
Program of the Sessions

Montréal, Québec, Canada, May 3–5, 2002

Friday, May 3

Meeting Registration

8:00 AM – 4:30 PM Room B-2-01-11, Pavillon
3200 Jean-Brillant

Special Session on Potential Theory, I

8:20 AM – 11:30 AM Room B-3290, Pavillon
3200 Jean-Brillant

Organizers: **Paul M. Gauthier**, Université de
Montréal
K. Gowri Sankaran, McGill University
David H. Singman, George Mason
University

- 8:20AM *Dirac operators for conformally flat cylinders and
(1) the torus.* Preliminary report.
John Ryan*, University of Arkansas, and **R S
Krausshar**, Ghent University (976-30-77)
- 9:00AM *On the relations between the potential theories for
(2) the Laplace and the Helmholtz equations, and
hypercomplex analysis.* Preliminary report.
Michael Shapiro, (Instituto Politécnico Nacional,
MÉXICO) (976-31-65)
- 9:40AM *The Hilbert Transform of Almost Periodic functions
(3) and Distributions.*
Jagdish N. Pandey, carleton (976-31-186)
- 10:20AM *Optimal Limit Theorems and Zero-Set Mappings.
(4)* **Peter A. Loeb***, University of Illinois, Urbana,
and **Heinrich von Weizsaecker**, Universitat
Kaiserslautern (976-31-99)
- 11:00AM *Tangent sets in B-spaces and variational
(5) inequalities.* Preliminary report.
Murali Rao*, Univesity of Florida, and **Jan
Sokolowski**, Institut Elie Cartan, (976-31-196)

Special Session on Combinatorial Hopf Algebras, I

9:00 AM – 11:50 AM Room B-3245, Pavillon
3200 Jean-Brillant

Organizers: **Marcelo Aguiar**, Texas A&M University
François Bergeron, Université du
Québec à Montréal
Christophe Reutenauer, Université du
Québec à Montréal

- 9:00AM *The incidence Hopf algebra of noncrossing partition
(6) lattices.* Preliminary report.
William R. Schmitt, The George Washington
University (976-05-193)
- 9:30AM *Grafting algebras.
(7)* **Maria Ronco**, Universidad de Buenos Aires
(976-05-199)
- 10:00AM *Hit and non-hit classes in $H * (BO(3), \mathbb{F}_2)$.
(8)* **Ali S. Janfada**, Urmia University (976-55-15)
- 10:30AM *Homology of Newtonian Coalgebras.
(9)* **Margaret A. Readdy*** and **Richard Ehrenborg**,
University of Kentucky (976-05-121)
- 11:00AM *Inequalities for Polytopes.
(10)* **Richard Ehrenborg**, University of Kentucky
(976-05-134)
- 11:30AM *Free Level Algebras – Application to Algebraic
(11) Topology.* Preliminary report.
Muriel Livernet*, Paris 13, and **David Chataur**,
CRM Barcelone (976-17-117)

AMS Exhibit and Book Sale

NOON – 4:30 PM Room B-2-01-11, Pavillon 3200 Jean-Brillant

Special Session on Combinatorial and Geometric Group Theory, I

1:00 PM – 4:50 PM Room B-3240, Pavillon 3200 Jean-Brillant

Organizers: **Olga G. Kharlampovich**, McGill
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 23, Issue 3 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.

Alexei Myasnikov, City College, New York
 Vladimir Shpilrain, City College, New York
 Daniel Wise, McGill University

- 1:00PM *Most recent results on finite basis problem.*
 (12) **C. K. Gupta***, University of Manitoba, and **Alexei N. Krasilnikov**, University of Brasilia (976-20-189)
- 1:30PM *Solvable R^* Groups.*
 (13) **Patrizia Longobardi**, **Mercede Maj**, Università Degli Studi di Salerno, and **Akbar Rhemtulla***, University of Alberta (976-20-92)
- 2:00PM *Shift automorphisms of finite order.* Preliminary report.
 (14) **Edward C Turner**, SUNY Albany (976-20-101)
- 2:30PM *A survey of discriminating and squarelike groups.*
 (15) **Anthony M. Gaglione***, U.S. Naval Academy, **Benjamin Fine**, Fairfield University, **Alexei G. Myasnikov**, City College of New York, and **Dennis Spellman**, Temple University (976-20-45)
- 3:00PM *Some Further Questions on Discriminating Groups.* Preliminary report.
 (16) **Gilbert Baumslag**, City University of New York, **Benjamin Fine***, Fairfield University, **Anthony Gaglione**, United States Naval Academy, and **Dennis Spellman**, Temple University (976-20-180)
- 3:30PM *The irreducible degree n complex representations of the braid group on n strings for $n = 5, 6, 7, 8$.*
 (17) **Edward Formanek***, Penn State University, **Woo Lee**, Kwanju University, **Inna Sysoeva**, Penn State University, and **Monica Vazirani**, University of California, Berkeley (976-20-70)
- 4:00PM *Thompson's group F is not almost convex.*
 (18) **Jennifer Taback***, University at Albany, and **Sean Cleary**, City University of New York (976-20-75)
- 4:30PM *Isolated Flats: a gallery.*
 (19) **G. Christopher Hruska**, Cornell University (976-20-194)

Special Session on Potential Theory, II

1:00 PM – 4:50 PM Room B-3290, Pavillon 3200 Jean-Brillant

Organizers: **Paul M. Gauthier**, Université de Montréal
K. Gowri Sankaran, McGill University
David H. Singman, George Mason University

- 1:00PM *Countability via capacity.*
 (20) **N Levenberg**, University of Auckland, **T J Ransford***, Laval University, **J Rostand**, Ottawa, Canada, and **Z Slodkowski**, University of Illinois at Chicago (976-31-52)
- 1:40PM *Asymptotic Maximum Principle (AMP).*
 (21) **Boris Korenblum**, University at Albany, State University of New York (976-31-67)
- 2:20PM *Distribution of nodes on algebraic curves in \mathbb{C}^N .* Preliminary report.
 (22) **Thomas Bloom**, University of Toronto, and **Norman Levenberg***, Syracuse/Auckland Univ. (976-31-109)
- 3:00PM Break.
- 3:30PM *Hilbert transform of $Lip(\alpha, \beta_1, \dots, \beta_n)$ functions.*
 (23) **Javad Mashreghi**, Laval University (976-30-78)
- 4:10PM *On a class of functional equations involving analytic functions.*
 (24) **Richard Fournier**, Dawson College and University of Montreal (976-30-26)

