

NOTES

The following individuals were among those who received doctorates during 1954 in the mathematical sciences and related subjects from universities in the United States and Canada. The university, month in which the degree was conferred, minor subjects (other than mathematics), and title of the dissertation are given in each case if available.

C. E. Abraham, Texas, May, *Partial integro-differential equations and the H-R transform*.

J. E. Adney, Ohio State, June, *On the power of a prime dividing the order of the group of automorphisms*.

S. G. Allen, Stanford, *A class of minimax tests for one-sided composite hypotheses*.

S. L. Andersen, North Carolina State, June, *Robust tests for variances and effect of non normality and variance heterogeneity on standard tests*.

F. W. Anderson, Iowa, August, *A lattice characterization of completely C-spaces*.

Louis Auslander, Chicago, June, *Contributions to the curvature theory of Finsler spaces*.

Maurice Auslander, Columbia, May, *Relative cohomology theory of groups and continuations of homomorphisms*.

R. W. Bagley, Florida, June, minor in philosophy, *The topolattice and permutation group of an infinite set*.

A. V. Balakrishnan, Southern California, May, *On powers of the infinitesimal generators of groups and semigroups of linear bounded transformations*.

W. E. Barnes, British Columbia, May, minor in philosophy, *Primal ideals and isolated components in non-commutative rings*.

Lida K. Barrett, Pennsylvania, June, *Regular curves and regular points of finite order*.

G. E. Baxter, Minnesota, March, minor in physics, *An application of stochastic processes to certain problems in the Brownian motion of continuous media*.

Evelyn M. Bender, Massachusetts Institute of Technology, June, minor in modern languages, *Some generalizations of the Krull ramification theory for rings*.

Dean C. Benson, Iowa State, December, minor in physics, *Regularization of certain systems of differential equations*.

Donald C. Benson, Stanford, June, *Extensions of a theorem of Loewner on integral operators*.

W. J. Berger, Carnegie, June, *Special calculational methods in matrix theory.*

D. R. Bey, Illinois, June, minor in education, *Modified discriminant analysis of school organizations.*

Allan Birnbaum, Columbia, April, *Characterizations of complete classes of tests of some multiparametric hypotheses, with applications to likelihood ratio tests.*

R. C. Blanchfield, Princeton, October, *Intersection theory of manifolds with operators with applications to knot theory.*

Isadore Blumen, North Carolina, *The estimation of the means of the multivariate normal distribution: minimax solutions.*

R. N. Bradt, Stanford, *On the design and comparison of certain dichotomous experiments.*

Barron Brainerd, Michigan, June, *An algebraic theory of probability with applications to analysis and mathematical logic.*

G. U. Brauer, Michigan, June, *Some abelian semigroups of linear transformations of Hausdorff type.*

Leo Breiman, California, Berkeley, June, *Homogenous processes.*

E. H. Brown, Jr., Massachusetts Institute of Technology, September, minor in humanities, *Finite computability of the homotopy groups of finite groups.*

W. P. Brown, Michigan, February, *An algebra related to the orthogonal group.*

C. F. Brumfiel, Purdue, August, minor in physics, *Noetherian minimal bases and equations with prescribed groups.*

B. F. Bryant, Vanderbilt, December, minor in physics, *Unstable self-homeomorphisms of a compact space.*

D. A. Buchsbaum, Columbia, May, *Exact categories and duality.*

C. C. Buck, Michigan, February, *The algebraic aspect of integration in space.*

M. D. Burrow, McGill, May, *A generalization of the method of Young operators and its use in constructing primitive idempotents for the representation of $GL(2, q)$.*

J. B. Butler, Jr., California, Berkeley, June, *On the behavior of an analytic operator in Banach space in the neighborhood of a singular point.*

