Cohomology of tilting modules and equivariant K-theory of the nilpotent cone.* Preliminary report.  
(63) **Viktor Ostrik**, Independent Moscow University (947-17-54)
- 4:00PM *Affine Springer Fibers and Cartans of Loop Groups.*  
(64) **David D Ben-Zvi**, University of Chicago (947-14-113)
- 4:30PM *Character sheaves on Drinfeld's spaces.* Preliminary report.  
(65) **Dennis Gaitsgory**, Harvard University (947-14-133)

### Special Session on Difference Equations and Applications

---

2:30 PM – 5:20 PM Room 108, Albertus Magnus Hall

- Organizers: **Gerasimos Ladas**, University of Rhode Island  
**Jeffrey T. Hoag**, Providence College
- 2:30PM *Multiple Solutions for 2mth Order Sturm-Liouville Boundary Value Problems on a Measure Chain.*  
(66) **Johnny Henderson**, Auburn University (947-39-18)
- 3:00PM *On The Difference Equation*  
▶ (67)  $x(n+1) = (\max x(n), An)/x(n)^2 x(n-1)$ . Preliminary report.  
**Soudabeh Valicenti\***, **Gerry Ladas**, **Kim Cunningham**, University of Rhode Island, and **Jeffery Feuer**, Merrimack College (947-39-25)
- 3:30PM *Eventually periodic solutions of*  
(68)  $x[n+1] = \max A[n]/x[n], 1/x[n-1]$ . Preliminary report.  
**William J. Briden**, **Edward A. Grove**, **Gerry Ladas**, Univ. of R. I., and **Candace M. Kent\***, Virginia Commonwealth Univ. (947-99-31)
- 4:00PM *Asymptotics of second order difference equations.*  
(69) Preliminary report.  
**Saber N Elaydi**, Trinity University (947-39-36)
- 4:30PM *Applications concerning a Riccati equation for a differential equation on a measure chain.*  
▶ (70) Preliminary report.  
**Allan C. Peterson\*** and **Lynn H. Erbe**, University of Nebraska-Lincoln (947-39-20)
- 5:00PM *On the discretization of a delay differential equation.*  
(71) **Kenneth L Cooke**, Pomona College, and **Anatoli F Ivanov\***, Pennsylvania State University (947-39-16)

### Special Session on Mathematical and Statistical Aspects of Vision

---

2:30 PM – 5:45 PM '64 Hall, Slavin Center

- Organizers: **David Mumford**, Brown University  
**Donald E. McClure**, Brown University  
**Stuart A. Geman**, Brown University
- 2:30PM *How Does the Brain See?* Preliminary report.  
▶ (72) **Stephen Grossberg**, Boston University (947-92-104)
- 3:45PM *A Compositional Approach to Natural and Artificial Vision.*  
(73) **Elie Bienenstock**, Brown University (947-92-168)
- 5:00PM *Learning and Representations in Brains and Machines.* Preliminary report.  
(74) **Tomaso A Poggio**, M.I.T. (947-92-106)

### Special Session on Geometric Properties of Nonlinear Elliptic PDEs

---

2:30 PM – 4:50 PM Room 135, Albertus Magnus Hall

- Organizers: **Henri Berestycki**, Université Paris VI and École Normale Supérieure  
**Yanyan Li**, Rutgers University

- 2:30PM *Harnack estimates and symmetry for elliptic systems.*  
(75) **Jerome B. Busca**, Université de Tours (947-35-78)
- 3:00PM *Gradient estimates for laminar elliptic systems.*  
(76) Preliminary report.  
**YanYan Li\***, Rutgers University, and **Louis Nirenberg**, Courant Institute (947-35-92)
- 3:30PM *On the interaction of self-similar multi-branched vortex sheets of the 2-D Euler equations.* Preliminary report.  
(77) **Zheng-Chao Han**, Rutgers-New Brunswick (947-76-160)
- 4:00PM *Traveling fronts and solutions global in time of a semi-linear parabolic equation.*  
(78) **Francois Hamel**, University Paris VI (947-35-39)
- 4:30PM *A nonlinear elliptic boundary value problem related to corrosion modeling.*  
(79) **Michael S Vogelius**, Rutgers University, New Brunswick (947-35-169)

