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# Program of the Sessions

New York, New York, November 4–5, 2000

## Saturday, November 4

### Meeting Registration

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7:30 AM – 5:00 PM First Floor, Havemeyer Building

### AMS Exhibit and Book Sale

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7:30 AM – 5:00 PM First Floor, Havemeyer Building

### Special Session on Differential Algebra and Related Topics, I

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8:30 AM – 10:50 AM Room 410, International Affairs Building

Organizers: **Li Guo**, Rutgers University at Newark  
**William Keigher**, Rutgers University at Newark  
**William Sit**, City College (CUNY)

- 8:30AM (1) *Using Ritt's characteristic sets to compute the normalizers of the intransitive Lie algebras of vector fields on the plane.* Preliminary report. **Phyllis Cassidy**, Smith College (emerita) (959-12-283)
- 9:00AM (2) *Computing the Galois Group of  $y^{(3)} + ay' + by = 0$ ,  $a, b \in C[x]$ .* Preliminary report. **Peter H Berman**, North Carolina State University (959-12-178)
- 9:30AM (3) *Prounipotent Groups in Differential Galois Theory.* **Andy R Magid**, University of Oklahoma (959-12-157)
- 10:00AM (4) *On a Generic Inverse Differential Galois Problem for  $GL_n$ .* **Lourdes Juan**, MSRI (959-13-123)
- 10:30AM (5) *Model Theory and Differential Algebra.* Preliminary report. **David E Marker**, University of Illinois at Chicago (959-03-128)

### Special Session on Commutative Algebra, I

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8:30 AM – 10:50 AM Room 411, International Affairs Building

Organizers: **Irena Peeva**, Cornell University  
**Luchozar Avramov**, Purdue University

- 8:30AM (6) *Secant Varieties of Segre Varieties and Monomial Ideals.* Preliminary report. **Maria V Catalisano**, University of Genoa, **Anthony V Geramita\***, Univ. of Genoa, Queen's Univ., and **Alessandro Gimigliano**, University of Bologna (959-13-148)
- 9:00AM (7) *Effective results on the homology of powers of a maximal ideal.* **Liana M Segal**, Purdue University (959-13-173)
- 9:30AM (8) *A formula of Solomon-Terao and bundles on  $P^n$ .* **Mircea Mustata**, U/C Berkeley, and **Hal Schenck\***, Harvard University (959-13-155)
- 10:00AM (9) *De Rham cohomology, Gröbner bases and stratifications.* Preliminary report. **Uli Walther**, Purdue University (959-14-150)
- 10:30AM (10) *Direct-sum decompositions over local rings.* **Roger A Wiegand**, University of Nebraska (959-13-211)

### Session for Contributed Papers, I

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8:30 AM – 10:25 AM Room 520, Mathematics Building

- 9:00AM (11) *Functional Measure for Separable Systems with Dynamical Activity.* **C.S. Felicitas** and **M.W. Auslander\***, C.F.C.T.E. Foundation, Inc. (959-22-06)
- 9:15AM (12) *Compositional Functions of Order  $N$  on Assymmetric Fields of Analytic Data.* Preliminary report. **C. S. Felicitas\*** and **M. W. Auslander**, CFCTE Foundation and Gottlieb Library (959-76-243)
- 9:30AM (13) *The Mystery of Knots - Computer Programming for Knot Tabulation.* **Charilaos N Aneziris**, Stony Brook, New York (959-57-81)

**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 21, 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.

- 9:45AM *Tangential Homoclinic Intersections in  $\mathbb{R}^n$* .  
(14) Preliminary report.  
**Victoria Rayskin**, Boston University (959-37-92)
- 10:15AM *Angular Ratio Transference*. Preliminary report.  
► (15) **James H Mulberry**, AMS (959-51-110)

### Special Session on Arrangements of Hyperplanes, I

8:40 AM – 10:50 AM Room 207, Mathematics Building

Organizers: **Michael J. Falk**, Northern Arizona University  
**Alexander I. Suciu**, Northeastern University

- 8:40AM *Triples of arrangements and local systems*.  
(16) **Daniel C Cohen**, Louisiana State University (959-52-182)
- 9:15AM *Incidence combinatorics of model constructions*.  
(17) **Eva-Maria E Feichtner\***, ETH Zurich, and **Dmitry N Kozlov**, Royal Institute of Technology, Stockholm, Sweden (959-06-252)
- 9:50AM *The cohomology rings of complements of subspace arrangements*.  
(18) **Mark de Longueville\***, University of Minnesota, and **Carsten A Schultz**, Freie Universitaet Berlin (959-52-104)
- 10:25AM *Equivariant Euler characteristics of braid arrangements*. Preliminary report.  
(19) **Graham C Denham\*** and **Nicole M Lemire**, University of Oregon (959-20-275)

### Special Session on the Topology of 3-Manifolds, I

9:00 AM – 10:50 AM Room 312, Mathematics Building

Organizers: **Joan S. Birman**, Barnard College  
**Brian S. Mangum**, Barnard College  
**Walter D. Neumann**, Barnard College

- 9:00AM *The Orbifold Theorem*. Preliminary report.  
(20) **Daryl Cooper\***, UCSB, **Craig Hodgson**, Melbourne, and **Steve Kerckhoff**, Stanford (959-57-166)
- 9:30AM *Covering spaces and Dehn fillings*.  
(21) **Cynthia L. Curtis**, The College of New Jersey (959-57-198)
- 10:00AM *Towards unification of number theory and 3-dimensional topology*. Preliminary report.  
(22) **Adam S Sikora**, CRM/ISM (959-57-288)
- 10:30AM *Mahler measure and Alexander polynomials of links*.  
(23) **Daniel S Silver\*** and **Susan G Williams**, University of South Alabama (959-57-103)

### Special Session on Symbolic Computation and Kleinian Groups, I

9:00 AM – 10:45 AM Room 203, Mathematics Building

Organizers: **Jane P. Gilman**, Rutgers University  
**Mika K. Seppälä**, Florida State University