S. G. Campbell, Syracuse, June, *On a class of non linear partial differential equations.*

K. H. Carlson, Wisconsin, June, *The application of some inequalities in the theory of surfaces.*

J. H. Case, Tulane, August, *Some relations between induced homomorphisms on homology and cohomology groups.*

Anna Chandapillai, Wisconsin, June, *The distribution of characteristic values of a linear boundary problem of the second order based on a differential equation with a turning point.*

C. L. Chiang, California, Berkeley, January, *On regular best asymptotically normal estimates with an application to a stochastic process.*

N. A. Childress, Florida, June, minor in education, *Surfaces obtained from involutions generated by homographies of periods three, five and thirteen.*

R. R. Christian, Yale, June, *On integration with respect to a finitely additive measure whose values lie in a Dedekind complete partially ordered vector space.*

W. J. Coles, Duke, June, minor in philosophy, *Linear and Riccati systems.*

A. H. Copeland, Jr., Massachusetts Institute of Technology, September, minor in physics, *On the composability of mapping classes.*

W. R. Cowell, Wisconsin, August, *Quasinormal kernels of loops.*

Arno Cronheim, Illinois, June, minors in logic and philosophy, *Motion groups of planes.*

R. B. Crouch, Kansas, October, minor in education, *Monomial groups.*

T. H. Crowley, Ohio State, June, *A problem in the theory of distributions.*

P. P. Crump, North Carolina State, June, *Optimal designs to estimate the parameters of a variance component model.*

H. J. Curtis, Illinois Institute of Technology, June, *A metrization problem concerning lattices.*

M. B. Danford, North Carolina State, June, *Factor analysis and related statistical techniques.*

H. F. Davis, II, Massachusetts Institute of Technology, June, minor in physics, *Decomposition theorem for the Haar integral.*

Cyrus Derman, Columbia, March, *Some contributions to the theory of Markov chains.*

J. W. Dettman, Carnegie, June, *A theory of interacting particles with variable rest masses.*

L. I. Deverall, Utah, August, minor in mechanical engineering, 1. *Solution of some problems in bending of thin plates by the finite Fourier sine transform.* 2. *Some relations involving the special functions of mathematical physics.*

D. J. Dickinson, Michigan, February, *On Bessel and Lommel polynomials.*

R. J. Dickson, California Institute of Technology, June, minor in

aeronautics, *Bounds for solutions of some non-linear parabolic problems.*

J. J. Dunne, Notre Dame, June, minor in chemistry, *Theory of games in the extensive form.*

B. M. Dwork, Columbia, May, *On root number in the functional equation of the Weil L-series.*

A. R. Eckler, Princeton, June, *Rotation sampling.*

D. E. Edmondson, California Institute of Technology, June, minor in aeronautics, *Homomorphisms of a modular lattice.*

James Eells, Jr., Harvard, June, *Geometric aspects of integration theory.*

Jacqueline P. Evans, Harvard, March, *An approximation and interpolation by functions analytic in a given region and an application to orthonormal systems.*

A. G. Fadell, Ohio State, December, *Accessability in Euclidean N -space with application to differentiability theorems.*

W. M. Faucett, Tulane, August, *Topological semigroups and continua.*

W. J. Feeney, Catholic, June, minors in physics and philosophy, *Certain unsolvable problems in the theory of cancellation semi-groups.*

Jacob Feldman, Chicago, June, *Isomorphisms of rings of operators.*

E. H. Feller, Wisconsin, June, *The lattice of submodules of a module over a noncommutative ring.*

W. J. Firey, Stanford, June, *On ballistically closed regions.*

J. E. Fischer, St. Louis, June, *Quaternary-binary representations in quadratic forms.*

Harvey Fletcher, Jr., Utah, March, minor in physics, *Trigonometric series applied to bending of thin rectangular plates.*

H. A. Forrester, Princeton, June, *The theory of semi-cubical complexes.*

G. E. N. Fox, McGill, May, *Topology in the field of p -adic numbers.*

Phyllis A. Fox, Massachusetts Institute of Technology, February, minor in electrical engineering, *On the use of coordinate perturbations in the solution of physical problems.*

