

ONTARIO MATHEMATICAL MEETINGS

The thirteenth Ontario Mathematical Meeting was held on Saturday, December 6, 1969 at the University of Waterloo. The program consisted of an invited address and twenty-nine contributed papers.

The invited address given by PROFESSOR BRANKO GRUNBAUM, University of Washington and Michigan State University, was entitled: *Combinatorial Spheres and Convex Polytopes*.

ABSTRACT. Combinatorial n -spheres are simplicial complexes equivalent by stellar subdivisions to the boundary of the $(n+1)$ -simplex. Best known examples of combinatorial n -spheres are the boundary complexes of simplicial $(n+1)$ -polytopes, but not all spheres are of that type. Despite the obvious relevance of combinatorial n -spheres for topology, for the theory of polytopes, and for various combinatorial problems, very little is known about them from a combinatorial point of view. A few steps in this direction are carried out, leading to some surprising results and to many interesting problems (such as the conjecture that no algorithm enumerates all combinatorial n -spheres with a given number of vertices).

CONTRIBUTED PAPERS:

SESSION ON ALGEBRA

S. Burris, University of Waterloo, *Varieties generated by simple algebras*.

T. M. K. Davison, McMaster University, *Characterisation of Lagrangian Monoids*.

Bruno J. Mueller, McMaster University, *Rings with Morita duality*.

M. Chacron, University of Windsor, *Locally finite rings*.

J. Csima and A. Rosa, McMaster University, *An extremal problem on finite quasi-groups*.

V. D. Belousov, University of Waterloo, *On (i, j) -associative quasigroups*.

Henry H. Crapo, University of Waterloo, *The linear inverse of a lattice operation*.

V. Dlab, Carleton University, *On matrix representations of torsions-free perfect rings*.

SESSION ON COMBINATORIAL THEORY

R. C. Mullin, University of Waterloo, *On the existence of room designs (Howell movements)*.

R. G. Stanton and D. P. Roselle, York University and Louisiana State University, *Some properties of Davenport-Schinzel sequences*.

Lee James, York University, *A problem in coding*.

Richard L. W. Brown, York University, *Cobordism, embeddings and immersions of manifolds*.

Mir M. Ali, University of Western Ontario, *On some extremal simplexes*.

SESSION ON GEOMETRY

- W. Benz, University of Waterloo, *Noncommutative geometry of circles.*
 Hansjoachim Groh, Lakehead University, *Flat Moebius and Laguerre planes.*
 Don Row, University of Toronto, *Homomorphisms of sharply transitive projective planes.*
 F. Rado, University of Cluj, Rumania, and University of Waterloo, *A generalization of semilinear maps.*
 Dietrich Schwagerl, Lakehead University, *A remark on the contour of helicoids.*
 A. M. Mathai and P. N. Rathie, McGill University and University of Waterloo, *The exact distribution of Wilks' criterion.*

SESSION ON ANALYSIS

- G. Dankert, University of Waterloo, *Hensel's lemma for Laurent series.*
 H. P. Heinig, McMaster University, *Representation of functions and Laplace and Laplace–Stieltjes transforms.*
 F. H. Northover, Carleton University, *An extension of the saddle point method.*
 M. Novotny, McMaster University, *Two theorems concerning the Laplace transform of real periodic functions.*
 P. K. Wong, University of Ottawa, *Continuous complementors on B^* -algebras.*
 A. R. Conn, University of Waterloo, *Two-point boundary value problems of class M and its related classes.*
 H. Rhee, State University College of New York at Oneonta, *On the even-solutions of the Darboux equation in the exterior of the characteristic cones.*

SESSION ON FOUNDATIONS AND COMBINATORIAL THEORY

- Patrick C. Fischer, University of Waterloo, *Degrees of unsolvability of variants on the halting problem.*
 Thuston W. Shook, University of Detroit, *Postulates for non-standard analysis.*
 Jaroslav Nesetril, McMaster University, *Asymmetric congruence of trees.*

The fourteenth Ontario Mathematical Meeting was held on Saturday, February 7, 1970 at the University of Toronto. The program consisted of an invited address and twenty-seven contributed papers.

The invited address given by PROFESSOR M. ATIYAH, Princeton Institute for Advanced Study, was entitled: *Group Actions on Manifolds.*

CONTRIBUTED PAPERS:

ANALYSIS

- L. Terrell Gardner, University of Toronto, *Positive-definite, pre-operator valued functions.*

Joel H. Shapiro, Queen's University, *Extension of linear functionals on F -spaces with bases.*

M. Novotny, McMaster University, *Two theorems concerning the Laplace transform for real periodic functions.*

F. H. Northover, Carleton University, *On the definition of a derivative of non-integral order.*

George Gasper, University of Toronto, *Positivity and the convolution structure for Jacobi series.*

MATRIX ANALYSIS

D. S. Tracy and Professor R. P. Singh, University of Windsor, *Differentiation of functions of matrices with scalar relationships among elements.*