- 8:45AM *Symbolic Computation on Kleinian Groups*.  
(24) Preliminary report.  
**Jane Gilman**, Rutgers-Newark (959-20-267)
- 9:10AM *Hyperbolic Volumes*. Preliminary report.  
(25) **Gaven Martin\*** and **T. Marshall**, University of Auckland, New Zealand (959-20-293)
- 9:35AM *Hecke operators, arithmetic groups, and the cohomology of subgroups of  $SL_4(\mathbb{Z})$* .  
(26) **Paul E Gunnells**, Rutgers University (959-11-197)

- 10:00AM *1) Local fundamental groups and surface classification (an extension of a theorem of Mumford)*.  
► (27) **Fabrizio ME Catanese**, University of Goettingen (959-14-208)

- 10:25AM *Period doubling in the Tangent Family*. Preliminary report.  
(28) **Linda Keen\***, CUNY Lehman and Graduate Center, and **Janina Kotus**, Institute of Mathematics, Technical University of Warsaw (959-37-170)

### Special Session on Algebraic Geometry, I

9:00 AM – 10:50 AM Room 417, Mathematics Building

Organizers: **Sorin Popescu**, Columbia University  
**Lev A. Borisov**, Columbia University

- 9:00AM *Hurwitz numbers and Hodge integrals*. Preliminary report.  
(29) **Tom Graber\***, Harvard, and **Ravi Vakil**, MIT (959-14-247)
- 9:30AM *Hurwitz numbers and the tautological ring of the moduli space of curves*.  
(30) **Ravi Vakil\***, M.I.T., and **Tom Graber**, Harvard (959-14-169)
- 10:00AM *Localization and Gromov-Witten theory*.  
(31) **Rahul V. Pandharipande**, Caltech (959-14-279)
- 10:30AM *Hyperquot schemes and rational curves on flag varieties*.  
(32) **Linda Chen**, Columbia University (959-14-276)

### Special Session on Nonlinear Partial Differential Equations, I

9:00 AM – 10:50 AM Room 403, International Affairs Building

Organizers: **Zheng-Chao Han**, Rutgers University  
**A. Shadi Tahvildar-Zadeh**, Princeton University

- 9:00AM *Singularities for solutions of the wave equation on conic manifolds*. Preliminary report.  
(33) **Richard B Melrose**, MIT, and **Jared Wunsch\***, SUNY Stony Brook (959-35-187)
- 9:30AM *Instantons, Characteristic Classes, and Nonlinear Elliptic Equations*.  
► (34) **Yisong Yang**, Polytechnic University (959-35-125)
- 10:00AM *Asymptotics for Maxwell-Chern-Simons vortices*.  
(35) **Tonia Ricciardi**, Dipartimento di Matematica e Applicazioni, Università di Napoli "Federico II" (959-35-143)
- 10:30AM  *$L^p$  Estimates for the Wave Equation with a Slowly-Decaying Potential*. Preliminary report.  
(36) **John G Stalker\***, Princeton University, **Fabrice Planchon**, CNRS, Paris VI, and **A. Shadi Tahvildar-Zadeh**, Rutgers University (959-35-268)

### Special Session on Riemannian Manifolds and Their Limit Spaces, I

9:00 AM – 11:00 AM Room 405, International Affairs Building

Organizers: **Xiaochun Rong**, Rutgers University  
**Christina Sormani**, Lehman College, CUNY

- 9:00AM *A class of generalized convex functions and its relation to warped products*. Preliminary report.  
(37) **Stephanie B Alexander\*** and **Richard L. Bishop**, University of Illinois at Urbana-Champaign (959-53-164)

- 9:45AM (38) *Differential Forms, Spinors and Bounded Curvature Collapse.*  
**John Lott**, University of Michigan (959-58-118)
- 10:30AM (39) *A Sheaf Perspective on  $L^2$  Harmonic Forms.*  
 Preliminary report.  
**Eugenie Hunsicker\***, Lawrence University, and **Rafe Mazzeo**, Stanford University (959-53-263)

- 4:50PM (49) *The surjectivity problem for one-generator, one-relator extensions of torsion-free groups.*  
**Marshall M. Cohen\***, Cornell University, and **Colin Rourke**, Warwick University (959-20-160)
- 5:20PM (50) *The chameleon groups of Richard J. Thompson: categories with mutliplication.*  
**Matt Brin**, SUNY Binghamton (959-20-235)

**Special Session on Combinatorial Group Theory, I**

9:30 AM – 10:50 AM Room 404, International Affairs Building

Organizers: **Gilbert Baumslag**, City College (CUNY)  
**Sean T. Cleary**, City College (CUNY)  
**Alexei Myasnikov**, City College (CUNY)  
**Vladimir Shpilrain**, City College (CUNY)

- 9:30AM (40) *Diophantine geometry for free groups, dimension of algebraic varieties.*  
**Olga Kharlampovich**, McGill University, Canada (959-20-204)
- 10:00AM (41) *Finitely presented torsion-by-cyclic non-amenable group.*  
**A.Yu. Ol'shanskii\*** and **M.V. Sapir**, Vanderbilt University (959-20-217)
- 10:30AM (42) *Pro-algebraic hulls of discrete groups: examples and questions.*  
**Andy R Magid**, University of Oklahoma (959-20-80)

**Invited Address**

11:00 AM – 11:50 AM Room 309, Havemeyer Building

- (43) *Operators on graphs: Soliton systems, scattering theory and symplectic geometry.*  
**Sergey P. Novikov**, U. of Maryland and Landau Institute for Theoretical Physics (959-47-02)

**Invited Address**

1:30 PM – 2:20 PM Room 309, Havemeyer Building

- (44) *Equidistribution on Shimura varieties and applications.*  
**Paula Cohen**, CNRS, Lille, France (959-11-03)

**Special Session on Combinatorial Group Theory, II**

2:30 PM – 5:40 PM Room 404, International Affairs Building

Organizers: **Gilbert Baumslag**, City College (CUNY)  
**Sean T. Cleary**, City College (CUNY)  
**Alexei Myasnikov**, City College (CUNY)  
**Vladimir Shpilrain**, City College (CUNY)