Elvy L. Fredrickson, Oregon State, June, minor in the college teaching program, *Application of the Schmidt theory to nonlinear integral equations.*

R. A. Fuchs, California, Berkeley, September, *Asymptotic developments of water waves obliquely incident to a dock.*

T. M. Gallie, Jr., Rice, June, *Applications of differential operators in the theory of Dirichlet series.*

R. A. Gambill, Purdue, May, minor in physics, *On systems of linear and non-linear differential equations with periodic coefficients.*

A. O. Garder, Jr., Washington University, January, *Topics in the theory of convolution transforms.*

C. B. Gass, Nebraska, June, minor in physics, *Eigenfunction expansions associated with certain irreducible partial differential equations.*

R. K. Gettoor, Michigan, June, *Some connections between operators in Hilbert space and random functions of the second order.*

Richard Goldberg, New York, June, *The slow flow of a rarefied gas past a spherical obstacle.*

R. E. Gomory, Princeton, June, *Critical points at infinity and forced oscillation.*

L. E. Grosh, Purdue, May, minor in general engineering, *Uniform distribution and round off error.*

Seymour Haber, Massachusetts Institute of Technology, September, minor in chemical engineering, *Boundary value problem for a singularly perturbed differential equation.*

J. E. Hafstrom, Minnesota, December, *Non-linear transformations in Wiener space of the form $y(t) = x(t) + q[t, x(t_1), \dots, x(t_n)]$.*

J. D. Hankins, Missouri, August, *Metric characterizations of elliptic n -space.*

H. A. Hauptman, Maryland, June, minor in physics, *An n -dimensional Euclidean algorithm.*

Sigurdur Helgason, Princeton, June, *Banach algebras and almost periodic functions.*

Morton Hellman, New York, June, *Matrix commutator relationships arising from systems of linear ordinary differential equations.*

P. S. Herwitz, North Carolina, June, *On the approximate solutions of differential equations by difference equations.*

A. L. Hess, Wisconsin, August, minor in education, *Geometric constructions: An historical and interpretative study with implication for teachers of secondary school mathematics and for teacher training programs.*

J. W. Hollingsworth, Wisconsin, August, *Parametric methods in the numerical solution of differential equations.*

T. R. Horton, Florida, August, minor in education, *On the equivalence of quadratic forms.*

J. L. Howell, Yale, June, *A class of fourth order differential operators.*

W. M. Huebsch, Notre Dame, June, *Covering homotopy.*

C. W. Huff, Georgia, August, *A study of the exponential equation in non-commuting matrices.*

S. P. Hughart, California Institute of Technology, June, minor in physics, *Representations for dicategories.*

J. S. Hunter, North Carolina State, June, *Multi-factor experimental designs*.

D. V. Huntsberger, Iowa State, June, minor in physics, *An extension of preliminary tests of significance permitting control of disturbances in statistical inferences*.

J. R. Isbell, Princeton, June, *Absolute games*.

P. K. Ito, St. Louis, June, *On the simultaneous minimax point estimation*.

M. J. Jacobson, Carnegie, June, *Reynolds theory and journal bearing lubrication*.

T. R. Jenkins, University of Washington, August, *On fields of quotients of certain convolution algebras*.

A. K. Jennings, Kansas, June, minor in physics, *Operators in reproducing kernel spaces*.

E. R. Johnston, Minnesota, March, minor in mechanics, *A study in polynomial approximation in the complex domain*.

Sister Mary Andrea Johnston, Catholic, June, minors in physics and education, *General expressions for certain coefficients in the cyclotomic polynomial $\psi_a(x)$* .

N. D. Kazarinoff, Wisconsin, January, minor in physics, *Asymptotic forms for the Whittaker functions of large complex order*.