Special Session on Function Spaces in Harmonic Analysis and PDEs, I

1:00 PM – 4:20 PM Room B-4240, Pavillon 3200 Jean-Brillant

Organizers: **Galia D. Dafni**, Concordia University
Jie Xiao, Concordia University

- 1:00PM *The Uncertainty Principle for certain densities.* Preliminary report.
 (25) **Oleg Kovrijkine**, MIT (976-42-29)
- 1:30PM *On Two Families of Schur-Concave Symmetric Polynomials.* Preliminary report.
 (26) **Ivo Klemes**, McGill University (976-41-38)
- 2:00PM *Directional maximal operators.* Preliminary report.
 (27) **Kathryn E. Hare**, University of Waterloo (976-42-53)
- 2:30PM *Solutions to some singular integro-differential equations and PDEs in the space of almost periodic distributions.* Preliminary report.
 (28) **J. N. Pandey**, Carleton University (976-43-37)
- 3:00PM *Normal Functions That Avoid Other Functions.* Preliminary report.
 (29) **Peter Lappan**, Michigan State University (976-30-41)
- 3:30PM *Wavelet Bases for Numerical Solutions to the Dirichlet Problems.* Preliminary report.
 (30) **Rong-Qing Jia**, University of Alberta (976-41-110)
- 4:00PM *A characterization of some singular integral operators on the Heisenberg group.*
 (31) **Andrea J. Fraser**, Dalhousie University (976-43-155)

Special Session on Curvature and Topology, I

1:00 PM – 4:50 PM Room B-3335, Pavillon 3200 Jean-Brillant

Organizers: **Regina Rotman**, Courant Institute, New York University
Christina Sormani, Lehman College, CUNY
Kristopher R. Tapp, SUNY at Stony Brook

- 1:00PM *Metrics without Morse Index Bounds.*
 (32) **Tobias H. Colding**, Courant Institute of Mathematical Sciences, and **Nancy Hingston***, College of New Jersey (976-49-138)
- 1:45PM *Volume, diameter and short geodesics.*
 (33) **Stéphane Sabourau**, Institut Fourier (976-53-86)
- 2:30PM *Estimates for the length of a shortest closed geodesic.*
 (34) **Alexander Nabutovsky**, University of Toronto, and **Regina Rotman***, Courant Institute of Math. Sci. (976-53-73)
- 3:15PM Discussion.
- 3:25PM *The minimal mass of a stationary 1-cycle and the length of a shortest closed geodesic.*
 (35) **Alexander Nabutovsky***, University of Toronto, and **Regina Rotman**, Courant Institute of Math. Sci. (976-53-54)
- 4:10PM *The null splitting theorem with applications to asymptotically flat and asymptotically de Sitter spacetimes.*
 (36) **Gregory J Galloway**, University of Miami (976-53-148)

Special Session on Shape Theory in Dynamics, I

1:00 PM – 4:50 PM Room B-3295, Pavillon 3200 Jean-Brillant

Organizers: **Alex Clark**, University of North Texas

Krystyna M. Kuperberg, Auburn University

- 1:00PM *Function spaces and shape theories.*
(37) **Jerzy Dydak**, University of Tennessee (976-55-64)
- 1:50PM *The geometric structure of typical boundaries of manifolds.*
(38) **William L. G. Bloch**, Wheaton College (976-57-169)
- 2:20PM *Selection theorems and dimension.*
(39) **Vesko Valov**, Nipissing University (976-54-137)
- 2:50PM *Generalized Henon difference equations with delay.*
(40) Preliminary report.
Judy A Kennedy*, University of Delaware, and **James A Yorke**, University of Maryland (976-54-136)
- 3:20PM *Expansive homeomorphisms of plane continua.*
(41) Preliminary report.
John C Mayer, University of Alabama at Birmingham (976-54-187)
- 3:50PM *Disk Global Cross Sections to Nonsingular Flows.*
(42) **Bill Basener**, Rochester Institute of Technology (976-37-56)
- 4:20PM *Embedding solenoids in euclidean space.*
(43) Preliminary report.
Robbert Fokkink*, Delft University, and **Alex Clark**, University of North Texas (976-54-144)

Special Session on Combinatorial Hopf Algebras, II

1:30 PM – 3:50 PM Room B-3245, Pavillon 3200 Jean-Brillant

Organizers: **Marcelo Aguiar**, Texas A&M University
François Bergeron, Université du Québec à Montréal
Christophe Reutenauer, Université du Québec à Montréal

- 1:30PM *Hopf algebras on trees.*
(44) **Ralf Holtkamp**, University of Bochum, Germany (976-16-108)
- 2:00PM *Hopf algebras of planar rooted trees.*
(45) **Loic Foissy**, university of Reims, France (976-16-129)
- 2:30PM *The Hopf algebra of tree expanded series.*
(46) **Alessandra Frabetti**, Institut Girard Desargues, Univ. Lyon 1 (976-16-24)
- 3:00PM *Pruning Kreimer's Trees.*
(47) **Michael E Hoffman**, U. S. Naval Academy (976-05-22)
- 3:30PM *Some Hopf algebras of trees.* Preliminary report.
▶ (48) **Pepijn P.I. van der Laan**, Mathematisch Instituut, Universiteit Utrecht (976-16-17)

Special Session on Commutative Algebra and Algebraic Geometry, I

2:00 PM – 4:50 PM Room B-3280, Pavillon 3200 Jean-Brillant

Organizers: **Irena Peeva**, Cornell University
Hema Srinivasan, University of Missouri-Columbia

- 2:00PM *On the canonical maps of surfaces of general type.*
(49) **Bangere P Purnaprajna***, University of Kansas, and **Francisco J Gallego**, Universidad Complutense de Madrid (976-14-124)
- 2:30PM *Gröbner bases of hierarchical models.*
(50) **Serkan Hosten*** and **Seth Sullivant**, San Francisco State University (976-13-183)
- 3:00PM *Linkage classes and tight closure.*
(51) **Adela Vraciu**, University of Kansas (976-13-176)