- 2:30PM (45) *Word reversing and torsion freeness.*  
**Patrick Dehornoy**, University of Caen, France (959-20-136)
- 3:00PM (46) *On subgroup separability in hyperbolic Coxeter groups.*  
**Darren D Long\***, UC Santa Barbara, and **Alan W Reid**, University of Texas (959-22-119)
- 3:30PM (47) *Action of braid groups on determinantal ideals, compact spaces and a stratification of Teichmüller space.*  
**Stephen P Humphries**, Brigham Young University (959-20-78)
- 4:00PM Break.
- 4:20PM (48) *Finite and nilpotent quotients of braid groups and link groups.* Preliminary report.  
**Theodore Stanford**, New Mexico State University (959-57-270)

**Special Session on the Topology of 3-Manifolds, II**

2:30 PM – 5:20 PM Room 312, Mathematics Building

Organizers: **Joan S. Birman**, Barnard College  
**Brian S. Mangum**, Barnard College  
**Walter D. Neumann**, Barnard College

- 2:30PM (51) *Cusp volumes and cusp densities for hyperbolic 3-manifolds.* Preliminary report.  
**Colin C Adams**, Williams College (959-57-260)
- 3:00PM (52) *Metric characterizations of spherical and Euclidean buildings.*  
**Ruth M Charney\***, Ohio State University, and **Alexander Lytchak**, University of Bonn (959-20-273)
- 3:30PM (53) *All flat manifolds are hyperbolic orbifold cusp cross-sections.*  
**Darren D Long\***, UC Santa Barbara, and **Alan W Reid**, University of Texas (959-57-116)
- 4:00PM (54) *The Quest for the Low Volume Hyperbolic 3-Manifold.* Preliminary report.  
**Robert Meyerhoff**, Boston College (959-57-272)
- 4:30PM (55) *Bounded geometry for hyperbolic manifolds.*  
**Yair N Minsky**, SUNY at Stony Brook (959-57-175)
- 5:00PM (56) *The double of the figure eight is GFERF.*  
**Alan W Reid\***, U. T. Austin, and **Darren Long**, U.C.S.B. (959-57-188)

**Special Session on Arrangements of Hyperplanes, II**

2:30 PM – 5:50 PM Room 207, Mathematics Building

Organizers: **Michael J. Falk**, Northern Arizona University  
**Alexander I. Suci**, Northeastern University

- 2:30PM (57) *Shephard Groups and the Sign Representation.*  
**Peter Orlik**, University of Wisconsin at Madison, **Victor Reiner**, School of Mathematics, and **Anne V Shepler\***, University of California at Santa Cruz (959-52-249)
- 3:05PM (58) *Cohomology ring of the complement to rational arrangements and Generalized Aomoto Complexes.*  
**José I Cogolludo**, Universidad Complutense de Madrid (959-14-264)
- 3:40PM (59) *Constructing Canonical Generating Sets for the Module of A-Derivations of an Arrangement of Hyperplanes and Conditions Determining Freeness.*  
**John M Keaty**, IBM Austin, Texas (959-14-289)
- 4:15PM (60) *Reflection Groups and Milnor Fiber Complexes.*  
**Stephen D Szydluk**, University of Wisconsin-Oshkosh (959-52-242)
- 4:50PM (61) *Compactifications of real subspace and half-space arrangements.* Preliminary report.  
**Giovanni Gaiffi**, Scuola Normale Superiore di Pisa, Italy (959-52-132)
- 5:25PM (62) *Resonance varieties and fibered arrangements.* Preliminary report.  
**Michael J Falk**, Northern Arizona University (959-52-251)

**Special Session on Arithmetic Geometry and Modular Forms, I**

2:30 PM – 5:50 PM Room 209, Havemeyer Building

Organizers: **Dorian Goldfeld**, Columbia University  
**Paula Cohen**, CNRS, Lille, France

- 2:30PM *Nonanalytic Poincaré Series and Eichler Integrals.*  
(63) Preliminary report.  
**Wladimir A Pribitkin**, Princeton University (959-11-95)
- 3:00PM *Néron-Tate projection of algebraic points.*  
(64) Preliminary report.  
**Bjorn Poonen**, U. C. Berkeley (959-11-215)
- 3:30PM *Families of L -functions and applications.*  
(65) **Peter Sarnak**, Princeton University (959-11-202)
- 4:00PM *The Least Prime in a Conjugacy Class.*  
(66) **Kumar Murty**, University of Toronto (959-11-229)
- 4:30PM *Coverings of curves with asymptotically many rational points.*  
(67) **W.-C. W. Li\***, Penn State University, and **H. Maharaj**, Institute of Discrete Mathematics (959-11-199)
- 5:00PM *The Euclidean Algorithm in Number Fields.*  
▶ (68) Preliminary report.  
**Ram Murty**, Queen’s University (959-11-180)
- 5:30PM *Subvarieties of Shimura varieties.*  
(69) **Bas Edixhoven**, University of Rennes (959-11-142)

**Special Session on Differential Algebra and Related Topics, II**

2:30 PM – 5:20 PM Room 410, International Affairs Building

Organizers: **Li Guo**, Rutgers University at Newark  
**William Keigher**, Rutgers University at Newark  
**William Sit**, City College (CUNY)

- 2:30PM *Central configurations in the Newtonian N-body problem of Celestial Mechanics.*  
(70) **Ilias Kotsireas**, Ontario Research Centre for Computer Algebra (959-70-269)
- 3:00PM *On Applications of Cartan’s Method of Moving Frames.* Preliminary report.  
▶ (71) **Irina A Kogan**, Yale University (959-53-237)
- 3:30PM *D-modules on smooth toric varieties.*  
(72) **Mircea Mustata**, **Gregory Smith**, University of California at Berkeley, **Harrison Tsai\***, Cornell University, and **Uli Walther**, Purdue University (959-14-207)
- 4:00PM *Differential Operators on Toric Varieties.*  
(73) Preliminary report.  
**William N Traves\***, U.S. Naval Academy, and **Mutsumi Saito**, Hokkaido University, Japan (959-13-91)
- 4:30PM *Rank Jumps in A-Hypergeometric Systems.*  
(74) **Laura F Matusевич**, University of California at Berkeley (959-05-138)
- 5:00PM *Multivariable Differential Dimension Polynomials.*  
(75) **Alexander B Levin**, The Catholic University of America, Washington, D. C. (959-12-102)