Elsa E. Keitzer, Carnegie, June, *Some problems of network analysis and synthesis*.

Herbert Keller, New York, June, *On systems of linear ordinary differential equations with applications to ionospheric propagation*.

Maurice Kennedy, California Institute of Technology, June, minor in physics, *Ergodic theorems for a certain class of Markoff processes*.

Hewitt Kenyon, California, Berkeley, September, *Webbing derivatives and their integrals*.

H. P. Kerfoot, Southern California, May, *Almost periodic semi-groups*.

R. W. Klopfenstein, Iowa State, December, minor in electrical engineering, *Radiation patterns for slotted cylinders of arbitrary cross sections*.

H. S. Konijn, California, Berkeley, September, *On the power of some tests for independence*.

P. J. Koosis, California, Berkeley, September, *On Fourier coefficients of absolutely continuous measures*.

Bertram Kostant, Chicago, August, *The representation of a Lie algebra and its enveloping algebra which arises from a unitary representation of a Lie group*.

G. L. Krabbe, California, Berkeley, June, *Certain groups of operators in Banach space.*

C. H. Kraft, California, Berkeley, June, *On the problem of consistent and uniformly consistent statistical procedures.*

H. P. Kramer, California, Berkeley, June, *Perturbation of differential operators.*

J. B. Kruskal, Jr., Princeton, June, *The theory of well-partially-ordered sets.*

W. T. Kyner, Jr., California, Berkeley, September, *Fixed point theorems in Banach space.*

H. T. LaBorde, North Carolina, August, *A method for the numerical computation of the characteristic roots of a matrix and extensions of some theorems of P. Stein.*

R. K. Lashof, Columbia, May, *Topological group extensions and Lie algebras of locally compact groups.*

C. Y. Lee, University of Washington, December, *Domain functionals for pseudoanalytic functions.*

Karel deLeeuw, Princeton, June, *The relative cohomology theory of finite groups and algebraic number theory.*

A. B. Lehman, Florida, January, minor in physics, *On metric lattices.*

R. S. Lehman, Stanford, June, *Developments in the neighborhood of the beach of surface waves over an inclined bottom.*

C. F. A. Leth, Brown, June, *The effect of shear stresses on the carrying capacity of I-beams.*

H. A. Lindstone, Southern California, May, minor in physics, *Singular perturbations of linear differential equations in the complex plane.*

C. W. McArthur, Tulane, August, *On unconditional summability of sequences in semigroups with a topology.*

L. F. McAuley, North Carolina, June, *On the aposyndetic decomposition of continua.*

Garner McCrossen, Colorado, June, minor in philosophy, *A generalized Laplace-Stieltjes transformation.*

J. L. McGregor, California Institute of Technology, June, minor in aeronautics, *Generalized translation operators.*

R. W. McKelvey, Wisconsin, January, minor in physics, *The solutions of second order linear ordinary differential equations about a turning point of the second order.*

E. B. McLeod, Jr., Stanford, January, *An application of the Schiffer variation to the free boundary problems of hydrodynamics.*

Josiah Macy, Jr., Massachusetts Institute of Technology, Septem-

ber, minor in biology, *Probability model for cortical responses to successive auditory clicks.*

E. A. Maier, Oregon, June, *Matrices in a Boolean algebra.*

M. D. Marcus, California, Berkeley, June, *The application of fixed-point theorems to the perturbation of ordinary differential equations.*

D. C. B. Marsh, Colorado, June, minors in philosophy and chemistry, *An investigation of the number of classes in the genus of certain indefinite ternary quadratic forms.*

A. P. Mattuck, Princeton, June, *Abelian varieties over p -adic ground fields.*

C. H. Meng, Southern California, January, *On approximately normal operators.*

J.-P. G. Meyer, Cornell, February, *Classification of mappings of a 3-dimensional complex into a 2-dimensional projective space.*