- 3:30PM *Truncated Rees algebras and arithmetic Macaulayfication of schemes.*
(52) **Tai Huy Ha**, University of Missouri (976-14-68)
- 4:00PM *Bernstein-Sato polynomials and cohomology of Milnor fibers of generic arrangements.* Preliminary report.
(53) **Uli Walther**, Purdue University (976-14-200)
- 4:30PM *Hilbert Polynomials and Chern Polynomials over Projective n-spaces.* Preliminary report.
(54) **C-Y. Jean Chan**, Purdue University (976-13-123)

Special Session on Spectral Geometry, I

2:30 PM – 4:30 PM Room B-3285, Pavillon 3200 Jean-Brillant

Organizers: **Dmitry Jakobson**, McGill University
Yiannis Petridis, McGill University and Centre de Recherches Mathématiques

- 2:30PM *Nonnegativity of central values of automorphic L-functions on PGL(2).* Preliminary report.
(55) **Kamal Khuri-Makdisi**, American University of Beirut (976-11-147)
- 3:00PM *On the Weil representation of the theta group.*
(56) **Francesco Mezzadri**, American Institute of Mathematics (976-20-115)
- 3:30PM *L^4 norms of automorphic forms.*
(57) **Florin Spinu**, Princeton University (976-11-157)
- 4:00PM *Second order modular forms.*
(58) **Nikolaos Diamantis**, Columbia University (976-11-205)

Special Session on Asymptotics for Random Matrix Models and Their Applications, I

3:00 PM – 4:45 PM Room B-4245, Pavillon 3200 Jean-Brillant

Organizers: **Nicholas M. Ercolani**, University of Arizona
Kenneth T.-R. McLaughlin, University of North Carolina at Chapel Hill and University of Arizona

- 3:00PM *Concentration of Permanent Estimators for Certain Large Matrices.*
▶ (59) **Shmuel Friedland**, University of Illinois at Chicago, **Brian Rider***, Duke University, and **Ofer Zeitouni**, Technion - Israel Institute of Technology (976-60-122)
- 4:00PM *Density of states for random band matrices.*
(60) **Margherita Disertori***, Institute for Advanced Study (Princeton, NJ), **Haru Pinson**, University of Arizona, and **Thomas Spencer**, Institute for Advanced Study (Princeton, NJ) (976-82-131)

Invited Address

5:00 PM – 5:50 PM Room B-2285, Pavillon 3200 Jean-Brillant

- (61) *Wave equations in Kerr geometry.*
Niky Kamran, McGill University (976-35-02)

Saturday, May 4

Meeting Registration

7:30 AM – 4:30 PM Room B-2-01-11, Pavillon 3200 Jean-Brillant

AMS Exhibit and Book Sale

7:30 AM – 4:30 PM Room B-2-01-11, Pavillon
3200 Jean-Brillant

Special Session on Shape Theory in Dynamics, II

8:00 AM – 10:50 AM Room B-3295, Pavillon
3200 Jean-Brillant

Organizers: **Alex Clark**, University of North Texas
Krystyna M. Kuperberg, Auburn University

- 8:00AM *The Number of Fixed Points for Homeomorphisms of Generalized Knaster Continua*. Preliminary report. (62) **James Keesling***, University of Florida, and **Vincent Ssembatya**, Makerere University (976-37-151)
- 8:30AM *Shape Theory in Dynamics*. Preliminary report. (63) **Alex Clark**, University of North Texas (976-37-191)
- 9:00AM *A Note on Fixed Point-free Volume-preserving Dynamical Systems*. (64) **Macrin Czeslaw Kulczycki**, Auburn University, Jagiellonian University (976-37-175)
- 9:30AM *Measures and Milutin Mappings*. Preliminary report. (65) **Sergei M Ageev** and **Edward D Tymchatyn***, Univ of Saskatchewan (976-54-172)
- 10:00AM *Linking of Minimal Sets in Lorenz Systems*. (66) **Michael C Sullivan***, Southern Illinois University, and **Alex Clark**, University of North Texas (976-37-81)
- 10:30AM *Shape Theory and Cross-Sections of Solution Funnels of ODE's*. (67) **James T. Rogers**, Tulane University (976-58-106)

Special Session on Asymptotics for Random Matrix Models and Their Applications, II

8:00 AM – 10:45 AM Room B-4245, Pavillon
3200 Jean-Brillant

Organizers: **Nicholas M. Ercolani**, University of Arizona
Kenneth T.-R. McLaughlin, University of North Carolina at Chapel Hill and University of Arizona

- 8:00AM *Duality in 2-Matrix models*. Preliminary report. (68) **John Harnad***, **Marco Bertola**, Concordia University and Centre de recherches mathématiques, Univ. de Montréal, and **Bertrand Eynard**, CRM, Univ. de Montréal and SPTH, CEA/Saclay (976-35-105)
- 9:00AM *Double Scaling Limit in the Random Matrix Model: the Riemann-Hilbert Approach*. (69) **Pavel Bleher**, Indiana University-Purdue University Indianapolis (976-60-49)
- 10:00AM *Genus zero large n asymptotics of bi-orthogonal polynomials involved in the random 2-matrix model*. (70) **B. Eynard***, CEA Saclay (France), CRM Montreal., **M. Bertola**, CRM Montreal, and **J. Harnad**, CRM, Montreal, University of Concordia, Montreal (976-34-160)

Special Session on Combinatorial and Geometric Group Theory, II

8:30 AM – 10:50 AM Room B-3240, Pavillon
3200 Jean-Brillant

Organizers: **Olga G. Kharlampovich**, McGill University
Alexei Myasnikov, City College, New York

Vladimir Shpilrain, City College, New York

Daniel Wise, McGill University

- 8:30AM *Algebraic properties of relatively hyperbolic groups*. (71) **Denis V Osin**, Moscow State University, Moscow, Russia (976-20-113)
- 9:00AM *Congruence extension property and weird finitely presented groups*. Preliminary report. (72) **A. Y. Ol'shanskii**, Vanderbilt University, Moscow State University, and **Mark Sapir***, Vanderbilt University (976-20-107)
- 9:30AM *The Andrews-Curtis Conjecture for word-pairs up to length 14*. Preliminary report. (73) **Robert G. Burns**, York University (976-20-145)
- 10:00AM *Lattice subgroups of Kac-Moody groups over finite fields*. (74) **Lisa Carbone***, Rutgers University, and **Howard Garland**, Yale University (976-20-153)
- 10:30AM *On the structure of the Neumann subgroups of the modular group $PSL(2, Z)$* . (75) **Alina Vdovina**, Binghamton University (976-20-104)