### Special Session on Operator K-Theory and its Applications to Geometry and Topology

---

2:40 PM – 5:00 PM Room 301, Harkins Hall

- Organizers: **Guoliang Yu**, University of Colorado, Boulder  
**Carla E. Farsi**, University of Colorado, Boulder  
**Jeffrey S. Fox**, University of Colorado, Boulder
- 2:40PM *Some remarks on the Baum-Connes conjecture.*  
(80) Preliminary report.  
**Gennadi Kasparov**, University of Marseille at Luminy (947-19-45)
- 3:30PM *An index theorem for families of elliptic operators invariant with respect to a bundle of Lie groups.*  
(81) **Victor Nistor**, Penn State (947-47-93)
- 4:20PM *A Topological Index for Proper Actions.* Preliminary report.  
(82) **Jody Trout**, Dartmouth College (947-19-150)

### Special Session on The History of Mathematics

---

2:40 PM – 5:50 PM Room I, Moore Hall

- Organizers: **Daniel Otero**, Xavier University  
**C. Edward Sandifer**, Western Connecticut State University
- 2:40PM *Into the Woods - Norbert Wiener in Maine.*  
▶ (83) Preliminary report.  
**Eisso J Atzema**, University of Maine (947-01-135)
- 3:20PM *The Remarkable History of Logarithms.* Preliminary report.  
▶ (84) **Robert G Stein**, California State U, San Bernardino (947-01-143)
- 4:00PM *Digo Que el Numero Sea una Cosa—Seeking the Earliest Printed Math Books in the New World.*  
▶ (85) Preliminary report.  
**Bruce S Burdick**, Roger Williams University (947-01-162)
- 4:40PM *Early Textbooks at West Point.* Preliminary report.  
▶ (86) **V. Frederick Rickey**, United States Military Academy (947-01-139)
- 5:20PM *Henry Briggs' Arithmetica Logarithmica: the introduction of common logarithms.*  
▶ (87) **Daniel E Otero**, Xavier University (947-01-108)

**Special Session on Algebraic Dynamics**

2:40 PM – 5:00 PM Room 109, Albertus Magnus Hall

Organizers: **Jonathan Lubin**, Brown University  
**Joseph H. Silverman**, Brown University

- 2:40PM (88) *Round-off errors and p-adic numbers.*  
**Franco Vivaldi\*** and **Diana Bosio**, Queen Mary and Wesfield College, University of London (947-37-50)
- 3:10PM (89) *Expansive subdynamics for algebraic  $\mathbb{Z}^d$ -actions.*  
**Douglas Lind**, University of Washington (947-37-49)
- 3:40PM (90) *Some Open Problems in the Algebraic Theory of Dynamical Systems.*  
**Patrick Morton**, Wellesley College (947-12-57)
- 4:10PM (91) *Fractals in Number Theory.* Preliminary report.  
**Arthur Baragar**, UNLV (947-06-74)
- 4:40PM (92) *Polynomial Chains and Stable Power Series.* Preliminary report.  
**Karl F Zimmermann**, Union College (947-12-59)

**Carla E. Farsi**, University of Colorado, Boulder

**Jeffrey S. Fox**, University of Colorado, Boulder

- 8:00AM (101) *Signatures and covering spaces.*  
**Wolfgang Lück**, Univ Münster, and **Thomas Schick\***, Penn State University and Uni Münster (947-55-13)
- 8:45AM (102) *Volume Growth and Positive Scalar Curvature.*  
**Guihua Gong\***, Univ. of Puerto Rico, Rio Piedras, and **Guoliang Yu**, University of Colorado, Boulder (947-19-63)
- 9:30AM (103) *Monicity of the Baum-Connes map.*  
**Gunnar Carlsson**, Stanford university, **Erik K Pedersen\***, Bingham University, and **John Roe**, Penn State (947-19-112)
- 10:15AM (104) *Connes' Index Theorem for Groupoids.* Preliminary report.  
**Jerome Kaminker**, IUPUI, Indianapolis, IN (947-19-166)