P. L. Meyer, Stanford, *An application of the invariance principle to the Student hypothesis.*

W. A. Michael, Jr., Illinois, June, minor in philosophy, *Singular integral equations with normal kernels.*

J. W. Milnor, Princeton, June, *Isotopy of links.*

M. L. Minsky, Princeton, June, *Neural-analog networks and the brain model problem.*

Sister Irene Morvan, Catholic, June, minors in physics and chemistry, *A study of loci associated with systems of isopolar lines of lines with respect to a quadrangle.*

Mervin Muller, California, Los Angeles, September, *Some Monte Carlo methods for the Dirichlet problem.*

B. H. Murdoch, Princeton, October, *Preharmonic functions.*

H. A. Myers, Michigan State, December, *The unsymmetrically fed prolate spheroidal antenna.*

Rangaswamy Narasimhan, Indiana, February, minor in physics, Part I. *On the asymptotic stability of solutions of nonlinear partial differential equations of parabolic type.* Part II. *On bounded solutions of linear elliptic differential equations.*

T. V. Narayana, North Carolina, *Sequential procedures in probit analysis.*

C. J. Neugebauer, Ohio State, June, *Cyclic additivity.*

D. V. Newton, University of Washington, June, *A generalized form of the problem of Bolza in the calculus of variations.*

C. A. Nicol, Texas, May, *Generating functions for restricted partitions and the von Sterneck number.*

R. H. Niemann, Purdue, August, *A study of Stieltjes integral transforms of a certain class of functions.*

Walter Noll, Indiana, September, minor in physics, *On the continuity of the solid and the fluid states.*

G. C. Nooney, Stanford, January, *On the vibrations of triangular membranes.*

R. Z. Norman, Michigan, June, *On the number of linear graphs with given blocks.*

A. B. Novikoff, Stanford, January, *On a special system of orthogonal polynomials.*

R. H. Oehmke, Chicago, August, *A class of non-commutative power associative algebras.*

C. S. Ogilvy, Syracuse, January, *An investigation of some properties of asymptotic lines on surfaces of negative Gaussian curvature.*

F. R. Olson, Duke, June, minor in physics, *Arithmetic properties of Bernoulli numbers of higher order.*

R. C. Osborn, Texas, May, minor in philosophy, *Integration formulae for the hyperbolic partial differential equation with four independent variables and regions interior to the cone.*

E. C. Paige, Chicago, June, *Jordan algebras of characteristic 2.*

P. B. Patterson, Florida, June, minor in education, *Almost regular forms.*

A. H. Payne, North Carolina, June, *Some polynomials associated with Tschebycheff polynomials.*

Jacqueline L. Penez, Minnesota, June, minor in mechanics, *Approximation by boundary values of analytic functions.*

R. H. Pennington, Stanford, June, *Surface instabilities on pulsating gas bubbles.*

L. L. Philipson, California, Los Angeles, June, *The asymptotic character of the solutions of a class of ordinary linear differential equations depending on a parameter.*

K. C. S. Pillai, North Carolina, *On some distribution problems in multivariate analysis.*

R. G. Pohrer, Duke, June, minor in philosophy, *On the solution of equations in a finite field.*

E. E. Posey, Tennessee, June, minor in physics, *Almost polyhedral cells in Euclidean 3-space.*

J. H. Powell, Michigan State, December, *A mathematical model for single function group organization theory with applications to sociometric investigations.*

G. C. Preston, Minnesota, June, *On locally compact totally disconnected Abelian groups and their character groups.*

R. E. Priest, Illinois, June, minor in physics, *Limits of homotopy and cohomotopy groups.*

Valdemars Punga, George Washington, February, *Affine connection in space of line elements.*

R. A. Raimi, Michigan, June, *Equicontinuity of linear transformations.*

R. W. Randall, Jr., Rice, June, *Some aspects of Dirichlet series.*

Bayard Rankin, California, Berkeley, *The concept of sets enchained by a stochastic process and its use in cascade shower theory.*