**Special Session on Commutative Algebra, II**

2:30 PM – 5:50 PM Room 411, International Affairs Building

Organizers: **Irena Peeva**, Cornell University  
**Luchezar Avramov**, Purdue University

- 2:30PM *Finite Correspondences between commutative rings and motivic functors.* Preliminary report.  
(76) **Charles A Weibel**, Rutgers University (959-13-193)

- 3:00PM *Polynomial functors on complexes.*  
(77) **Alexandre Tchernev\***, University at Albany,SUNY, and **Jerzy Weyman**, Northeastern University (959-13-201)

- 3:30PM *Frobenius and Tor.*  
(78) **Claudia Miller**, Michigan State University (959-13-274)

- 4:00PM *The Buchsbaum-Rim polynomial and the integral closure of a module.* Preliminary report.  
(79) **Joseph P Brennan\***, North Dakota State University, **Bernd Ulrich**, Michigan State University, and **Volmer V Vasconcelos**, Rutgers University (959-13-291)

- 4:30PM *A Technique for the Explicit Computation of Local Cohomology with Respect to Monomial Ideals.*  
(80) **Andrew S Richardson**, University of Illinois at Urbana-Champaign (959-13-127)

- 5:00PM *Building integral domains using power series.*  
(81) Preliminary report.  
**William Heinzer**, Purdue, **Christel Rotthaus**, Michigan State University, and **Sylvia M Wiegand\***, University of Nebraska-Lincoln (959-13-209)

- 5:30PM *Commutativity of Hochschild Cohomology.*  
(82) Preliminary report.  
**Ragnar-Olaf Buchweitz\***, Univ. of Toronto, and **Hubert Flenner**, Ruhr-Universitaet Bochum (959-18-205)

**Special Session on Algebraic Geometry, II**

2:30 PM – 4:50 PM Room 417, Mathematics Building

Organizers: **Sorin Popescu**, Columbia University  
**Lev A. Borisov**, Columbia University

- 2:30PM *The Decomposition Theorem for Hochschild (Co-)Homology of Complex Spaces.* Preliminary report.  
(83) **Ragnar-Olaf Buchweitz\***, Univ. of Toronto, and **Hubert Flenner**, Ruhr-Universitaet Bochum (959-14-203)

- 3:00PM *Deformations of moduli spaces and non-commutative geometry.* Preliminary report.  
(84) **Ludmil Katzarkov**, UC Irvine, **Dmitry Orlov**, Steklov Institute, Russia, and **Tony Pantev\***, University of Pennsylvania (959-14-221)

- 3:30PM *Mirror symmetry, Langlands duality, and the Hitchin system.*  
(85) **Michael Thaddeus**, Columbia University (959-14-165)

- 4:00PM *Symmetry groups in mirror symmetry.*  
(86) **Paul Horja**, Institute for Advanced Study (959-14-130)

- 4:30PM *A Fourier-Mukai approach to spectral data for instantons.* Preliminary report.  
(87) **Marcos B Jardim\***, University of Pennsylvania and Haverford College, and **Antony Maciocia**, University of Edinburgh (959-14-57)

**Special Session on Nonlinear Partial Differential Equations, II**

2:30 PM – 4:50 PM Room 403, International Affairs Building

Organizers: **Zheng-Chao Han**, Rutgers University  
**A. Shadi Tahvildar-Zadeh**, Princeton University

- 2:30PM *Antiferromagnetism and quantum Hall effects on magnetic bubbles.*  
(88) **Fang-Hua Lin**, Courant Institute-NYU (959-35-230)

- 3:00PM (89) *A Ginzburg-Landau Type Equation from Ante-ferromagnets and Related Problems.*  
**Fengbo Hang\*** and **Fanghua Lin**, Courant Institute (959-35-227)
- 3:30PM (90) *Regularity of the blow-up set of a semilinear heat equation.*  
**Hatem Zaag**, Courant Institute and CNRS ENS (959-35-139)
- 4:00PM (91) *Improved regularity results for the quasilinear wave equations.* Preliminary report.  
**Sergiu Klainerman** and **Igor Rodnianski\***, Princeton University (959-35-189)
- 4:30PM (92) *The Vlasov-Poisson-Boltzmann system near vacuum.*  
**Yan Guo**, Division of Applied Math. Brown University (959-35-126)

- 3:25PM (103) *On compact Riemann surfaces with dihedral groups of automorphisms.*  
**Emilio Bujalance**, Dept. Matemáticas Fundamentales, Universidad Nacional Educación a Distancia, Madrid (Spain), **Francisco-Javier Cirre\***, Dept. Geometry and Topology, Universidad Complutense de Madrid, Spain, **Jose-Manuel Gamboa**, Dept. Algebra, Universidad Complutense de Madrid, Spain, and **Grzegorz Gromadzki**, Institute of Mathematics, University of Gdańsk, Poland (959-30-238)
- 3:50PM (104) *Removing short geodesics in hyperbolic 3-manifolds.* Preliminary report.  
**Kenneth W Bromberg**, University of Michigan (959-30-228)
- 4:20PM Break.
- 4:40PM (105) *Generalized intersection theory of curves on a surface.* Preliminary report.  
**Maira Chas**, CUNY Graduate Center (959-57-265)
- 5:05PM (106) *On classical and neo-classical Schottky groups.*  
**Rubén Hidalgo**, Univ. Tecnico F. Santa Maria, and **Bernard Maskit\***, The University at Stony Brook (959-30-141)

