

CURRICULUM VITAE

Name: **A.M. MATHAI** (Arakaparambil Mathai Mathai)

Date of birth: 28 April 1935
Place of birth: Kerala, India
Marital status: Married; 3 children (one daughter, two sons)

Present titles: Emeritus Professor (Full Professor) of Mathematics and Statistics, McGill University, Montreal, Canada, and Director (Hon), Centre for Mathematical Sciences, Trivandrum and Pala Campuses, Kerala, India

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HONORS AND DISTINCTIONS

First Class, First Rank and Gold Medal in M.Sc (Statistics) in 1959, University of Kerala
Canadian Commonwealth Scholarship 1961-1964
Fellow of the Institute of Mathematical Statistics, (USA)
Fellow of the National Academy of Sciences, India
Elected Member of the International Statistical Institute (The Netherlands)
Founder: The Canadian Journal of Statistics
Founder: Statistical Science Association of Canada (now, Statistical Society of Canada)
Founder’s award from the Statistical Society of Canada

Editorial, review and refereeing work

The Canadian Journal of Statistics (Managing Editor for one term, Editor for one term)
Regional Editor for Canada for the Statistical Theory and Methods Abstracts (for many year, not now, an ISI Publication)

Editor of the Publications Series (books, proceedings of symposia and conferences, modules series, newsletter and collection of papers) of the Centre for Mathematical Sciences, India (1985-)

Editor of the special issue (on Distributions of Test Statistics) of the American Journal of Mathematical and Management Sciences

Member of the editorial boards of (a) Communications in Statistics (Theory and Methods) for many years, not now; (b) American Journal of Mathematical and Management Sciences (for many years); (c) International Journal of Mathematical and Statistical Sciences for many years, (not now); (e) many small journals in Mathematics and Statistics in India.

Current Memberships in Professional Societies

Institute of Mathematical Statistics

International Statistical Institute

Canadian Statistical Society

Environmetric Society

Note: Formerly member of many other societies also but given up due to financial constraints.

Reviewer for the Mathematical Reviews and Zentralblatt für Mathematik

Refereed papers for almost all statistics journals and a large number of mathematics journals.

Chief organizer of the following National/International Symposia/Conferences in India on (a) Functional Equations and Their Applications 1985; (b) Special Functions and Problem-Oriented Research, 1988; (c) Computer-Oriented research in Mathematical Sciences, 1989; (d) Reliability and Renewal Theory, 1989; (e) Operator Theory and Functional Analysis, 1989; (f) Design of Experiments, 1990; (g) Algebra and Number Theory, 1990; (h) Graph Theory and Combinatorics, 1991; (i) Distribution Theory, 1991; (j) Statistical Inference, 1992; (k) Probability and Statistics, 1993.

Invited speaker (plus, usually chairman of one session) of the **UN/ESA Workshops** in (a) India; (b) Egypt; (c) Nigeria; (d) Costa Rica; (e) Columbia; (f) Germany; (g) China.

Note: Invitations were there for other UN/ESA Workshops also but due to lack of time I could not go.

Invited speaker at the international conferences in many countries, usually around 3 to 4 invitations per year. Recent ones where I went: (a) Athens, Greece (Statistics); (b) Sicily (Stochastic Geometry); (c) Hamilton, Canada (Statistics); (d) Mysore, India (Order Statistics); (e) Chennai, India (Statistics).

Invited speaker for lecture series in (a) Brazil (several times at Campinas, twice in Rio de Janeiro, once at Brasilia, once at Fortaleza, once a member of the Crop Estimation Survey Team of the Rio Grande du Sul, Brazil); (b) University of Texas at El Paso, USA; (c) Trento, Italy (for the international workshop in astrophysics).

Visiting Full Professor spending at least one semester at (a) University of Texas at El Paso, USA, (two semesters); (b) University of Campinas, Brazil, several times; (c) University of Jodhpur, India; (d) Indian Statistical Institute, India (Calcutta and Delhi Campuses); (e) Central Institute for Astrophysics, Potsdam, former East Germany (several one month visits).