Special Session on Combinatorial Hopf Algebras, III

8:30 AM – 10:50 AM Room B-3245, Pavillon
3200 Jean-Brillant

Organizers: **Marcelo Aguiar**, Texas A&M University
François Bergeron, Université du Québec à Montréal
Christophe Reutenauer, Université du Québec à Montréal

- 8:30AM *Multiplication Formulas for Grothendieck Polynomials and Pieri Operators*. (76) **Cristian P Lenart**, State University of New York at Albany (976-05-16)
- 9:00AM *A universal property of the quasi-symmetric functions*. Preliminary report. (77) **Nantel Bergeron***, York University, and **Marcelo Aguiar**, Texas A & M (976-05-141)
- 9:30AM *Plethystic methods in the theory of symmetric functions*. (78) **Adriano Garsia**, University of California, San Diego (976-05-192)
- 10:00AM *The use of noncommutative Hopf algebras in representation theory of symmetric groups - an interim report*. (79) **Manfred Schocker**, Université du Québec a Montreal (976-05-21)
- 10:30AM *A peak subalgebra of the symmetric group algebra*. Preliminary report. (80) **Marcelo Aguiar**, Texas A&M, **Nantel Bergeron**, York University, and **Kathryn Nyman***, Texas A&M (976-05-204)

Special Session on Commutative Algebra and Algebraic Geometry, II

8:30 AM – 10:50 AM Room B-3280, Pavillon
3200 Jean-Brillant

Organizers: **Irena Peeva**, Cornell University
Hema Srinivasan, University of Missouri-Columbia

- 8:30AM *Homology of Koszul complexes*. Preliminary report. (81) **A. Tchernev***, University at Albany, SUNY, and **J. Weyman**, Northeastern University (976-13-44)

Program of the Sessions – Montréal, QC Canada, Saturday, May 4 (cont'd.)

- 9:00AM *Monomialization of strongly prepared morphisms from nonsingular n -folds to surfaces.* (82)
Steven D Cutkosky and **Olga Kashcheyeva***, University of Missouri - Columbia (976-14-71)
- 9:30AM *Koszul homology and integral closure of ideals.* (83)
Preliminary report.
Alberto Corso, University of Kentucky (976-13-208)
- 10:00AM *A conjecture on the core of an ideal.* Preliminary report. (84)
Claudia Polini, University of Notre Dame (976-13-135)
- 10:30AM Discussion.

Special Session on Curvature and Topology, II

8:40 AM – 10:50 AM **Room B-3335, Pavillon 3200 Jean-Brillant**

Organizers: **Regina Rotman**, Courant Institute, New York University
Christina Sormani, Lehman College, CUNY
Kristopher R. Tapp, SUNY at Stony Brook

- 8:40AM *Homogeneous Einstein Manifolds.* Preliminary report. (85)
William Dickinson, Grand Valley State University, and **Megan M Kerr***, Wellesley College (976-53-164)
- 9:25AM *Conserved quantities of the cohomogeneity one Ricci-flat equations.* Preliminary report. (86)
Andrew Dancer, Oxford University, and **McKenzie Y. Wang***, McMaster University (976-53-87)
- 10:10AM *Manifolds of Nonnegative and Almost Nonnegative Curvature.* (87)
Wilderich Tuschmann, MPI Leipzig (976-53-83)

Special Session on Potential Theory, III

9:00 AM – 10:50 AM **Room B-3290, Pavillon 3200 Jean-Brillant**

Organizers: **Paul M. Gauthier**, Université de Montréal
K. Gowri Sankaran, McGill University
David H. Singman, George Mason University

- 9:00AM *Minimal fine limits on trees.* (88)
David H Singman*, George Mason University, and **Kohur GowriSankaran**, McGill University (976-31-165)
- 9:40AM *Trees as Brelot Spaces.* (89)
Ibtisam Bajunaid, George Mason University, **Joel M Cohen**, University of Maryland, **Flavia Colonna*** and **David Singman**, George Mason University (976-31-120)
- 10:20AM *Non-Tanagential limits of Quasi-bounded n -harmonic functions on Polydisc.* Preliminary report. (90)
Kohur GowriSankaran*, McGill University, and **David Singman**, George Mason Univ (976-31-76)

Special Session on Function Spaces in Harmonic Analysis and PDEs, II

9:00 AM – 10:50 AM **Room B-4240, Pavillon 3200 Jean-Brillant**

Organizers: **Galia D. Dafni**, Concordia University
Jie Xiao, Concordia University

- 9:00AM *An Atomic Decomposition Theorem for Distributions in Hardy-Sobolev Spaces and Applications.* (91)
Yong-Kum Cho, Chung-Ang University, Seoul, Korea (976-42-96)
- 9:30AM *The maximal quasiradial Bochner-Riesz operator and its weak type estimates on certain Hardy spaces.* Preliminary report. (92)
Yong-Cheol Kim, Korea University (976-42-97)
- 10:00AM *The Navier-Stokes exterior problem in the Lorentz spaces.* (93)
Masao Yamazaki, Waseda University (976-35-43)
- 10:30AM *Schroedinger-Sobolev spaces and applications to geometric PDE's.* Preliminary report. (94)
Atanas G. Stefanov, University of Massachusetts (976-35-154)

Special Session on Spectral Geometry, II

9:00 AM – 10:20 AM **Room B-3285, Pavillon 3200 Jean-Brillant**

Organizers: **Dmitry Jakobson**, McGill University
Yiannis Petridis, McGill University and Centre de Recherches Mathématiques