### Session for Contributed Papers, II

2:30 PM – 4:55 PM Room 520, Mathematics Building

- 2:30PM (93) *A geometric interpretation of  $\tilde{\mu}(i,j,k)$ .* Preliminary report.  
▶ **Blake Mellor\***, Honors College, FAU, and **Paul Melvin**, Bryn Mawr College (959-57-111)
- 2:45PM (94) *Instability of Statistical Factor Analysis.* Preliminary report.  
**Steven P Ellis**, Columbia University and NYSPI (959-65-144)
- 3:00PM (95) *Constructions of Bivariate Polynomial Compositions Using Puiseux's Theorem.*  
**Donald D Mills\***, U.S. Military Academy, and **Kent M Neuberburg**, Southeastern Louisiana University (959-12-152)
- 3:15PM (96) *Inhomogeneous Iterates and Stability of Fixed Points.*  
**Yong-Zhuo Chen**, University of Pittsburgh at Bradford (959-47-177)
- 3:30PM (97) *On the diophantine equation  $X^4 + m * Y^4 = Z^2$ .* Preliminary report.  
▶ **Claude Levesque\***, Université Laval, and **Omar Kihel**, University of Lethbridge (959-11-246)
- 3:45PM (98) *On the quadratic equation problem for small cancellation groups.*  
**Martin Greendlinger\***, Art Institute, **Elena Greendlinger** and **Leonard Greendlinger**, Temple University (959-20-266)
- 4:00PM Break.
- 4:15PM (99) *A probability measure associated with Lévy processes defined on Riemannian manifolds.* Preliminary report.  
**Patricia Giurgescu**, Pace University (959-60-256)
- 4:30PM (100) *Higher order intersection numbers and Whitney towers.*  
**Rob Schneiderman\***, UC Berkeley, and **Peter Teichner**, UC San Diego (959-57-113)
- 4:45PM (101) *Topological Aspects of Electromagnetic Design Problems Requiring Noncommutative Functors.* Preliminary report.  
▶ **P. Robert Kotiuga**, Boston University (959-57-99)

### Special Session on Symbolic Computation and Kleinian Groups, II

3:00 PM – 5:25 PM Room 203, Mathematics Building

Organizers: **Jane P. Gilman**, Rutgers University  
**Mika K. Seppälä**, Florida State University

- 3:00PM (102) *The Apollonian metric.*  
**Frederick W Gehring\***, University of Michigan, and **Kari Hag**, Norwegian University of Science and Technology (959-30-151)

### Special Session on Riemannian Manifolds and Their Limit Spaces, II

3:00 PM – 5:45 PM Room 405, International Affairs Building

Organizers: **Xiaochun Rong**, Rutgers University  
**Christina Sormani**, Lehman College, CUNY

- 3:00PM (107) *Kähler parabolicity and the Euler number of compact manifolds of non-positive sectional curvature.*  
▶ **Jianguo Cao**, University of Notre Dame (959-53-114)
- 3:45PM (108) *The second twisted Betti number and the strong convergence of collapsing Riemannian manifolds.* Preliminary report.  
**Fuquan Fang**, Nankai University, Tianjin, China (959-53-218)
- 4:30PM (109) *Pushing manifolds together in Gromov-Hausdorff space.* Preliminary report.  
**Steven C Ferry\***, Rutgers University, and **Alexander N Dranishnikov**, Pennsylvania State University (959-57-281)
- 5:15PM (110) *Collapsing 4-manifolds under a lower curvature bound.* Preliminary report.  
▶ **Takao Yamaguchi**, Kyushu University (959-53-292)

## Sunday, November 5

### Meeting Registration

8:00 AM – NOON First Floor, Havemeyer Building

### AMS Exhibit and Book Sale

8:00 AM – NOON First Floor, Havemeyer Building

### Special Session on Arithmetic Geometry and Modular Forms, II

8:00 AM – 10:50 AM Room 209, Havemeyer Building

Organizers: **Dorian Goldfeld**, Columbia University  
**Paula Cohen**, CNRS, Lille, France

- 8:00AM (111) *Families of Wildly Ramified Covers of Curves.*  
**Rachel J Pries**, Columbia University (959-14-179)

- 8:30AM (112) *Modularity of  $Q$ -curves and twisted Fermat equations.*  
**Jordan S Ellenberg**, Princeton University (959-11-184)
- 9:00AM (113) *Congruences between Hilbert Modular Forms.*  
**Eyal Z Goren**, McGill University (959-11-206)
- 9:30AM (114) *Euler systems and Mordell-Weil groups over ring class fields of real quadratic fields.*  
**Henri Darmon**, McGill University (959-11-297)
- 10:00AM (115) *Metriized line bundles on elements of the Tate Shafarevich group.* Preliminary report.  
**Lucien S Szpiro**, CNRS, CUNY (959-11-213)
- 10:30AM (116) *The Arakelov zeta function of van der Geer and Schoof.*  
**Jeffrey C Lagarias\*** and **Eric Rains**, AT&T Labs (959-11-112)

**Special Session on Differential Algebra and Related Topics, III**

8:30 AM – 10:50 AM **Room 410, International Affairs Building**

Organizers: **Li Guo**, Rutgers University at Newark  
**William Keigher**, Rutgers University at Newark  
**William Sit**, City College (CUNY)

- 8:30AM (117) *Generalized Differential Resultants and Differential Resultant Systems in the Ordinary Case.* Preliminary report.  
**Giuseppa Carra'-Ferro**, University of Catania (959-13-259)
- 9:00AM (118) *A  $p$ -adic Algorithm for Computing Gröbner Bases.* Preliminary report.  
**Elizabeth A. Arnold**, Texas A&M University (959-13-241)
- 9:30AM (119) *Characteristic Sets and Grobner Bases.* Preliminary report.  
**Sally D Morrison**, Bucknell University (959-12-240)
- 10:00AM (120) *Factorisation Free Algorithms in Differential and Difference Algebra.* Preliminary report.  
**Evelyne Hubert**, INRIA (959-39-226)
- 10:30AM (121) *Definitive Computation of Bernstein-Sato Polynomials.*  
**Anton Leykin**, University of Minnesota (959-14-145)

**Special Session on Commutative Algebra, III**

8:30 AM – 10:50 AM **Room 411, International Affairs Building**

Organizers: **Irena Peeva**, Cornell University  
**Luchezar Avramov**, Purdue University