Invited colloquium speaker in (a) Canada (several universities), (b) USA (several universities), (c) Brazil (several universities), (d) Greece (several universities), (e) India (several universities, colleges and National Institutes), (f) Japan (Institute of Statistical Mathematics), (g) Italy (Trento, Cattaneo), (h) West Germany (Bielefeld); plus (i) Philippines (Manila, conference), (j) Turkey (conference), (k) Spain (conference), (l) USSR (conference), (m) Malaysia (conference), (n) Hong Kong (conference), (o) China (Workshop).

Research director under (a) the Natural Sciences and the Engineering Research Council of Canada since 1965, several projects, still continuing (statistical distribution theory); (b) the Department of Science and Technology, Government of India, New Delhi (DST, Delhi) since 1985 (several projects), plus several other agencies.

Director of SERC Schools in mathematical sciences (5 to 6 weeks per school) for young faculty at the universities and colleges in India, under DST, Delhi, in 1995 and 2000 and another one is scheduled for March-April 2005.

Graduate students

Number of Ph. D theses written under A.M. Mathai's supervision = 5
Number of M. Sc theses written under A.M. Mathai's supervision =30

Educational background of A.M.Mathai

Secondary School Certificate (SSLC), 1951, Kerala, India (first class and distinction)
First Science Degree, 1953, University of Kerala, India (first class and distinction)
B.Sc Degree in Mathematics, 1957, University of Kerala, India (first class and distinction)
M. Sc Degree in Statistics, 1959, University of Kerala, India (first class, first rank and gold medal)
M.A Degree in Mathematics, University of Toronto, Canada, 1962
Ph. D Degree in Mathematics, University of Toronto, Canada, 1964.

Teaching experience of A.M. Mathai

Lecturer in Mathematics, St. Thomas College, Palai, University of Kerala, India, 1959-61
Assistant Professor, McGill University, Canada, 1964-68
Associate Professor, McGill University, Canada, 1968-78
Full Professor, McGill University, Canada, 1979-2000

Emeritus Professor, McGill University, Canada, 2000-

Note: Visiting professorships mentioned earlier included teaching also.

A.M. Mathai's research areas, with significant research contributions

1. **Mathematical Statistics** (Statistical distribution theory, multivariate analysis, characterizations, order statistics, computational aspects (theory and numerical tables), quadratic forms, bilinear forms, matrix-variate distributions (real and complex cases).
2. **Applied Statistics** (Design of experiments, demography, population models, social statistics)
3. **Probability** (Geometrical probability, queuing theory (only one paper), optimization (only one paper))
4. **Astrophysics** (Reaction rates, energy generation, gravitational instability, stellar models, neutrino problems, all papers with the physicist co-author H.J. Haubold)
5. **Information Theory** (Characterization of Information Measures, applications)
6. **Mathematics** (Generalized hypergeometric functions, G and H-functions, Functions of matrix argument, graph theory (only one paper), functional equations (applications), integral equations, differential equations (two papers only), statistical techniques applied to mathematics)
7. **Miscellaneous** (Biological models, orthogonal polynomials, dispersion theory, axiomatization of basic statistical concepts, pollution problems, transportation problems).

Note: Details may be seen from the list of publication to follow.

LIST OF A.M. MATHAI'S 12 MOST SIGNIFICANT PUBLICATIONS

1. A.M. Mathai, Random p-content of a p-parallelotope in Euclidean n-space, *Advances in Applied Probability*, **31(2)**, 343-354 (1999).

[This paper introduces a general technique of handling the distributional aspects of random volumes without using the standard differential and integral geometry techniques. A method through Jacobians of matrix transformations is introduced here, which is proved to be very powerful].

2. A.M. Mathai, *An Introduction to Geometrical Probability: Distributional Aspects with Applications*, Gordon and Breach, Newark, (1999).

[This book covers the distributional aspects of geometrical probabilities. This can be called the first full text in the English language on the subject. Apart from the standard coverage of the topics discussed, a large number of new results as well as contributions of the author and his co-workers are also introduced here].

3. A.M. Mathai, *Jacobians of Matrix Transformations and Functions of Matrix Argument*, World Scientific Publishing, New York, (1997).

[This is the first book that covers the topic of Jacobians of matrix transformations as well as scalar functions of matrix argument in the real and complex domains. A large number of results are also new, apart from more or less a full collection of known results. This book opens up applications into various fields.]