**Special Session on Number Theory**

2:40 PM – 6:30 PM Room III, Moore Hall

Organizers: **Michael I. Rosen**, Brown University  
**Siman Wong**, Brown University

- 2:40PM (93) *Are maximal Stirling numbers unique?* Preliminary report.  
**E. R. Canfield**, University of Georgia, and **Carl Pomerance\***, Bell Labs (947-11-29)
- 3:10PM (94) *Sums of values of a rational function.* Preliminary report.  
**Bjorn Poonen**, University of California, Berkeley (947-11-44)
- 3:40PM (95) *Diophantine approximation exponents in finite characteristic.*  
**Dinesh S Thakur**, University of Arizona (947-11-66)
- 4:10PM (96) *Rank of  $E(K)$  for cyclic cubic extensions.* Preliminary report.  
**Hershy H Kisilevsky\***, Concordia University, **Masato Kuwata**, University of Caen, and **Jack Fearnley**, Concordia University (947-11-80)
- 4:40PM (97) *Uniform Bounds for Integral Points on Elliptic Curves.*  
**Lisa A Fastenberg**, Yeshiva University (947-11-73)
- 5:10PM (98) *Geometry of Fermat adeles.* Preliminary report.  
**Alexandru Buium**, University of New Mexico (947-11-17)
- 5:40PM (99) *Gamma Values and Linear Independence in Characteristic p.*  
**Dale Brownawell** and **Matthew A Papanikolas\***, The Pennsylvania State University (947-11-72)
- 6:10PM (100) *Explicit genus 2 curves with split CM Jacobian.*  
**Fernando Rodriguez-Villegas**, University of Texas at Austin (947-11-156)

**Special Session on Difference Equations and Applications**

8:00 AM – 10:20 AM Room 108, Albertus Magnus Hall

Organizers: **Gerasimos Ladas**, University of Rhode Island  
**Jeffrey T. Hoag**, Providence College

- 8:00AM (105) *On the Recursive Sequence  $x(n+1) = (a + b x(n-1))/(c + x(n))$ .*  
**Carol H Gibbons\***, **M R Kulenovic** and **Gerry Ladas**, University of Rhode Island (947-39-12)
- 8:30AM (106) *On the System of Difference Equations  $x(n+1)=x(n)/(a+y(n))$ ,  $y(n+1)=y(n)/(b+x(n))$ .* Preliminary report.  
**Dean Clark** and **M.R. S. Kulenovic\***, University of Rhode Island (947-39-32)
- 9:00AM (107) *The Brjuno Brush.* Preliminary report.  
**Eileen F Lee**, Trinity College (947-37-27)
- 9:30AM (108) *Itineraries of families of entire functions.*  
**Robert E. DeVille**, Boston University (947-58-15)
- 10:00AM (109) *On a Rational Recursive Sequence with Even Delays.*  
**Hamdi El-Mitwalli\***, **Edward A Grove** and **Gerasimos Ladas**, University of Rhode Island (947-39-52)

**AMS Exhibit and Book Sale**

8:00 AM – NOON Lounge, Slavin Center

**Special Session on Algebraic and Geometric Combinatorics**

8:30 AM – 10:50 AM Room 317, Harkins Hall

Organizers: **Vesselin N. Gasharov**, Cornell University  
**Ira M. Gessel**, Brandeis University

- 8:00AM (110) *The Frobenius Coin Exchange Problem and rational polytopes.* Preliminary report.  
**Matthias Beck**, Temple University, **Ricardo Diaz**, University of Northern Colorado, and **Sinai Robins\***, Temple University (947-05-163)
- 8:30AM (111) *Lexicographic Shellability for Balanced Boolean Cell Complexes.* Preliminary report.  
**Patricia L Hersh**, University of Washington (947-05-91)
- 9:00AM (112) *Discrete Morse Complexes.* Preliminary report.  
**Manoj Chari**, Louisiana State University/TU-Berlin, **Michael Joswig**, TU-Berlin, and **Volkmar Welker\***, Universitaet Marburg (947-05-120)