- 9:00AM *Integral moments of the Riemann zeta function.* Preliminary report. (95)
J B Conrey, **D W Farmer**, American Institute of Mathematics, **J P Keating**, University of Bristol, **M O Rubinstein** and **N C Snaith***, American Institute of Mathematics (976-11-125)
- 9:30AM *High moments of L-functions.* (96)
Jeffrey M VanderKam, Center for Communications Research (976-11-118)
- 10:00AM *Pair Correlation Conjecture for Artin L-functions.* Preliminary report. (97)
Ram Murty, Queen's University (976-11-167)

Session for Contributed Papers, I

9:00 AM – 9:55 AM **Room B-4250, Pavillon 3200 Jean-Brillant**

- 9:00AM *Multivariate Montgomery Identities and Ostrowski Inequalities.* Preliminary report. (98)
George A Anastassiou, University of Memphis (976-26-23)
- 9:15AM *L_1 Compactness of bounded BV Sets.* Preliminary report. (99)
Isidore Fleischer, Centre de recherches mathématiques (976-26-126)
- 9:30AM *Related Topics on the Support of Measures.* (100)
Carmen Vlad, Pace University, New York (976-28-59)
- 9:45AM *On a hybrid algorithm for solving convex programming problems.* (101)
Yixun Shi, Bloomsburg University of Pennsylvania (976-65-28)

Invited Address

11:00 AM – 11:50 AM **Room B-2285, Pavillon 3200 Jean-Brillant**

- (102) *A Riemann-Hilbert Approach for the Asymptotics of Matrix Integrals and Map Enumeration.*
Nicholas M. Ercolani, University of Arizona (976-30-04)

Invited Address

1:30 PM – 2:20 PM Room B-2285, Pavillon 3200 Jean-Brillant

- (103) *Algebraic K-theory and traces.*
Lars Hesselholt, Massachusetts Institute of Technology

Special Session on Combinatorial and Geometric Group Theory, III

2:30 PM – 6:20 PM Room B-3240, Pavillon 3200 Jean-Brillant

Organizers: **Olga G. Kharlampovich**, McGill University
Alexei Myasnikov, City College, New York
Vladimir Shpilrain, City College, New York
Daniel Wise, McGill University

- 2:30PM *Nonpositive curvature and small cancellation groups, I.* Preliminary report.
 ▶ (104) **Noel Brady***, University of Oklahoma, and **Jon McCammond**, Texas A&M University (976-20-171)
- 3:00PM *Nonpositive curvature and small cancellation groups, II.* Preliminary report.
 ▶ (105) **Jon McCammond***, Texas A&M University, and **Noel Brady**, University of Oklahoma (976-20-173)
- 3:30PM *Generic-case complexity, decision problems in group theory and random walks.* Preliminary report.
 (106) **Ilya Kapovich**, University of Illinois, **Alexei Myasnikov**, City College of New York, **Paul Schupp***, University of Illinois, and **Vladimir Shpilrain**, City College of New York (976-20-102)
- 4:00PM *Weakly finitely presented infinite periodic groups.*
 (107) **Sergei V Ivanov**, University of Illinois (976-20-168)
- 4:30PM *Residual finiteness of ascending HNN extensions of polycyclic groups.*
 (108) **Tim Hsu***, San José State University, and **Daniel T Wise**, McGill University (976-20-61)
- 5:00PM *On the conjugacy separability of Seifert 3-manifold groups.* Preliminary report.
 (109) **Francis C. Y. Tang**, University of Waterloo (976-20-58)
- 5:30PM *Residual finiteness of outer automorphism groups of certain Fuchsian groups.*
 (110) **R.B.J.T. Allenby**, University of Leeds, **Goansu Kim***, Yeungnam University, and **C.Y. Tang**, University of Waterloo (976-20-85)
- 6:00PM *Even Rigidity in Coxeter Groups.* Preliminary report.
 (111) **Patrick Bahls**, Vanderbilt University (976-20-203)

Special Session on Potential Theory, IV

2:30 PM – 5:40 PM Room B-3290, Pavillon 3200 Jean-Brillant

Organizers: **Paul M. Gauthier**, Université de Montréal
K. Gowri Sankaran, McGill University
David H. Singman, George Mason University

2:30PM *Application of the Henstock-Kurzweil integral to the half plane Dirichlet problem.* Preliminary report.
 (112) **Erik Talvila**, University of Alberta (976-31-50)

3:10PM *On the uniqueness and geometry of solutions to free boundary problems.*
 (113) **David E. Tepper**, Baruch College, CUNY (976-31-60)

- 3:50PM *Asymptotic and boundary properties of harmonic and subharmonic functions associated with the stationary Schrödinger operator.* Preliminary report.
 (114) **Alexander I Kheyfits**, BCC/CUNY (976-31-27)
- 4:30PM *A Bicomplex Riemann Zeta Function.* Preliminary report.
 ▶ (115) **Dominic Rochon**, Université du Québec à Trois-Rivières (976-32-114)
- 5:10PM *Transfinite Interpolation by Blending Functions, Best One-Sided L^1 -Approximation, and Cubature Formulae.*
 ▶ (116) **Dimiter Dryanov***, University of Montreal and University of Sofia, **Werner Haussmann**, University of Duisburg, and **Petar Petrov**, University of Sofia (976-41-140)

Special Session on Combinatorial Hopf Algebras, IV

2:30 PM – 5:30 PM Room B-3245, Pavillon 3200 Jean-Brillant

Organizers: **Marcelo Aguiar**, Texas A&M University
François Bergeron, Université du Québec à Montréal
Christophe Reutenauer, Université du Québec à Montréal

- 2:30PM *A Hopf Algebra of Labelled Partially Ordered Sets.* Preliminary report.
 (117) **Claudia Malvenuto**, Università di Roma "La Sapienza" (976-05-39)
- 3:00PM *P-partitions and descent algebras of type B.* Preliminary report.
 (118) **Ira M Gessel**, Brandeis University (976-05-179)
- 3:30PM *Structure of the Malvenuto-Reutenauer Hopf algebra of permutations.*
 (119) **Marcelo Aguiar**, Texas A&M University, and **Frank Sottile***, University of Massachusetts (976-05-174)
- 4:10PM *The Hopf algebra of signed permutations.* Preliminary report.
 (120) **Marcelo Aguiar**, Texas A&M University, and **Swapneel Mahajan***, Cornell University (976-16-190)
- 4:40PM *A family of modules on the algebra of noncommutative symmetric functions.* Preliminary report.
 (121) **Daniel Krob***, CNRS, **Jean Yves Thibon** and **Florent Hivert**, Université de Marne la Vallée (976-05-98)
- 5:10PM *Associahedra and cyclohedra as equivariant fiber polytopes.*
 (122) **Vic Reiner**, Univ. of Minnesota (976-05-31)