4. A.M. Mathai, Appell's and Humbert's functions of matrix arguments, *Linear Algebra and Its Applications*, **183**, 202-221, (1993).

[This paper introduces generalized special functions of matrix argument as well as introduces a general technique of extending the results on scalar variables to matrix variables in general.]

5. A.M. Mathai, On non-central generalized Laplacianness of quadratic forms in normal variables, *Journal of Multivariate Analysis*, **45**, 239-246, (1993).

[This paper introduces a new concept of "Laplacianness", analogous to the concept of "chisquaredness", when dealing with quadratic forms. It is shown that the idea is connected to many interesting topics in statistics including the distributions of covariance structures, growth-decay models, input-output models.]

6. A.M. Mathai and S.B. Provost, *Quadratic Forms in random Variables: Theory and Applications*, Marcel Dekker, New York, (1992).

[This is a very popular book. This is the first book devoted to the theory and applications of quadratic forms in real random variables. It also contains a large number of new results. Only the real cases are dealt with here. Complex cases are parallel.]

7. A.M. Mathai, On a system of differential equations connected with the gravitational instability in a multi-component medium in Newtonian cosmology, *Studies in Applied Mathematics*, **80**, 75-93, (1989).

[After seeing the work of Russians on particular aspects, the author had noticed that if the operator was changed then the problem fell into a particular case of the differential equation satisfied by a Meijer's G-function. Then by using G-functions, the general case was considered. In the two companion papers, H.J. Haubold and the author solved some gravitational instability problems also.]

8. H.J. Haubold and A.M. Mathai, *Modern Problems in Nuclear and Neutrino Astrophysics*, Akademie-Verlag, Berlin.

[In this monograph the authors present the new results on the modifications of Maxwell-Boltzmann approach to reaction rate, energy generations etc. The authors' work from 1984 to 1988 is presented in this monograph. The authors have developed further all the topics considered in this monograph].

9. A.M.Mathai, On a conjecture in geometric probability regarding asymptotic normality of a random simplex, *Annals of Probability*, **10**, 247-251, (1982).

[Apart from solving a conjecture in geometrical probabilities, a general procedure is introduced here so that problems having certain general structures can be solved by using the technique].

10. A.M. Mathai and R.S. Katiyar, Exact percentage points for testing independence, *Biometrika*, **66**, 353-356, (1979).

[The authors had developed a computer program to tackle the problem of computing exact 8-digit percentage points, from the exact null distributions, for a large number of test statistics in multivariate statistical analysis. This paper is one in the category of solving such problems by using the general program developed by the authors.]

11. A.M. Mathai and P.N. Rathie, Recent contributions to axiomatic definitions of information and statistical measures through functional equations. In, *Essays in Probability and Statistics*, Ikeda and others editors, Shinto, Tsusho, Tokyo, pp. 607-633, (1976).

[This is a review paper giving the area of characterizations of information and statistical measures through functional equations. This gives a full coverage of the area thus far, along with the works of the authors in this area.]

12. T.A. Davis and A.M. Mathai, Constructing the sunflower head, *Mathematical Biosciences*, **20**, 117-133, (1974).

[This paper solves the age-old problems of giving an explanation for the appearance of Fibonacci numbers, golden ratio etc in nature, as well as the beautiful patterns in flowers and plants. A theory of growth and form is introduced here and the pattern in a sunflower head is reconstructed by using the proposed theory. From 1976 onwards the cover design of the journal "*Mathematical Biosciences*" is the mathematical y reconstructed sunflower head of Davis and Mathai in the above paper].

Co-authors with whom A.M. Mathai has written papers and books.

R.K. Saxena (India), P.N. Rathie (Brazil), H.J. Haubold (Germany), S.B. Provost (Canada), R.S. Katiyar (Puerto Rico), W.J. Anderson (Canada), D.S. Tracy (Canada), Stratis Kounias (Greece), P.G. Moschopoulos (USA), F.S. Gordon (USA), W.Y. Tan (USA), G. Pederzoli (Italy), T. Hayakawa (Japan), S. Gottlöber (Germany), J.P. Mückel (Germany), V. Müller (Germany), Aleyamma George (India), V.C. Mathew Roy (India), M. A. Chaudhry (Saudi Arabia), H. Kaufman (Canada), T.A. Davis (India), K.C.S. Pillai (USA).