- 8:30AM (122) *Do characteristic  $p$  power series yield  $p$ -fractals?* Preliminary report.  
**Paul Monsky**, Brandeis University (959-13-109)
- 9:00AM (123) *Acyclicity of Tate extensions.*  
**Srikanth Iyengar**, University of Sheffield (959-13-101)
- 9:30AM (124) *Higher Sally modules.* Preliminary report.  
**Claudia Polini**, University of Oregon (959-13-192)
- 10:00AM (125) *Jets of singular pairs.* Preliminary report.  
**Mircea I Mustata**, University of California, Berkeley (959-14-176)
- 10:30AM (126) *An algebraic proof of Zak's inequality for the dimension of the Gauss image.* Preliminary report.  
**Aron Simis**, Federal University of Pernambuco, **Karen Smith**, University of Michigan, and **Bernd Ulrich\***, Michigan State University (959-13-214)

**Special Session on Nonlinear Partial Differential Equations, III**

8:30 AM – 10:50 AM **Room 403, International Affairs Building**

Organizers: **Zheng-Chao Han**, Rutgers University  
**A. Shadi Tahvildar-Zadeh**, Princeton University

- 8:30AM (127) *Singular Perturbations and First Order PDE on Manifolds.*  
**David Holcman\***, Weizmann institute of science, and **Ivan Kupka**, Paris VI university (959-53-98)
- 9:00AM (128) *Stability of localized solutions of a Landau-Lifshitz equation.* Preliminary report.  
**Stephen J Gustafson\*** and **Jalal Shatah**, Courant Institute (959-35-250)
- 9:30AM (129) *Hamiltonian motions under strong constrains.* Preliminary report.  
**Jalal Shatah**, Courant Institute, and **Chongchun Zeng\***, University of Virginia (959-35-191)
- 10:00AM (130) *Liouville Properties and a conjecture of de Giorgi.*  
**Changfeng Gui**, University of Connecticut (959-35-234)
- 10:30AM (131) *Liouville and Harnack type theorems for semilinear elliptic equations.* Preliminary report.  
**Lei Zhang**, Rutgers University (959-35-120)

**Special Session on Arrangements of Hyperplanes, III**

8:40 AM – 10:50 AM **Room 207, Mathematics Building**

Organizers: **Michael J. Falk**, Northern Arizona University  
**Alexander I. Suciu**, Northeastern University

- 8:40AM (132) *Resonance Varieties and Tangent Cones to Characteristic Varieties.* Preliminary report.  
**Daniel Matei\***, University of Rochester, and **Alexander I Suciu**, Northeastern University (959-14-167)
- 9:15AM (133) *Random walks and hyperplane arrangements.*  
**Kenneth S. Brown**, Cornell University (959-60-122)
- 9:50AM (134) *A commutative algebra for oriented matroids.* Preliminary report.  
**Raul Cordovil**, Dept. Math. -IST (959-05-232)
- 10:25AM (135) *Matroids and quotients of spheres.*  
**Edward B Swartz**, Cornell University (959-52-245)

**Special Session on Combinatorial Group Theory, III**

9:00 AM – 10:50 AM **Room 404, International Affairs Building**

Organizers: **Gilbert Baumslag**, City College (CUNY)  
**Sean T. Cleary**, City College (CUNY)  
**Alexei Myasnikov**, City College (CUNY)  
**Vladimir Shpilrain**, City College (CUNY)

- 9:00AM (136) *Quotients of automorphism groups of free groups.* Preliminary report.  
**Martin R Bridson**, University of Oxford, and **Karen Vogtmann\***, Cornell University (959-20-233)
- 9:30AM (137) *Computation in groups using quantum automata.* Preliminary report.  
**Eric M Freden**, Southern Utah University (959-20-107)
- 10:00AM (138) *The residual finiteness of one-relator groups with torsion.*  
**Daniel T Wise**, Brandeis University (959-20-196)

10:30AM *Tame almost primitive elements.*  
(139) **Gerhard Rosenberger**, University of Dortmund,  
Germany (959-20-174)

**Special Session on the Topology of 3-Manifolds, III**

9:00 AM – 10:50 AM Room 312, Mathematics Building

Organizers: **Joan S. Birman**, Barnard College  
**Brian S. Mangum**, Barnard College  
**Walter D. Neumann**, Barnard College

9:00AM *The Yang-Mills Measure in the Kauffman Bracket  
(140) Skein Module.*  
**Doug Bullock**, Boise State University, **Charles D  
Frohman\***, University of Iowa, and **Joanna  
Kania-Bartoszyńska**, Boise State University  
(959-57-129)

9:30AM *3-Manifolds up to complexity 9 Carlo Petronio (joint  
(141) with Bruno Martelli).*  
**Carlo Petronio**, University of Pisa (959-57-94)

10:00AM *Symplectic structure on colorings of tangles.  
(142) Preliminary report.*  
**Jozef H Przytycki**, George Washington University  
(959-57-278)

10:30AM *On special 2-polyhedra and fake surfaces.  
(143) Dušan Repovš*, University of Ljubljana (959-57-93)

**Special Session on Symbolic Computation and  
Kleinian Groups, III**

9:00 AM – 10:45 AM Room 203, Mathematics Building

Organizers: **Jane P. Gilman**, Rutgers University  
**Mika K. Seppälä**, Florida State  
University

8:45AM *Little groups and Jacobians.  
(144) Angel Carocca and Rubí E. Rodríguez\**, P.  
Universidad Católica de Chile (959-30-172)

9:10AM *On full automorphism groups of Riemann surfaces.  
(145) Emilio Bujalance*, U.N.E.D. (959-14-253)

9:35AM *On the connection of the locus of real Riemann  
(146) surfaces.*  
**Antonio F Costa\***, UNED, and **Milagros Izquierdo**,  
Malardalen University (959-14-162)

10:00AM *Computations with Tori. Preliminary report.  
(147) Eric Klassen, Craig A Nolder\*, Mika K Seppälä and  
Tyler Sutton*, Florida State University (959-30-236)

10:25AM *Numerical Uniformization.  
(148) Mika Seppälä*, Florida State University (959-30-254)

**Special Session on Algebraic Geometry, III**

9:00 AM – 10:50 AM Room 417, Mathematics Building

Organizers: **Sorin Popescu**, Columbia University  
**Lev A. Borisov**, Columbia University