B. A. Rattray, Princeton, January, *An antipodal-point orthogonal-point theorem.*

A. H. Read, Harvard, June, *External problems on Riemann surfaces.*

Edgar Reich, California, Los Angeles, March, *Some distortion theorems for functions analytic in the unit circle.*

R. B. Reisel, Northwestern, August, *A generalization of the Wedderburn-Malcev theorem to infinite dimensional algebras.*

W. F. Reynolds, Harvard, June, *On finite groups related to permutation groups of prime degree.*

T. D. Riney, Purdue, August, minor in engineering mechanics, *On the coefficients occurring in the asymptotic expansion of the generalized hypergeometric function.*

Rose M. Ring, Brown, June, *The complex eigenvalue problem for radio waves in a curvilinearly tapered atmosphere.*

B. V. Ritchie, Purdue, August, minor in physics, *On Galois theory for certain classes of nilpotent algebras.*

R. A. Roberts, Michigan, February, *Duality theorems for generalized manifolds.*

W. G. Rosen, Illinois, October, minor in physics, *On invariant means over topological semigroups.*

E. W. Ross, Jr., Brown, June, I. *On the stability of gas flow in a conical pipe.* II. *On the load-carrying of plastic plates.*

W. C. Ross, Jr., Iowa, June, *Certain functions of order statistics.*

J. P. Roth, Michigan, February, *An investigation in algebraic topology and Morse theory.*

R. W. Royston, Michigan, February, *A frequency function which can be transformed into a gamma type function by a quadratic transformation of the variable.*

L. A. Rubel, Wisconsin, June, *Entire functions and Ostrowski sequences.*

J. U. Russell, Illinois, June, minor in education, *Decompositions of analytic functions with respect to the singular set.*

L. W. Rutland, Colorado, June, minors in physics and education, *An optimum solution of N equations in M unknowns with N greater*

than M and an application to the adjustment of electrical network singularities.

Jacques Saint Pierre, North Carolina, *Distribution of linear contrasts of order statistics.*

J. L. Sanders, Jr., Brown, June, *Plastic stress-strain relations based on infinitely many plane loading surfaces.*

Herbert Scarf, Princeton, June, *Differential operators on manifolds, and applications to stochastic processes.*

Binyamin Schwarz, Washington University, June, *Complex non-oscillation theorems and criteria of univalence.*

K. C. Seal, North Carolina, *On a class of decision procedures for ranking means.*

B. M. Seelbinder, North Carolina, June, *Some new results on positive solutions of linear diophantine equations.*

G. B. Seligman, Yale, June, *Lie algebras of prime characteristic.*

J. M. Shaheen, Cincinnati, September, *On the theory of Nörlund means and their application to power series and Fourier series.*

Daniel Shanks, Maryland, June, minor in physics, *Non-linear transformations of divergent and slowly convergent sequences.*

J. M. Shapiro, Minnesota, June, *An error estimate for the convergence of distributions of sums of independent random variables to infinitely divisible distributions.*

H. S. C. Sharp, Massachusetts Institute of Technology, June, minor in modern languages, *Some series solutions for finite strain in axisymmetric membranes.*

Abe Shenitzer, New York, June, *Decomposition of a group with a single defining relation into a free product.*

R. L. Shively, Michigan, February, *On pseudo Laguerre polynomials.*

A. R. Sims, Southern California, May, *Linear differential operators of the second order.*

C. J. Sinke, Purdue, May, *New methods for obtaining the coefficients in certain asymptotic expansions.*

Morris Skibinsky, North Carolina, *Some properties of a Bayes two-stage test for the mean.*

H. T. Slaby, Wisconsin, January, *Central nilpotency of commutative Moufang loops.*

M. B. Sledd, Massachusetts Institute of Technology, September, minor in electrical engineering, *On circular cylindrical shells of variable wall thickness.*

Harry Smith, Jr., North Carolina State, June, *Weighting coefficients for age-adjusted death rates.*

N. B. Smith, Iowa State, June, minor in physics, *Types of functions*.

Charles Standish, Cornell, June, *Notes on a class of ergodic transformations*.