A.M. MATHAI'S PUBLICATIONS

RESEARCH LEVEL BOOKS

1. A.M. Mathai and R.K. Saxena : *Generalized Hypergeometric Functions with Applications in Statistics and Physical Sciences*, Springer-Verlag, Heidelberg and New York, Lecture Notes No. **348**, (1973).
2. A.M. Mathai and P.N. Rathie : *Basic Concepts in Information Theory and Statistics: Axiomatic Foundations and Applications*, Wiley Halsted, New York and Wiley Eastern, New Delhi, (1975).
3. A.M. Mathai and G. Pederzoli : *Characterizations of the Normal Probability Law*, Wiley Halsted, New York and Wiley Eastern, New Delhi, (1977).
4. A.M. Mathai and R.K. Saxena : *The H-function with Applications in Statistics and Other Disciplines*, Wiley Halsted, New York and Wiley Eastern, New Delhi, (1978).
5. A.M. Mathai and H.J. Haubold : *Modern Problems in Nuclear and Neutrino Astrophysics*, Akademie-Verlag, Berlin.
6. A.M. Mathai : *Distributions of Test Statistics*, edited for the American Sciences Press, USA, (1989).
7. A.M. Mathai and S.B. Provost : *Quadratic Forms in Random Variables: Theory and Applications*, Marcel Dekker, New York, (1992).
8. A.M. Mathai : *Jacobians of Matrix Transformations I*, Centre for Mathematical Sciences, Trivandrum, India, (1992).
9. A.M. Mathai : *A Handbook of Generalized Special Functions for Statistical and Physical Sciences*, Oxford University Press, Oxford, (1993).
10. A.M. Mathai : *Hypergeometric Functions of Several Matrix Arguments*, Centre for Mathematical Sciences (CMS), Trivandrum, India, (1993).
11. A.M. Mathai, S.B. Provost and T. Hayakawa : *Bilinear Forms and Zonal Polynomials*, Springer-Verlag, Lecture Notes in Statistics, No. **102**, New York, (1995).
12. A.M. Mathai : *Jacobians of Matrix Transformations and Functions of Matrix Argument*, World Scientific Publishing, New York, (1997).
13. A.M. Mathai : *An Introduction to Geometrical Probability: Distributional Aspects with Applications*, Gordon and Breach, Newark, (1999).

BOOKS AT UNDERGRADUATE – GRADUATE LEVEL

14. A.M. Mathai : *Module 1: Vectors and Matrices*, CMS, Trivandrum.

15. A.M. Mathai : *Module 2: Determinants and Eigenvalues* , CMS, Trivandrum.

16. A.M. Mathai : *Module 3: Applications of Matrices and Determinants* , CMS.

BOOKS, GENERAL

17. A.M. Mathai : *World Mathematicians Vol. 1*, CMS Pala Campus

18. A.M. Mathai : *World Mathematicians Vol. 2*, CMS Pala Campus

BOOKS AT UNDERGRADUATE LEVEL

19. A.M. Mathai : *Introduction to Statistical Mathematics*, Chand & Co, New Delhi, (1967).

20. A.M. Mathai and P.N. Rathie : *Probability and Statistics*, Macmillan and Co, New Delhi and London, (1977).

BOOKS, MODULES AND PROCEEDINGS EDITED BY A.M.MATHAI FOR THE CENTRE FOR MATHEMATICAL SCIENCES

21. Aleyamma George, A.M. Mathai and V.C. Mathew Roy : *A stochastic Model for Predicting Hospital Deaths of Diabetic Patients in the Medical College Hospital, Trivandrum*, (1985).