**Sunday, October 3**

**Meeting Registration**

8:00 AM – NOON Lounge, Slavin Center

**Special Session on Operator K-Theory and its Applications to Geometry and Topology**

8:00 AM – 10:55 AM Room 301, Harkins Hall

Organizers: **Guoliang Yu**, University of Colorado, Boulder

## Program of the Sessions – Providence, RI, Sunday, October 3 (cont'd.)

---

- 9:30AM *Enumerative invariants of convex polytopes.*  
▶ (113) Preliminary report.  
**Louis J Billera\*** and **Catherine Stenson**, Cornell University (947-52-140)
- 10:00AM *Sign-balanced posets and spin-balanced domino tableaux.* Preliminary report.  
(114) **Dennis E White**, University of Minnesota (947-05-75)
- 10:30AM *Generalized Littlewood-Richardson coefficients, canonical bases and totally positive varieties.* Preliminary report.  
(115) **Arkady Berenstein**, Cornell University, and **Andrei Zelevinsky\***, Northeastern University (947-14-97)

### Special Session on Representation Theory of Reductive Groups

---

- 8:30 AM – 10:50 AM **Room 327, Harkins Hall**  
Organizers: **Dan M. Barbasch**, Cornell University  
**Birgit Speh**, Cornell University
- 8:30AM *Cohomological induction and harmonic algebra.* Preliminary report.  
(116) **Gregg J. Zuckerman**, Yale University (947-17-134)
- 9:00AM *Primitive ideals and the theta correspondence.* Preliminary report.  
(117) **Peter E Trapa**, Institute for Advanced Study (947-22-37)
- 9:30AM *Orthogonality relations and invariant sesquilinear forms.* Preliminary report.  
(118) **Robert W Donley, Jr.**, Oklahoma State University, Stillwater (947-22-22)
- 10:00AM *Nonvanishing Theorems for Theta Correspondence.* Preliminary report.  
(119) **Hongyu L He**, Georgia State Univ. (947-22-96)
- 10:30AM *Deformation quantization and invariant distributions.*  
(120) **Martin Andler**, Universite de Versailles a San-Quentin, **Alexander Dvorsky** and **Siddhartha Sahi\***, Rutgers University (947-22-103)

### Special Session on Geometry and Representation Theory of Algebraic Groups

---

- 9:00 AM – 10:50 AM **Room 328, Harkins Hall**  
Organizers: **James E. Humphreys**, University of Massachusetts  
**Ivan Mirkovic**, University of Massachusetts
- 9:00AM *Conjugacy classes in parabolic subgroups of general linear groups.*  
(121) **Scott H Murray**, University of Chicago (947-20-60)
- 9:30AM *Certain "abstract" homomorphisms of Chevalley groups.* Preliminary report.  
(122) **Lucy Lifschitz\*** and **Andrei S Rapinchuk**, University of Virginia (947-20-115)
- 10:00AM *A homological interpretation of Jantzen's sum formula.* Preliminary report.  
(123) **Uendra B Kulkarni**, University of Massachusetts, Amherst (947-20-145)
- 10:30AM *Some new applications of endomorphism algebras to representation theory.*  
(124) **Brian Parshall**, University of Virginia (947-20-149)

### Special Session on The History of Mathematics

---

- 9:00 AM – 10:50 AM **Room I, Moore Hall**  
Organizers: **Daniel Otero**, Xavier University  
**C. Edward Sandifer**, Western Connecticut State University

- 9:00AM *A Definition of the Natural Logarithm.* Preliminary report.  
▶ (125) **Linda Marie Saliga**, The University of Akron (947-01-126)
- 9:40AM *Elegant Fractions in Indian Astronomy.* Preliminary report.  
▶ (126) **Kim Plofker**, Brown University (947-01-114)
- 10:20AM *Nyctaginaceous Mathematics.* Preliminary report.  
▶ (127) **James J Tattersall**, Providence College (947-01-130)