9:00AM *Elementary Transversality in the Schubert Calculus.  
(149) Frank Sottile*, University of Massachusetts, Amherst  
(959-14-163)

9:30AM *The structure sheaf of a quiver variety.  
(150) Anders S Buch*, Massachusetts Institute of  
Technology (959-14-190)

10:00AM *Toric Residues and Hypergeometric Functions.  
(151) Eduardo Cattani\**, University of Massachusetts,  
Amherst, **Alicia Dickenstein**, Universidad de  
Buenos Aires, and **Bernd Sturmfels**, University of  
California, Berkeley (959-14-140)

10:30AM *Szpiro Inequality for Symplectic Lefschetz Pencils.  
(152) Preliminary report.*  
**Fedor A Bogomolov**, Courant Institute of  
Mathematical Sciences (959-14-219)

**Special Session on Riemannian Manifolds and Their  
Limit Spaces, III**

9:00 AM – 11:00 AM Room 405, International  
Affairs Building

Organizers: **Xiaochun Rong**, Rutgers University  
**Christina Sormani**, Lehman College,  
CUNY

9:00AM *Differentiability of Lipschitz functions on metric  
(153) measure spaces.*  
**Jeff Cheeger**, Courant Institute, NYU (959-58-277)

9:45AM *Hausdorff Convergence and Universal Covers.  
(154) Christina Sormani, Lehman College, CUNY, and  
Guofang Wei\**, UCSB (959-53-146)

10:30AM *On fundamental groups of manifolds of  
(155) nonnegative curvature.*  
**Burkhard Wilking**, University of Pennsylvania  
(959-53-239)

**Invited Address**

11:00 AM – 11:50 AM Room 309, Havemeyer Building

(156) *Topology of hyperplane arrangements.*  
**Alexander I. Suci**, Northeastern University  
(959-57-01)

**Invited Address**

1:30 PM – 2:20 PM Room 309, Havemeyer Building

(157) *String theory and quantum geometry.*  
**Brian Greene**, Columbia University (959-83-04)

**Special Session on Combinatorial Group Theory, IV**

2:30 PM – 4:50 PM Room 404, International Affairs Building

Organizers: **Gilbert Baumslag**, City College (CUNY)  
**Sean T. Cleary**, City College (CUNY)  
**Alexei Myasnikov**, City College (CUNY)  
**Vladimir Shpilrain**, City College  
(CUNY)

2:30PM *Test elements in hyperbolic groups.  
(158) Edward C. Turner*, SUNY Albany (959-20-135)

3:00PM *Proper actions of lattices on contractible manifolds.  
(159) Preliminary report.*  
**Mladen Bestvina**, University of Utah, and **Mark  
Feighn\***, Rutgers University, Newark (959-20-149)

3:30PM *Free nilpotent groups are nondiscriminating.  
(160) Preliminary report.*  
**Benjamin Fine\***, Fairfield University, **Anthony  
Gaglione**, United States Naval Academy, **Alexei  
Myasnikov**, City College, and **Dennis Spellman**,  
Temple University (959-20-223)

4:00PM *Multiplication tables of groups.  
(161) Robert H Gilman*, Stevens Institute of Technology  
(959-00-216)

4:30PM *On fixed subgroups of a free group.  
(162) Eric Ventura\**, Universitat Politècnica de  
Catalunya, Spain, and **Armando Martino**, City  
University of London, UK (959-20-244)

**Special Session on the Topology of 3-Manifolds, IV**

2:30 PM – 5:20 PM Room 312, Mathematics Building

Organizers: **Joan S. Birman**, Barnard College  
**Brian S. Mangum**, Barnard College  
**Walter D. Neumann**, Barnard College

- 2:30PM (163) *A new class of useful surfaces in 3-manifolds.*  
**David C Bachman**, University of Illinois at Chicago (959-57-294)
- 3:00PM (164) *The mapping class group of a genus 2 surface is linear.*  
**Stephen J Bigelow**, Berkeley, and **Ryan D Budney\***, Cornell (959-57-82)
- 3:30PM (165) *Dynnikov's formulas for the linear ordering of braids.*  
**Patrick Dehornoy**, University of Caen, France (959-57-183)
- 4:00PM (166) *Torsion elements in the mapping class group of a surface.*  
**Feng Luo**, Rutgers University (959-57-147)
- 4:30PM (167) *Ordering 3-manifold groups.* Preliminary report.  
**Dale P. Rolfsen\***, University of British Columbia, **Bert Wiest**, UBC-PIMS postdoctoral fellow, and **Steven Boyer**, UQAM (959-55-117)
- 5:00PM (168) *Unknotting tunnels and Seifert surfaces.* Preliminary report.  
**Martin Scharlemann**, U. C. Santa Barbara (959-57-159)

### Special Session on Arrangements of Hyperplanes, IV

2:30 PM – 5:15 PM Room 207, Mathematics Building

Organizers: **Michael J. Falk**, Northern Arizona University  
**Alexander I. Suci**, Northeastern University

- 2:30PM (169) *There is no tame triangulation of the infinite real Grassmannian.*  
**Laura M Anderson\***, Texas A&M University, and **James F Davis**, Indiana University (959-05-224)
- 3:05PM (170) *Gröbner fans of codimension three lattice ideals.* Preliminary report.  
**Serkan Hoşten**, San Francisco State University, **Diane Maclagan\***, Institute for Advanced Study, and **Bernd Sturmfels**, University of California, Berkeley (959-13-284)
- 3:40PM (171) *The other braid monoid.*  
**David Bessis**, Yale University (959-20-153)
- 4:15PM (172) *Deformations of hyperplane arrangements.*  
**Michel Jambu**, Université de Nantes, France (959-52-296)
- 4:50PM (173) *Stability and Jump Loci for a family of bundles on  $\mathbb{P}^2$ .*  
**Hal Schenck**, Harvard University (959-14-156)

### Special Session on Arithmetic Geometry and Modular Forms, III

2:30 PM – 5:50 PM Room 209, Havemeyer Building

Organizers: **Dorian Goldfeld**, Columbia University  
**Paula Cohen**, CNRS, Lille, France