22. Aleyamma George and B. Asan : *Stochastic Models for Hourly Rainfall Depths*, (1985).

23. A.M. Mathai and R.S. Katiyar : *A New Algorithm for Non-linear Least Squares*, (1985).

24. A.M. Mathai : *Proceedings of the Symposium on Functional Equations and Their Applications* , (1985).

25. V.C. Mathew Roy and T.K. Suma : *Pattern of Poisoning in Medical College Hospital, Trivandrum*, (1985).

26. H.J. Haubold : *Mathematical Approaches to Nuclear Astrophysics* , (1985).

27. H.J. Haubold : *A Mathematical Approach to the Solar Neutrino Problem*, (1986).

28. D. Khare and V.K. Sethi : *Construction of New Measures of Poverty: An Axiomatic Approach* , (1986).

29. G. Sankaranarayanan and S. Sivaraman : *Representation Techniques in Stochastic processes*, (1986).
30. S. Gottlöber, H.J. Haubold, J.P. Mücket, V. Müller and A.M. Mathai, *Modern Problems in Cosmology*, (1987).
31. K.S.S. Nambooripad, R. Veeramony and A.R. Rajan : *Proceedings of the International Symposium on Theory of Regular Semi-groups and Applications*, (1987).
32. A.M. Mathai : *Optimal Diet Chart /Its Companion Book in Malayalam*, (1988).
33. A.M. Mathai and staff : *An Analysis of Data on Diabetes Mellitus in Trivandrum Medical College Hospital for 1982 and 1983*, (1988).
34. A.M. Mathai : *Proceedings of the Symposium on Special Functions and Problem-Oriented Research*, (1988).
35. K.S.S. Nambooripad : *Structure of Regular Semi-groups II: Cross-Connections*, (1989).
36. A.M. Mathai : *Proceedings of the Symposium on Computer-Oriented Research in Mathematical Sciences*, (1989).
37. A.M. Mathai : *Proceedings of the Symposium on Reliability and renewal Theory*, (1989).
38. A.M. Mathai : *Proceedings of the Symposium on Operator Theory and Functional Analysis*, (1989).
39. A.M. Mathai and staff : *An Analysis of Data on Diabetes Mellitus at Kottayam Medical College Hospital*, (1990).
40. A.M. Mathai : *Proceedings of the Symposium on Design of Experiments*, (1990).
41. A.M. Mathai : *Proceedings of the Symposium on Algebra and Number Theory*, (1990).
42. A.M. Mathai : *Proceedings of the Symposium on Graph Theory and Combinatorics*, (1991).
43. A.M. Mathai : *Proceedings of the Symposium on Distribution Theory*, (1991).
44. A.M. Mathai : *Proceedings of the Symposium on Statistical Inference*, (1992).
45. A.M. Mathai : *Proceedings of the Mahalanobis Birth Centenary National Symposium on Probability and Statistics*, (1993).

Note: Number of books and proceedings of symposia edited by A.M. Mathai for the Centre for Mathematical Sciences, Trivandrum, India, as of 2003, is equal to 37.

PAPERS OF A.M.MATHAI IN REFEREED JOURNALS AND REFEREED CONFERENCE PROCEEDINGS PLUS REFEREED BOOKS

- (1). A.M. Mathai : An approximate analysis of a two-way layout, *Biometrics*, **21**, 376-385, (1965).
- (2). A.M. Mathai and R.K. Saxena : On a generalized hypergeometric distribution, *Metrika*, **11**, 127-132, (1966).
- (3). A.M. Mathai : Sampling distributions under missing values, *Trabajos de Estadística*, **17**, 59-83, (1966).
- (4). A.M. Mathai : Pseudo-inverses in normal equations, *Estadística*, **92**, 620-628, (1966).
- (5). A.M. Mathai : Some characterizations of probability distributions, *The Canadian Mathematical Bulletin*, **9**, 95-102, (1966).
- (6). A.M. Mathai : On the multivariate exponential type distributions, *Journal of the Indian Statistical Association*, **4**, 143-154, (1966).
- (7). A.M. Mathai : On a problem of regression, *South African Journal of Statistics*, **1**, 43-48, (1967).
- (8). A.M. Mathai : Some useful results in the analysis of data, *Trabajos de Estadística*, **18**, 43-54, (1967).
- (9). A.M. Mathai : Dispersion theory, *Estadística*, **95**, 271-284, (1967).
- (10). A.M. Mathai : Dispersion and information, *Metron*, **26**, 1-12, (1967).
- (11). A.M. Mathai : On the structural properties of conditional distributions, *The Canadian Mathematical Bulletin*, **10**, 239-245, (1967).
- (12). A.M. Mathai and R.K. Saxena : A short table of generalized hypergeometric distribution, *Metrika*, **14**, 21-39, (1968).
- (13). A.M. Mathai and R.K. Saxena : Distributions having gamma properties, *Metrika*, **13**, 10-16, (1968).
- (14). A.M. Mathai : Orthogonal polynomials and a spectral decomposition, *Journal of the Indian Statistical Association*, **6**, 101-111, (1968).

