

Curriculum Vitæ of S. Hedayat

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Education

Ph.D. 1969 Cornell University,
M.S. 1966 Cornell University,
B.S. 1962 (Honor), University of Tehran

Employment

2003-present	UIC Distinguished Professor	University of Illinois at Chicago
1974-2003	Professor,	University of Illinois at Chicago
1989-90	Vis. Research Scientist	Center for Drug Evaluation and Research, U.S. Food and Drug Administration
1998-1999	Eirik Malmsten's Visiting Research Professor, Statistics	Göteborg University, Sweden
1981-82	Vis. Research Professor, Statistics	University of California at Berkeley
1973 Summer	Vis. Associate Professor	Cornell University
1972-74	Associate Professor, Statistics	Florida State University
1969-72	Assistant Professor, Statistics	Cornell University
1969 Fall	Vis. Assistant Professor, Statistics	Michigan State University
1962-64	Instructor, Statistics	University of Tehran

Professional Honors

Recipient of the UIC Graduate College's Inaugural Graduate Mentoring Awards, 2007
Recipient of the UIC Premier Award for Excellence in Teaching, 2003
UIC Distinguished Professor at University of Illinois, Chicago, appointed 2003
Honorary Member, Iranian Mathematical Society, selected 2003
Awarded Honorary Doctorate by the Universite de Neuchatel, Switzerland, 2002
STINT Swedish Foundation Scholar for international cooperation in research and
higher education, 1998-1999
University of Illinois Foundation Senior Scholar, elected 1991
Fellow of The American Statistical Association, elected 1973
Fellow of The Institute of Mathematical Statistics, elected 1975

Member of the International Statistical Institute, elected 1976

Awarded gold medal by Tehran University and the Minister of Higher Education, 1962.

Graduate Student Supervision

Ph.D. Dissertations Directed:

1. Dr. John, A. Eccleston, "On the theory of connected designs," (Cornell University), 1972.

Current position: Professor and Head, Department of Mathematics, The University of Queensland, Australia.

Email: j.eccleston@epsa.uq.edu.au.

2. Dr. Kasra Afsarinejad, "Some contributions to the theory of repeated measurements designs," (Florida State University), 1973.

Current position: Professor, Principal Scientist, Clinical Science, Biostatistics, Astrazeneca R&D Molndal, S-43183 Molndal, Sweden.

Email: kasra.afsarinejad@astrazeneca.com.

3. Dr. Arlene Ash, "Construction of generalized Youden designs," (University of Illinois at Chicago), 1977.

Current position: Research Professor, Boston Medical School, Boston, MA.

Email: aash@bu.edu.

4. Dr. Constantine Magda, (Gregory M. Constantine) "On E-optimal block designs and Schur optimality," (University of Illinois at Chicago), 1977.

Current position: Professor, Mathematics and Statistics Departments, University of Pittsburgh, PA.

Email: gmc@vms.cis.pitt.edu.

5. Dr. Walter M. Foody, "Properties, construction, and application of BIB designs with repeated blocks," (University of Illinois at Chicago), 1979.

Last position: Vice President, Amapa, Champion Papel e Celulose Ltda, Rodovia SP 340-KM171, 13840-970 Mogi Guacu SP, Brasil. Retired

Email: wfoody@swbell.net.

6. Dr. Bing-Ying Lang Lin, "On probabilities proportional to size sampling designs: Their construction, algebraic properties and application," (University of Illinois at Chicago), 1981.

Current position: Professor, Department of Mathematics, National Cheng-Chi University, Taipei, Taiwan.

Email: bylin@math.nccu.edu.tw.

7. Dr. Huey-Luen Ma (Helen) Hwang, "On (k,t) trades and the construction of BIB designs with repeated blocks," (University of Illinois at Chicago), 1982.

Current position: Principle Technical Staff Member, AT&T, Middletown, NJ.

Email: hwang0203@yahoo.com.

8. Dr. John Stufken, "On optimal and highly efficient designs for comparing test treatments with a control," (University of Illinois at Chicago), 1986.

Current position: Professor and Head, Statistics Department, University of Georgia, Athen, GA.

Email: Jstufken@stat.uga.edu.

9. Dr. Wenxun (William) Zhao, “On optimal repeated measurements designs,” (University of Illinois at Chicago), 1989.

Current position: Senior Director, Research Data Science, Astellas Pharma US, Inc., Deerfield, IL.

Email: william.zhao@us.astellas.com.

10. Dr. Kewei Pu, “Contributions to fractional factorial designs,” (University of Illinois at Chicago), 1989.

Current position: Associate Director, Biostatistics, Worldwide Clinical Trials, Inc., Kennesaw, GA 30144.

Email: kpu@akrospharma.com.

11. Dr. Hegang Chen, “Contributions to experimental designs,” (University of Illinois at Chicago), 1993.

Current position: Associate Professor, Division of Biostatistics and Bioinformatics, School of Medicine, University of Maryland, Baltimore, MD.

Email: hchen@epi.umaryland.edu.

12. Dr. Weiguang Zhang, “Nearly and virtually balanced incomplete block designs,” (University of Illinois at Chicago), 1994.