D. Ž. Djoković, University of Waterloo, *A determinantal inequality for projectors in a unitary space.*

James L. Howland, University of Ottawa, *Matrix equations and the separation of matrix eigenvalues.*

T. W. F. Stroud, Queen's University, *A formula for differentiating a symmetric matrix-valued function of a symmetric matrix.*

STATISTICS

P. N. Rathie and P. Nath, University of Waterloo, *On inaccuracies, symmetric B -inaccuracies and errors in information.*

P. N. Nagambal, Michigan Technological University, *Contributions to products of polykays.*

A. M. Mathai and P. N. Rathie, McGill University and University of Waterloo, *An expansion of Meijer's G -Function and its application to statistical distributions.*

A. K. Basu, Queen's University, *A note on Strassen's version of law of the iterated logarithm.*

J. N. Pandey and M. Rahman, Carleton University, *The maximum likelihood estimate of the non-centrality parameter of a non-central F variate.*

RING THEORY

George Maxwell, Queen's University, *Forms over rings with anti-automorphism.*

V. Dlab, Carleton University, *A generalization of Wedderburn–Artin structure theorem.*

A. V. Geramita, Queen's University, *Projective modules as a sum of projective ideals.*

FREE ALGEBRAS

D. Schumacher, McMaster University, *On the existence of free algebras of a r -ary theory.*

COMBINATORICS, FINITE GROUPS, GEOMETRY

Erich Ellers and Don Row, University of Toronto, *Some special free completions.*

John Poland, Carleton University, *Finite groups with cyclic core factors.*

V. Chvatal, University of Waterloo, *A combinatorial theorem on monotonicity.*

T. Walsh, University of Toronto, *A census of rooted one-face maps by edges and vertices.*

Alfred Lehman, University of Toronto, *A bijective census of rooted planar maps.*

MISCELLANEOUS

Clark Jeffries, University of Toronto, *On O-deformable tensor fields.*

Wm. J. Gilbert, University of Waterloo, *On homotopy structures.*

Franklin D. Tall, University of Toronto, *A simple problem in topology (or in analysis or in set theory) which is not decided by the axioms of set theory.*

Joseph J. Williams, University of Toronto, *Non-isomorphic tensor products of Von Neumann algebras.*

The fifteenth Ontario Mathematical Meeting was held on Saturday, March 14, 1970 at Carleton University. The program consisted of an invited address and twenty-three contributed papers.

The invited address given by PROFESSOR S. EILENBERG, Columbia University, was entitled: *Rational Relations.*

CONTRIBUTED PAPERS:

Luc Demers, University of Ottawa, *On the Lusternik-Schnirelman category of a space and Whitney sums of fibrations.*

R. Maltz, University of Montreal, *On the de Rham product decomposition.*

F. Rado, University of Cluj, Rumania, and University of Waterloo, *Congruence preserving isomorphisms of the translation group associate to a translation plane.*

U. Melchior, University of Bochum, Germany and University of Toronto, *On Laguerre planes of even order.*

Don Row, University of Tasmania and University of Toronto, *Specification of geometric homomorphisms.*

A. Rosa, McMaster University, *Maximal forms and extremal values in some combinatorial problems of number theory.*

F. Neumann, University of J. E. Purkyne, Brno Czechoslovakia and University of Waterloo, *Boundedness of solutions of a differential equation and their zeros.*

E. Hotzel, McMaster University, *Dual D-operands and the Rees theorem.*

PL. Kannappan, University of Waterloo, *On additive functions.*

- Joseph Zaks, Wayne State University, *The analogue of Eberhard's theorem for 4-valent graphs on the torus.*
- J. Poland, Carleton University, *Nilpotent F -residuals and F -max-core groups.*
- John A. Riley, Suny, Plattsburgh, *The maximal ideals in quaternion orders.*
- M. Chacron, University of Windsor, *Algebraic algebras over Π -regular rings.*
- K. Clancey, Carleton University, *Seminormal operators with compact self-commutators.*
- A. T. Dash, University of Toronto and University of Guelph, *Joint spectral sets.*
- J. N. Pandey, Carleton University, *The generalized Weierstrass–Hankel convolution transform.*
- R. J. Loy, Carleton University, *Topological algebras of formal power series.*
- Kim-Peu Chew, Suny, Buffalo, *Homomorphisms of some functions rings.*
- Peter Tan, Carleton University, *Structural inference and the likelihood principle.*
- B. Forte, University of Pavia, Italy and University of Waterloo, *Compositive measure of information—Independence and idempotents.*
- W. D. Halford, University of Toronto, *Cosmology on a modified riemannian manifold.*
- Robert H. Wasserman, Michigan State University, *Geometrical characterization and application to solution of the equations of fluid flow.*
- H. L. Jackson, McMaster University, *A comparison between two types of thinness in a half plane.*