Special Session on Shape Theory in Dynamics, III

2:30 PM – 5:10 PM Room B-3295, Pavillon 3200 Jean-Brillant

Organizers: **Alex Clark**, University of North Texas
Krystyna M. Kuperberg, Auburn University

- 2:30PM *On finite-dimensional maps II.*
 (123) **H. Murat Tuncali*** and **Vesko Valov**, Nipissing University (976-54-72)
- 3:00PM *Computing homology of spaces and maps.*
 ▶ (124) **Tomasz Kaczynski**, Université de Sherbrooke (976-55-127)
- 3:30PM *Volume preserving flows on sets of trivial shape.*
 (125) **Krystyna M Kuperberg**, Auburn University (976-58-201)

- 4:00PM *Finer Geometric Rigidity of Limit Sets of Conformal Iterated Function Systems.*
(126) **Mariusz Urbanski**, University of North Texas (976-37-112)
- 4:30PM *Polygonal Approximations of Flows.* Preliminary report.
(127) **Konstantin Mischaikow**, Georgia Tech (976-37-143)

Special Session on Commutative Algebra and Algebraic Geometry, III

2:30 PM – 5:50 PM Room B-3280, Pavillon 3200 Jean-Brillant

Organizers: **Irena Peeva**, Cornell University
Hema Srinivasan, University of Missouri-Columbia

- 2:30PM *Cellular Resolutions.*
(128) **Ekkehard Batzies** and **Volkmar Welker***, Universitaet Marburg (976-13-130)
- 3:00PM *The Lex-plus-powers Conjecture.* Preliminary report.
(129) **Christopher A. Francisco**, Cornell University (976-13-111)
- 3:30PM *Local cohomology of Stanley-Reisner rings with supports in monomial ideals.*
(130) **Victor S. Reiner***, School of Mathematics, University of Minnesota, **Volkmar Welker**, Philipps-Universitaet Marburg, Germany, and **Kohji Yanagawa**, Osaka University, Japan (976-13-47)
- 4:00PM *Generalized k-configurations.*
(131) **Sindi Sabourin**, Queen's University (976-13-149)
- 4:30PM *Intersection Multiplicity on Complete Intersections in Characteristic p (> 0).*
(132) **Sankar P. Dutta**, University of Illinois at Urbana-Champaign (976-13-80)
- 5:00PM *Koszul modules.* Preliminary report.
▶ (133) **J Herzog**, Universität-GHS Essen, and **S Iyengar***, University of Missouri-Columbia (976-13-185)
- 5:30PM *Cohomology and regularity on a toric variety.* Preliminary report.
(134) **Gregory G Smith**, Barnard College (976-14-188)

Special Session on Function Spaces in Harmonic Analysis and PDEs, III

2:40 PM – 5:30 PM Room B-4240, Pavillon 3200 Jean-Brillant

Organizers: **Galia D. Dafni**, Concordia University
Jie Xiao, Concordia University

- 2:40PM *Self Improving Properties on Interpolation Scales: Invertibility, Reverse Holder and Epsilon Commutators.* Preliminary report.
(135) **Mario Milman**, Florida Atlantic University (976-46-62)
- 3:10PM *S' -convolvability with the Poisson kernel in the Euclidean case and the product domain case.*
(136) **Josefina Alvarez***, New Mexico State University, **Martha Guzman-Partida**, Universidad de Sonora, and **Urszula Skornik**, Warsaw University of Agriculture (976-42-48)
- 3:40PM *Bounded mean oscillation on the bidisk and operator-valued BMO.*
(137) **Cora Sadosky**, Howard University (976-42-32)
- 4:10PM *Toeplitz Operators with BMO Symbols.*
(138) **Nina Zorboska**, University of Manitoba (976-47-163)
- 4:40PM *On several classes of bilinear pseudodifferential operators.* Preliminary report.
(139) **Arpad Benyi** and **Rodolfo H Torres***, University of Kansas (976-42-139)

- 5:10PM *Localization Operators on $SU(1, 1)$.* Preliminary report.
(140) **M. W. Wong**, York University (976-47-88)

Special Session on Curvature and Topology, III

2:45 PM – 6:00 PM Room B-3335, Pavillon 3200 Jean-Brillant

Organizers: **Regina Rotman**, Courant Institute, New York University
Christina Sormani, Lehman College, CUNY
Kristopher R. Tapp, SUNY at Stony Brook

- 2:45PM *A connectedness principle in the geometry of positive curvature.*
(141) **Fuquan Fang**, NanKai Institute of Mathematics, **Sergio Mondonca**, Instituto de Matemática, and **Xiaochun Rong***, Rutgers University and Beijing Normal University (976-53-25)
- 3:30PM *Symmetries of Eschenburg and Bazaikin spaces.*
(142) **Karsten Grove**, University of Maryland, College Park, **Krishnan Shankar***, University of Michigan, Ann Arbor, and **Wolfgang Ziller**, University of Pennsylvania (976-53-116)
- 4:15PM Discussion.
- 4:35PM *Conditions for nonnegative and positive curvature on bundles.*
(143) **Kristopher R. Tapp**, SUNY Stony Brook (976-53-51)
- 5:20PM *Inverse Compariosn Geometry.* Preliminary report.
(144) **Frederick H Wilhelm***, Univ Calif., Riverside, and **Peter Petersen**, UCLA (976-53-55)

Special Session on Spectral Geometry, III

3:00 PM – 5:35 PM Room B-3285, Pavillon 3200 Jean-Brillant

Organizers: **Dmitry Jakobson**, McGill University
Yiannis Petridis, McGill University and Centre de Recherches Mathématiques