- (15). A.M. Mathai : Some limit theorems in terms of dispersion, *Metron*, **XXVII-N.1-2**, 125-135, (1968).
- (16). H. Kaufman, A.M. Mathai and R.K Saxena : Random variables with random parameters, *South African Journal of Statistics*, **3**, 1-7, (1969).
- (17). A.M. Mathai and R.K. Saxena : Applications of special functions in the characterization of probability laws, *South African Journal of Statistics*, **3**, 27-34, (1969).
- (18). A.M. Mathai and R.K. Saxena : Distribution of a product and structural setup of densities, *The Annals of Mathematical Statistics*, **40**, 1439-1448, (1969).
- (19). A.M. Mathai and P.N. Rathie : The exact distribution for the sphericity test, *Journal of Statistical Research*, **4**, 140-159, (1970).
- (20). A.M. Mathai and P.N. Rathie : An expansion of G-function and its applications to statistical problems, *Roy. Belg. Akad. Class des Sci.*, **56** 1073-1084, (1970),
- (21). A.M. Mathai : Statistical theory of distributions and Meijer's G-function, *Metron*, **28**, 122-146, (1970).
- (22). A.M. Mathai and P.N. Rathie : The exact distribution of Votaw's criterion, *Annals of the Institute of Statistical Mathematics*, **22**, 89-116, (1970).
- (23). A.M. Mathai : An expansion of Meijer's G-function in the logarithmic case with applications, *Mathematische Nachrichten*, **48**, 129-139, (1970).
- (24). A.M. Mathai : The exact distribution of Bartlett's criterion, *Publ. L'ISUP, Paris*, **19**, 1-15, (1970).
- (25). A.M. Mathai : The exact distribution of a criterion for testing the hypothesis that several multivariate populations are identical, *Journal of the Indian Statistical Association*, **8**, 1-17, (1970).
- (26). A.M. Mathai and P.N. Rathie : The problem of testing independence, *Statistica*, **31**, 673-688, (1971).
- (27). A.M. Mathai and R.K. Saxena : Extension of Euler's integrals through statistical techniques, *Mathematische Nachrichten*, **51**, 1-10, (1971).
- (28). A.M. Mathai : An expansion of Meijer's G-function and the distribution of product of independent beta variables, *South African Journal of Statistics*, **5**, 71-90, (1971).
- (29). A.M. Mathai and P.N. Rathie : An expansion of Wilks' generalized variance in the non-central linear case, *Sankhya Series A*, **33**, 45-60, (1971).

- (30). A.M. Mathai and P.N. Rathie : Exact distribution of Wilks' criterion, *The Annals of Mathematical Statistics*, **42**, 1010-1019, (1971).
- (31). A.M. Mathai : On the distribution of the likelihood ratio criterion for testing linear hypotheses on regression coefficients, *Annals of the Institute of Statistical Mathematics*, **23**, 181-197, (1971).
- (32). A.M. Mathai and R.K. Saxena : Meijer's G-function with matrix argument, *Acta Mexicana*, **5**, 85-92, (1971).
- (33). A.M. Mathai and R.K. Saxena : On a generalized probability distribution, *Univ. Nac. Rev. Series A*, **21**, 193-202, (1972).
- (34). A.M. Mathai and R.K. Saxena : Expansion of Meijer's G-function of two variables when the upper parameters differ by integers, *Kyungpook Mathematics Journal*, **12**, 61-68, (1972).
- (35). A.M. Mathai : Exact distribution of a criterion for testing equality of diagonal elements given that the covariance matrix is diagonal, *Trabajos de Estadística*, **23**, 67-83, (1972).
- (36). A.M. Mathai : The exact distribution of a criterion for testing the hypothesis that a covariance matrix is diagonal, *Trabajos de Estadística*, **23**, 111-124, (1972).
- (37). H. Kaufman, A.M. Mathai and P.N. Rathie : A mathematical foundation for Pearson's chisquare goodness-of-fit statistic, *Sankhya Series A*, **34**, 441-442, (1972).
- (38). A.M. Mathai : A few remarks on the exact distribution of certain multivariate statistics-II, *Proceedings of the Symposium on Multivariate Analysis*, Halifax, pp. 169-181, (1972).
- (39). A.M. Mathai : Products and ratios of generalized gamma variates, *Skand. Aktuar.*, **55**, 193-198, (1972).
- (40). A.M. Mathai and P.N. Rathie : Characterization of Matusita's measure of affinity, *Annals of the Institute of Statistical Mathematics*, **24**, 473-483, (1972).
- (41). A.M. Mathai and P.N. Rathie : Enumeration of almost cubic maps, *Journal of Combinatorial Theory*, **13**, 83-90, (1972).
- (42). A.M. Mathai : The exact distribution of three criteria associated with Wilks' concept of generalized variance, *Sankhya Series A*, **34**, 161-170, (1972).
- (43). A.M. Mathai : The exact non-central distribution of the generalized variance, *Annals of the Institute of Statistical Mathematics*, **24**, 53-65, (1972).