### Special Session on Algebraic Dynamics

---

- 9:00 AM – 10:50 AM **Room 109, Albertus Magnus Hall**  
Organizers: **Jonathan Lubin**, Brown University  
**Joseph H. Silverman**, Brown University
- 9:00AM *The Lap Counting Function and Zeta Function of the Tent Map.* Preliminary report.  
(128) **Leopold Flatto**, Bell Laboratories, and **Jeffrey C Lagarias\***, AT&T Labs (947-58-55)
- 9:30AM *Torsion of abelian varieties and the Morton-Silverman conjecture.* Preliminary report.  
(129) **Bjorn Poonen**, University of California, Berkeley (947-11-43)
- 10:00AM *Dynamical Systems and Elliptic Curves.* Preliminary report.  
(130) **Graham R Everest**, University of East Anglia (947-11-21)
- 10:30AM *A Bound for Torsion Points on Everywhere Good Reduction Elliptic Curves.*  
(131) **Joseph H. Silverman\***, Brown University, and **Marc Hindry**, Université Denis Diderot Paris 7 (947-11-28)

### Special Session on Geometric Properties of Nonlinear Elliptic PDEs

---

- 9:30 AM – 10:50 AM **Room 135, Albertus Magnus Hall**  
Organizers: **Henri Berestycki**, Université Paris VI and École Normale Supérieure  
**Yanyan Li**, Rutgers University
- 9:30AM *Non-existence results for nonlinear equations in unbounded domains.*  
(132) **Isabeau Birindelli**, Dipartimento di Matematica, Università di Roma "La Sapienza" (947-35-123)
- 10:00AM *Some geometric problems related to PDE's.*  
(133) **Pablo Padilla**, IIMAS, UNAM (947-35-144)
- 10:30AM *Multi-peak solutions for a nonlinear Neumann problem.*  
(134) **Changfeng Gui**, University of Connecticut and University of British Columbia (947-35-53)

### Invited Address

---

- 11:00 AM – 11:50 AM **'64 Hall, Slavin Center**  
(135) *Unipotent Representations and Unitarity.* Preliminary report.  
**Dan M Barbasch**, Cornell University (947-22-117)

### Invited Address

---

- 1:30 PM – 2:20 PM **'64 Hall, Slavin Center**  
(136) *The Novikov conjecture and geometry of groups.*  
**Guoliang Yu**, University of Colorado, Boulder (947-19-64)

**Special Session on Representation Theory of Reductive Groups**

2:30 PM – 4:20 PM Room 327, Harkins Hall

- Organizers: **Dan M. Barbasch**, Cornell University  
**Birgit Speh**, Cornell University
- 2:30PM *Representation theoretic structures encoded in the loop Grassmannian.* (137)  
**Ivan Mirković**, University of Massachusetts at Amherst (947-22-157)
- 3:00PM *Intertwining operators and Weyl group representations.* (138)  
**David A Vogan**, MIT (947-22-58)
- 3:30PM Discussion.
- 4:00PM Discussion.

**Carla E. Farsi**, University of Colorado, Boulder

**Jeffrey S. Fox**, University of Colorado, Boulder

- 2:40PM *Generalized amenability and embeddings into Hilbert space.* Preliminary report. (147)  
**Alexander N Dranishnikov**, Pennsylvania State University (947-20-79)
- 3:30PM *Non-commutative geometry and the representation theory of  $p$ -adic groups.* (148)  
**Paul Baum**, Penn State University (947-19-102)
- 4:20PM *Proper Actions, Bivariant Chern Characters and the Index Theorem.* Preliminary report. (149)  
**Ronghui Ji**, IUPUI (947-58-167)