J. M. Stark, Massachusetts Institute of Technology, June, minor in physics, *On distortion in pseudo-conformal mapping*.

Marvin Stern, New York, June, *The rolling up of a vortex sheet*.

David Stoller, California, Los Angeles, April, *Asymptotically optimum discriminant function estimates*.

H. L. Stubbs, Boston, June, *Non-normal models for the classification of speech sounds*.

G. H. Swift, Jr., University of Washington, August, *On irregular Borel measures*.

W. B. Temple, Texas, May, minor in physics, *Stieltjes integral representation of convex functions*.

W. A. Thompson, North Carolina, *On the ratio of variances in the mixed incomplete block model*.

J. H. Turnock, Jr., Illinois, October, minor in astronomy, *Geodesic correspondences between Riemannian spaces*.

R. S. Varga, Harvard, June, *Properties of a special set of entire functions and their respective partial sums*.

R. L. Vaught, California, Berkeley, September, *Topics in the theory of arithmetical classes and Boolean algebras*.

George Veronis, Brown, June, *A study of time-dependent and wind-driven ocean circulation*.

F. J. Wagner, Notre Dame, June, *Completion and compactification of topological spaces*.

D. W. Wall, Michigan, February, *Some results in the theory of algebras with radical*.

J. H. Walter, Michigan, June, *Automorphisms of the projective unitary groups*.

Daniel Waterman, Chicago, June, I. *Integrals associated with functions of class L_p* . II. *A convergence theorem*. III. *On some high indices theorems*.

E. C. Watters, Jr., Maryland, January, minors in physics and electrical engineering, *An example of subsonic flow*.

L. H. Wegner, Jr., Oregon, June, *Contributions to the several sample problem*.

Morris Weisfeld, Yale, June, *Galois theory of derivation in division rings*.

J. E. Whitesitt, Illinois, June, *Construction of the lattice of complementary ideals within the unit group*.

Joyce W. Williams, Illinois, June, minor in physics, *Singular integral equations with symmetric complex-valued kernels of class I.*

R. F. Williams, Virginia, June, *Reductions of open mappings.*

J. C. Wilson, Louisiana State, June, *Period relations for Picard integrals defined on a special class of Kahler manifolds.*

Jonathan Winson, Columbia, March, *Error analysis of electronic analogue computation; linear differential equations with constant coefficients.*

P. S. Wolfe, California, Berkeley, September, I. *Games of infinite length.* II. *A non-degenerate formulation and "Simplex" solution of linear programming problems.*

E. S. Wolk, Brown, June, *Representation of topological algebras.*

A. W. Wortham, Oklahoma A. and M., May, *On estimates of variance components.*

Z. S. Wurtele, Columbia, March, *Some properties of Bayes procedures which improve lot quality.*

Ti Yen, Illinois, June, minor in mechanical engineering, *Trace on finite AW^* -algebras.*

R. A. Zemlin, Ohio State, June, *On a conjecture arising from a theorem of Frobenius.*

The following doctorates were conferred in 1953, but were not included in the list in the preceding volume of this Bulletin (vol. 60, pp. 292-302):

F. J. Arena, George Peabody, August, minor in history and philosophy of education, *A short history of ordinary differential equations.*

D. B. Gillies, Princeton, October, *Some theorems on N -person games.*

Jack Laderman, Columbia, April, *On statistical decision functions for selecting one of k populations.*

Jack Moshman, Tennessee, August, *A two-sample procedure for linear discrimination in normal samples.*

D. L. Wallace, Princeton, October, *Confidence regions for the location of the vertex in quadratic regression.*