- 2:30PM (174) *Modular Correspondances and Invariant Measures.*  
**Emmanuel B Ullmo**, Princeton University (959-11-181)
- 3:00PM (175) *Small points for a family of heights.* Preliminary report.  
**Shou-Wu Zhang**, Columbia University (959-11-137)
- 3:30PM (176) *Vanishing of twists of modular L-functions.* Preliminary report.  
**Brian Conrey\***, American Institute of Mathematics, **Jonathan P Keating**, BRIMS, **Michael Rubinstein**, University of Texas, and **Nina C Snaith**, Bristol University (959-11-185)

- 4:00PM (177) *Base change and a problem of Serre.*  
**Christopher McLean Skinner**, University of Michigan (959-11-299)
- 4:30PM (178) *The Hecke convergence factor and modular forms of small negative even integral weight.*  
**Marvin I. Knopp**, Temple University (959-11-298)
- 5:00PM (179) *Elliptic Curves and  $A_n$  Extensions of  $\mathbb{Q}$ .*  
**Mark F Evans**, Vassar College (959-11-96)
- 5:30PM (180) *The Bloch-Kato conjecture for the adjoint motive of a modular form.* Preliminary report.  
**Fred Diamond**, Brandeis University, **Matthias Falch**, California Institute for Technology, and **Li Guo\***, Rutgers University - Newark (959-11-200)

### Special Session on Differential Algebra and Related Topics, IV

2:30 PM – 5:20 PM Room 410, International Affairs Building

Organizers: **Li Guo**, Rutgers University at Newark  
**William Keigher**, Rutgers University at Newark  
**William Sit**, City College (CUNY)

- 2:30PM (181) *Formulas for Liouvillian solutions of (third order) linear differential equations.* Preliminary report.  
**Michael F Singer**, North Carolina State University, and **Felix A Ulmer\***, Université de Rennes 1 (959-12-115)
- 3:00PM (182) *On initial value problems for ordinary differential-algebraic equations.*  
**Frank Leon Pritchard\***, York College of The City University of New York, and **William Yu Sit**, The City College of The City University of New York (959-34-124)
- 3:30PM (183) *The ring of global sections of  $\text{diffspec } R$ .* Preliminary report.  
**Jerald J Kovacic**, New York, NY (959-14-85)
- ▶ 4:00PM (184) *Algebraic solutions of linear differential equations.* Preliminary report.  
**Mark van Hoeij**, Florida State University (959-34-105)
- 4:30PM (185) *On the invariants of linear ordinary differential equations.*  
**Manuel Bronstein**, INRIA (959-34-220)
- 5:00PM (186) *Differential equations in positive characteristic.*  
**Marius van der Put**, University of Groningen (959-34-285)

### Special Session on Commutative Algebra, IV

2:30 PM – 3:50 PM Room 411, International Affairs Building

Organizers: **Irena Peeva**, Cornell University  
**Luchezar Avramov**, Purdue University

- 2:30PM (187) *The Canonical Element Conjecture as representation theory of Gorenstein rings.*  
**Jan R Strooker**, Universiteit Utrecht (959-13-131)
- 3:00PM (188) *Gorenstein algebras from sections of modules.*  
**Jan O Kleppe**, Oslo University College, and **Chris S Peterson\***, Colorado State University (959-13-158)
- 3:30PM (189) *Polynomials with general  $\mathbb{C}^2$ -fibers are variables.* Preliminary report.  
**Shulim Kaliman**, University of Miami (959-13-261)

### Special Session on Algebraic Geometry, IV

2:30 PM – 4:20 PM Room 417, Mathematics Building

Organizers: **Sorin Popescu**, Columbia University  
**Lev A. Borisov**, Columbia University

- 2:30PM (190) *Factorization of birational maps.* Preliminary report.  
**Kalle Karu**, Harvard University (959-51-271)

- 3:00PM *Rational points on algebraic surfaces.*  
(191) **Yuri Tschinkel**, Princeton University (959-14-225)
- 3:30PM *The Hard Lefschetz theorem and the topology of semismall maps.*  
(192) **Mark Andrea A de Cataldo\***, SUNY at Stony Brook, and **Luca Migliorini**, University of Trento (959-14-154)
- 4:00PM *Algebraic and geometric isomonodromic deformations.*  
(193) **Charles F Doran**, Columbia University (959-14-168)

***Special Session on Nonlinear Partial Differential Equations, IV***

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2:30 PM – 4:20 PM **Room 403, International Affairs Building**

- Organizers: **Zheng-Chao Han**, Rutgers University  
**A. Shadi Tahvildar-Zadeh**, Princeton University
- 2:30PM *A priori estimate for a class of Monge-Ampere type equation.*  
(194) **Sun-Yung A Chang**, Princeton University (959-35-231)
- 3:00PM *Apriori Estimaes on Scalar Curvature Equations and Gaussian Curvature in Negative Case.*  
(195) **Wenxiong Chen\***, Southwest Missouri State University, and **Congming Li**, University of Colorado (959-35-108)
- 3:30PM *On the motion of the interface between two fluids.*  
(196) Preliminary report.  
**Sijue Wu**, University of Maryland, College Park (959-35-212)
- 4:00PM *Existence results for some polymeric flows.*  
(197) Preliminary report.  
**Nader Masmoudi**, Courant Institute (959-35-186)

***Special Session on Riemannian Manifolds and Their Limit Spaces, IV***

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3:00 PM – 5:45 PM **Room 405, International Affairs Building**

- Organizers: **Xiaochun Rong**, Rutgers University  
**Christina Sormani**, Lehman College, CUNY
- 3:00PM *Curvature, momentum and variance.*  
(198) **Jyh-Yang Wu**, National Chung Cheng University, Taiwan (959-58-161)
- 3:45PM Discussion.
- 4:30PM *A deformation of noncompact Einstein solvmanifolds.* Preliminary report.  
(199) **Megan M Kerr**, Wellesley College (959-53-222)
- 5:15PM *A variational approach for homogeneous Einstein metrics.*  
(200) **Wolfgang Ziller\***, University of Pennsylvania, **Christoph Boehm**, Universitaet Kiel, and **McKenzie Wang**, McMaster University (959-53-121)

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