**Special Session on Geometry and Representation Theory of Algebraic Groups**

2:30 PM – 4:50 PM Room 328, Harkins Hall

- Organizers: **James E. Humphreys**, University of Massachusetts  
**Ivan Mirkovic**, University of Massachusetts
- 2:30PM *Polar varieties in classical Lie algebras.* (139)  
**Mikhail Grinberg**, MIT (947-22-48)
- 3:00PM *Principal nilpotent pairs in a semisimple Lie algebra.* (140)  
**Victor Ginzburg**, University of Chicago (947-17-110)
- 3:30PM *Generalized character sums associated to regular prehomogeneous vector spaces over finite fields.* (141)  
**David Kazhdan**, Harvard University, and **Alexander Polishchuk\***, Boston University (947-14-105)
- 4:00PM *Normalized intertwining operators and crystals.* (142)  
**Alexander Braverman**, Massachusetts Institute of Technology (947-22-155)
- 4:30PM Discussion.

**Special Session on The History of Mathematics**

2:40 PM – 4:30 PM Room I, Moore Hall

- Organizers: **Daniel Otero**, Xavier University  
**C. Edward Sandifer**, Western Connecticut State University
- 2:40PM *Hensel's  $p$ -adic numbers: early history.* Preliminary report. (150)  
**Fernando Q Gouvea**, Colby College (947-01-138)
- 3:20PM *The Development of Whole Number Algorithms in the United States.* (151)  
**Susan C Ross**, University of Southern Mississippi (947-01-146)
- 4:00PM *How did the Pythagoreans Prove the Side of a Square is Incommensurable With Its Diagonal?* (152)  
**Jeff A Suzuki**, Boston University, College of General Studies (947-01-119)

**Special Session on Geometric Properties of Nonlinear Elliptic PDEs**

2:30 PM – 4:20 PM Room 135, Albertus Magnus Hall

- Organizers: **Henri Berestycki**, Université Paris VI and École Normale Supérieure  
**Yanyan Li**, Rutgers University
- 2:30PM *On a three dimensional singularly perturbed Neumann problem.* (143)  
**Meijun Zhu\***, The University of Oklahoma, **Nassif Ghoussoub** and **Changfeng Gui**, University of British Columbia (947-35-89)
- 3:00PM *Symmetry For Exterior Elliptic Problems and Two Conjectures In Potential Theory.* (144)  
**Boyan Sirakov**, Université Paris VI (947-35-77)
- 3:30PM *Non-existence results for semilinear cooperative elliptic systems via moving spheres.* (145)  
**Wolfgang Reichel**, Universität Basel, Switzerland, and **Henghui Zou\***, University of Alabama at Birmingham (947-35-42)
- 4:00PM *Traveling two and three dimensional water waves.* (146)  
**Walter Craig**, Brown University (947-35-170)

**Special Session on Number Theory**

2:40 PM – 5:00 PM Room III, Moore Hall

- Organizers: **Michael I. Rosen**, Brown University  
**Siman Wong**, Brown University
- 2:40PM *Tamely Ramified Towers and Discriminant Bounds for Number Fields.* (153)  
**Farshid Hajir\***, UCLA & Cal State Univ. San Marcos, and **Christian Maire**, Université de Bordeaux 1 (947-11-70)
- 3:10PM  *$p$ -adic Distributions and  $p$ -adic Representation Theory.* Preliminary report. (154)  
**Jeremy Teitelbaum**, University of Illinois at Chicago (947-11-67)
- 3:40PM *Toric Varieties and Modular Forms.* (155)  
**Lev A Borisov** and **Paul E Gunnells\***, Columbia University (947-11-131)
- 4:10PM *Counting elliptic curves.* Preliminary report. (156)  
**Jeffrey D. Achter\*** and **Clifton Cunningham**, UMass Amherst (947-11-82)
- 4:40PM *On Greenberg's Conjecture.* Preliminary report. (157)  
**David C Marshall\*** and **William G McCallum**, University of Arizona (947-11-164)

**Lesley M. Sibner**  
Associate Secretary  
Brooklyn, New York

**Special Session on Operator K-Theory and its Applications to Geometry and Topology**

2:40 PM – 5:00 PM Room 301, Harkins Hall

- Organizers: **Guoliang Yu**, University of Colorado, Boulder