- 3:00PM *Analysis of the horizontal Laplacian for the Hopf fibration.*
(145) **Robert O. Bauer**, University of Illinois at Urbana-Champaign (976-58-90)
- 3:30PM *A Poisson formula for conic manifolds.*
(146) **Jared Wunsch**, SUNY at Stony Brook (976-35-103)
- 4:00PM *Random Construction of Riemann Surfaces.*
(147) **Robert Brooks**, Technion, and **Eran Makover***, Connecticut College (976-53-119)
- 4:45PM *Rankin Triple Products and Quantum Chaos.*
(148) **Thomas C. Watson**, UCLA (976-11-178)
- 5:15PM *Asymptotoics of Whitaker functions and an application of Weyl's law.*
(149) **Jonathan M Huntley***, Baruch Colege, CUNY, **Nam Jong Moh**, Queensborough Community College (CUNY), and **David E Tepper**, Baruch College, CUNY (976-11-30)

Special Session on Asymptotics for Random Matrix Models and Their Applications, III

3:00 PM – 4:45 PM Room B-4245, Pavillon 3200 Jean-Brillant

Organizers: **Nicholas M. Ercolani**, University of Arizona
Kenneth T.-R. McLaughlin, University of North Carolina at Chapel Hill and University of Arizona

- 3:00PM *A complete asymptotic expansion for the partition function of random matrix theory via Riemann-Hilbert techniques.*
(150) **N. Ercolani**, University of Arizona, and **Ken T-R McLaughlin***, University of North Carolina, Chapel Hill (976-81-202)
- 4:00PM *Stokes Matrices and Riemann-Hilbert Problem for two-matrix models.*
(151) **Marco Bertola***, CRM, Univesite' de Montreal and Concordia University, **Bertrand Eynard**, C.R.M. and CEA, Saclay (France), and **John Harnad**, CRM and Concordia University (976-34-158)

- 9:00AM *Asymptotics for Discrete Orthogonal Polynomials with General Weights.* Preliminary report.
(159) **Jinho Baik**, Princeton University, **Thomas Kriecherbauer**, LMU Munich, **Kenneth T-R. McLaughlin**, University of North Carolina, Chapel Hill, and **Peter D Miller***, University of Michigan (976-41-207)
- 10:00AM *Riemann-Hilbert problem connected with semi-classical limit of the focusing Nonlinear Schroedinger Equation with certain initial conditions.* Preliminary report.
(160) **Alexander Tovbis***, **Stephanos Venakides** and **Xin Zhou**, Duke University (976-35-33)

Sunday, May 5

Special Session on Commutative Algebra and Algebraic Geometry, IV

8:00 AM – 10:50 AM Room B-3280, Pavillon 3200 Jean-Brillant

Organizers: **Irena Peeva**, Cornell University
Hema Srinivasan, University of Missouri-Columbia

- 8:00AM *Linear algebra algorithms for divisors on an algebraic curve.*
(152) **Kamal Khuri-Makdisi**, American University of Beirut (976-14-146)
- 8:30AM *Reverse Search Techniques for Large Monomial and Toric Ideal Computations.* Preliminary report.
(153) **Amelia Taylor***, Rutgers University, and **Dave Bayer**, Barnard College (976-13-182)
- 9:00AM *Rings of countable Cohen-Macaulay representation type.* Preliminary report.
(154) **Craig Huneke** and **Graham Leuschke***, University of Kansas (976-13-161)
- 9:30AM *The depth of blow-up rings of ideals.*
(155) **Laura Ghezzi**, University of Missouri-Columbia (976-13-128)
- 10:00AM *Remarks on localization of test ideals.* Preliminary report.
(156) **Ian M Aberbach**, University of Missouri (976-13-159)
- 10:30AM *On cancellation of reflexive modules over polynomial rings.*
(157) **Mohan Kumar Neithalath**, Washington University (976-13-166)

Special Session on Asymptotics for Random Matrix Models and Their Applications, IV

8:00 AM – 10:45 AM Room B-4245, Pavillon 3200 Jean-Brillant

Organizers: **Nicholas M. Ercolani**, University of Arizona
Kenneth T-R. McLaughlin, University of North Carolina at Chapel Hill and University of Arizona

- 8:00AM *Universality for eigenvalues spacings near the edge of the spectrum for modified Jacobi unitary ensembles.*
(158) **Arno B.J. Kuijlaars*** and **Maarten Vanlessen**, Katholieke Universiteit Leuven (976-15-132)

Special Session on Combinatorial and Geometric Group Theory, IV

8:30 AM – 10:50 AM Room B-3240, Pavillon 3200 Jean-Brillant

Organizers: **Olga G. Kharlampovich**, McGill University
Alexei Myasnikov, City College, New York
Vladimir Shpilrain, City College, New York
Daniel Wise, McGill University

- 8:30AM *Ultimate quotients of trees and their diameters.*
(161) **Dennis Clark***, Harvard University, and **Lisa Carbone**, Rutgers University (976-20-152)
- 9:00AM *Graphs of free groups.* Preliminary report.
(162) **Mark Feighn*** and **Guo-An Diao**, Rutgers University-Newark (976-20-57)
- 9:30AM *The Automorphism Graph of F_2 and Whitehead's Algorithm.*
(163) **Bilal Khan**, City University of New York (976-20-184)
- 10:00AM *Infinite words and length functions on groups.*
(164) **Alexei G Miasnikov**, City University of New York, **Vladimir N Remeslennikov**, Omsk Branch of Math Institute SB RAS, and **Denis E Serbin***, Grad. Ctr. City University of New York (976-20-95)
- 10:30AM *Beyond the combination theorem.* Preliminary report.
(165) **Peter Brinkmann*** and **Ilya Kapovich**, University of Illinois at Urbana-Champaign (976-20-177)

Special Session on Combinatorial Hopf Algebras, V

9:00 AM – 10:50 AM Room B-3245, Pavillon 3200 Jean-Brillant

Organizers: **Marcelo Aguiar**, Texas A&M University
François Bergeron, Université du Québec à Montréal
Christophe Reutenauer, Université du Québec à Montréal

- 9:00AM *Hopf algebras of dimension 14.*
(166) **Margaret Beattie***, Mount Allison University, and **Sorin Dascalescu**, University of Bucharest (976-16-19)
- 9:30AM *A Hopf-algebraic structure for generalized transition polynomials.*
(167) **Joanna Ellis-Monaghan*** and **Irasema Sarmiento**, University of Vermont (976-05-198)
- 10:00AM *Quantum groups and Markov traces on Hecke algebras.*
(168) **Rosa C Orellana**, Dartmouth College (976-05-170)