- (44). F.S. Gordon and A.M. Mathai : Characterization of multivariate normal distribution using regression properties, *The Annals of Mathematical Statistics*, **43**, 205-229, (1972).
- (45). A.M. Mathai and R.K. Saxena : On linear combinations of stochastic variables, *Metrika*, **20**, 160-169, (1973).
- (46). A.M. Mathai and T.A. Davis : A mathematical explanation of the emergence of foliar spirals in coconut and other palm trees, *Proceedings of the National Science Academy (India)*, **39**, 194-202, (1973).
- (47). H. Kaufman and A.M. Mathai : A mathematical foundation for the measure of affinity, *Journal of Multivariate Analysis*, **3**, 236-242, (1973).
- (48). A.M. Mathai : A review of the various methods of obtaining the exact distributions of multivariate test criteria, *Sankhya Series A*, **35**, 39-60, (1973).
- (49). A.M. Mathai : A few remarks on some recent articles on the exact distributions of multivariate test criteria, *Annals of the Institute of Statistical Mathematics*, **25**, 557-566, (1973).
- (50). A.M. Mathai and R.K. Saxena : *Generalized Hypergeometric Functions with Applications in Statistics and Physical Sciences*, Springer-Verlag, Lectures Notes No.348, Heidelberg and New York, (1973).
- (51). A.M. Mathai and P.N. Rathie : Characterizations of some statistical concepts, In, *Measures of Information and Their Applications*, IIT, Bombay, pp.1-10, (1974).
- (52). Aleyamma George and A.M. Mathai : Applications of the concepts of affinity and distance to population problems, *Journal of Biosocial Sciences (London)*, **6**, 347-356, (1974).
- (53). T.A. Davis and A.M. Mathai : Constructing a sunflower head, *Mathematical Biosciences*, **20**, 117-133, (1974).
- (54). Aleyamma George and A.M. Mathai : Distributions of inter-live-birth intervals, *Sankhya Series B*, **37**, 332-342, (1975).
- (55). A.M. Mathai : Bounds for moments through a general orthogonal expansion in a pre-Hilbert space-I, *The Canadian Journal of Statistics*, **3**, 13-34, (1975).
- (56). Aleyamma George and A.M. Mathai : A measure of group behaviour, its characterization and applications in socio-anthropological studies, *Canadian Studies in Population*, **2**, 91-100, (1975).

- (57). A.M. Mathai and P.N. Rathie : *Basic Concepts in Information Theory and Statistics: Axiomatic Foundations and Applications*, Wiley Halsted, New York and Wiley Eastern, New Delhi.
- (58). A.M. Mathai and P.N. Rathie : Recent contributions to axiomatic definitions of information and statistical measures through functional equations, In, *Essays in Probability and Statistics*, Ikeda and others editor, Shinko Tsusho, Tokyo, pp. 607-633, (1976).
- (59). Aleyamma George and A.M. Mathai : Distribution of birth interval based on original data, *Demography of India*, **5**, 163-180, (1976).
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