10:30AM *Bialgebras of recursive sequences and combinatorial identities.*
(169)
Carl A. Futia, Morton Grove, IL, **Eric F. Müller**, Universität München, and **Earl J. Taft***, Rutgers University (976-05-18)

Special Session on Function Spaces in Harmonic Analysis and PDEs, IV

9:00 AM – 10:50 AM Room B-4240, Pavillon 3200 Jean-Brillant

Organizers: **Galia D. Dafni**, Concordia University
Jie Xiao, Concordia University

9:00AM *Duality Theory of Besov Spaces with Matrix Weights.* Preliminary report.
(170) **Svetlana Roudenko**, Michigan State University (976-42-89)
9:30AM *Sharp bounds for the weighted square function.*
(171) **Janine Wittwer**, Williams College (976-42-100)
10:00AM *Inequalities for gradients on non-smooth domains.*
(172) **Caroline Sweezy**, New Mexico State University, and **Michael Wilson***, University of Vermont (976-42-93)
10:30AM *On the Hölder regularity of conformal maps.*
(173) Preliminary report.
Dorina Mitrea, University of Missouri, and **Irina Mitrea***, Cornell University (976-35-142)

Special Session on Spectral Geometry, IV

9:00 AM – 10:50 AM Room B-3285, Pavillon 3200 Jean-Brillant

Organizers: **Dmitry Jakobson**, McGill University
Yiannis Petridis, McGill University and Centre de Recherches Mathématiques

9:00AM *Non-holomorphic Poincare series constructed from derivatives and antiderivatives of cuspforms.*
(174) **Gautam Chinta**, Brown, and **Cormac O'Sullivan***, CUNY (976-11-150)
9:30AM *Twists of Maass forms: a subconvex estimate for L-functions.*
(175) **Gergely Harcos**, Princeton University (976-11-195)
10:30AM *Tate-Shafarevich Groups of Quadratic Twists of an Elliptic Curve.* Preliminary report.
(176) **Eduardo Duenez**, Johns Hopkins University (976-11-94)

Session for Contributed Papers, II

9:00 AM – 10:25 AM Room B-4250, Pavillon 3200 Jean-Brillant

9:00AM *Linearly Constrained Optimal Location.* Preliminary report.
(177) **Salem Ahmad Sahab**, King AbdulAziz University (976-41-20)
9:15AM *Bounds on Indices of R Sequences.* Preliminary report.
(178) **Andrew B. Perry**, Springfield College (976-46-181)
9:30AM *On some new Euler difference sequence spaces.*
(179) **Harun Polat**, Inonu University, Turkey (976-46-42)
9:45AM *On behaviour of operators satisfying some growth conditions and applications.*
(180) **D Drissi**, Kuwait University (976-47-40)
10:00AM *Superminimal Fibres in an Almost Contact Metric Submersion.* Preliminary report.
(181) **Bill Watson***, St. John's University, and **T. Tshikuna-Matamba**, Institut Superior Pedagogique (976-53-156)

10:15AM *A Higher Dimensional Generalization of Bailey Lemma and Rogers-Ramanujan Identities.*
(182) Preliminary report.
Hasan Coskun, Texas A&M University (976-33-35)

Special Session on Curvature and Topology, IV

9:25 AM – 10:50 AM Room B-3335, Pavillon 3200 Jean-Brillant

Organizers: **Regina Rotman**, Courant Institute, New York University
Christina Sormani, Lehman College, CUNY
Kristopher R. Tapp, SUNY at Stony Brook

8:40AM Discussion.
9:25AM *Ricci degeneracy in nonpositively curved manifolds.*
(183) Preliminary report.
Fangyang Zheng, Ohio State University (976-53-74)
10:10AM *Universal Covers for Hausdorff Limits of Noncompact Spaces.*
(184) **Christina Sormani**, Lehman College, City University of New York, and **Guofang Wei***, UC Santa Barbara (976-53-66)

Invited Address

11:00 AM – 11:50 AM Room B-2285, Pavillon 3200 Jean-Brillant

(185) *Geometric mechanisms for diffusion in mechanical systems.*
Rafael de la Llave, University of Texas at Austin (976-35-01)

Special Session on Function Spaces in Harmonic Analysis and PDEs, V

12:10 PM – 1:00 PM Room B-4240, Pavillon 3200 Jean-Brillant

Organizers: **Galia D. Dafni**, Concordia University
Jie Xiao, Concordia University
12:10PM *Regularity of degenerate prescribed Gaussian curvature in two dimensions.*
(186) **Eric T. Sawyer***, McMaster University, and **Richard L. Wheeden**, Rutgers University (976-35-206)
12:40PM *On harmonic normal and $Q_{h,p}^\#$ functions.*
(187) Preliminary report.
Rauno Aulaskari*, University of Joensuu, **Peter Lappan**, Michigan State University, and **Ruhan Zhao**, University of Virginia (976-30-36)

Special Session on Curvature and Topology, V

1:30 PM – 5:25 PM Room B-3335, Pavillon 3200 Jean-Brillant

Organizers: **Regina Rotman**, Courant Institute, New York University
Christina Sormani, Lehman College, CUNY
Kristopher R. Tapp, SUNY at Stony Brook
1:30PM *Einstein Compactifications of Hyperbolic Manifolds.*
(188) Preliminary report.
Gordon Craig, SUNY Stony Brook (976-53-91)
2:15PM *Classifying families of seven manifolds.* Preliminary report.
(189) **Christine M Escher**, Oregon State University (976-55-133)

3:00PM Discussion.

3:15PM *Covering Spaces and Their Limits.*

(190) **Christina Sormani***, Lehman College, CUNY, and
Guofang Wei, U.C.S.B. (976-53-162)

4:00PM *The Angle Defect for Arbitrary Simplicial*

► (191) *Complexes.*

Ethan D. Bloch, Bard College (976-57-82)

4:45PM *Maxwell-Dirac Equations in 4-dimensional*

(192) *Minkowski Space.*

Maria Psarelli, Bronx Community College-CUNY
(976-35-197)

Lesley M. Sibner
Associate Secretary
Brooklyn, New York