Last position: Senior Software Engineer, SPSS, Inc. Chicago, IL. (Wei passed away on June 1st, 1998).

13. Dr. Bo Yan, “Modeling and identifying optimum designs for fitting dose-response curves and estimating ED_p based on raw optical density data,” (University of Illinois at Chicago) 1995.

Current position: Associate Director, Clinical Statistics, Abbott Laboratory 100 Abbott Park, IL.

Email: bo.yan@abbott.com.

14. Dr. Guoqin Su, “On the existence and construction of difference schemes and orthogonal arrays,” (University of Illinois at Chicago) 1996.

Current position: Associate Director of Biostatistics, Novartis Pharmaceutical Corporation, 59 Route 10, East Hanover, NJ 07936-1080.

Email: guoqin.su@novartis.com.

15. Dr. Hairong Crigler, “Distribution-free confidence intervals for finite population quantile intervals in two-stage cluster sampling and an application in waste management,” (University of Illinois at Chicago) 1996.

Current position: Director, Experian Decision Sciences, 4 Gatehall Drive Parsippany, NJ 07054.

Email: Hairong.Crigler@experian.com.

16. Dr. Juhui Jiao, “Hypothesis testing in incomplete risks theory,” (University of Illinois at Chicago) 1997.

Current position: Senior Statistician, Roche Lab, Nutley, NJ.

Email: james.jiao@roche.com.

17. Dr. Weining Zhao Robieson, “On weighted kappa and concordance correlation coefficient,” (University of Illinois at Chicago), 1999.
Current position: Manager, Statistics, Abbott Laboratories, Abbott Park, IL.
Email: weining.z.robieson@abbott.com.
18. Dr. Jinglin Zhong, “Optimal and efficient nonlinear designs and solutions with interpretations to individual bioequivalence”, 2000.
Current position: Mathematical Statistician, Center for Drug Evaluation and Research, U.S. Food and Drug Administration, Silver Spring, MD
Email: jinglin.zhong@fda.hhs.gov.
19. Dr. Min Yang, “Universal Optimality in Crossover Designs and Statistical Methods in Assessing Agreement”, 2002.
Current position: Assistant Professor, Department of Statistics, University of Missouri, Columbia, MO 65203
Email: yangmi@missouri.edu.
20. Dr. Haiyuan Zhu, “Optimal augmented designs and fractional factorial designs”, 2002.
Current position: Biometrician, Merck Research Laboratories, P.O. Box 2000, Rahway, NJ 07065-0900
Email: haiyuan_zhu@merck.com.
21. Dr. Xu Yan, “Optimal designs in stability studies”, 2004.
Current Position: Mathematical Statistician, Center for Devices and Radiological Health, U.S. Food and Drug Administration, 1350 Piccard Drive, HFZ-542, Rockville, MD 20850
Email: xu.yan@fda.hhs.gov.
22. Dr. Yunfan Deng, “Designs for crossover trials with binary outcomes”, 2005.
Current Position: Mathematical Statistician, Center for Drug Evaluation and Research, U.S. Food and Drug Administration, Silver Spring, MD
Email: Yunfan.Deng@fda.hhs.gov.
23. Dr. Wenting Wu, “A Unified Approach for Assessing Agreement”, 2006.
Current Position: Lead Statistician, Mayo Clinic, 200 First Street SW, Rochester, MN 55902
Email: wu.wenting@mayo.edu.
24. Dr. Xin Fang, “D-optimal Designs for Pharmacokinetic and Combined Pharmacokinetic Pharmacodynamic Models”, 2006.
Current Position: Mathematical Statistician, U.S. Food and Drug Administration, 10903 New Hampshire Avenue, Silver Spring, MD 20903
Email: Xin.Fang@fda.hhs.gov.
25. Dr. Daniel Tancredi, “Design Insights for Epidemiological Studies of Prevalent and Incident Dementia”, 2006
Current Position: Assistant Professor of Pediatrics, Center for Health Services Research in Primary Care - University of California at Davis
Email: djtancredi@ucdavis.edu.

26. Dr. Congrong (Helen) Lou, “Assessment of Agreement”, 2006.
 Current Position: Senior Manager, Marketing Information R and D, ACNielsen,
 Schaumburg, IL.
 Email: helen.lou@acnielsen.com.
27. Dr. Zhiwu Yan, “Crossover Designs for a Self and Simple Mixed Carryover
 Effects Model with Correlated Errors”, 2006
 Current Position: Research Statistician, Abbott Laboratories, Abbott Park 100,
 Abbott Park, IL
 Email: zhiwu.yan@abbott.com.
28. Dr. Li Wei, “ Stochastic Curtailment Method Under Linear Models”, 2007
 Current Position: Senior Research Biostatistician, Bristol-Myers Squibb, Hopewell,
 NJ
 Email: li.weil@bms.com.
29. Dr. Yuping Dong, “Surveillance Studies on Change Point in Incidence Rate”,
 2007
 Current Position: Senior Research Biostatistician, Bristol-Myers Squibb, 311
 Pennington-Rocky Hill Road, Pennington, NJ, 08534
 Email: yuping.dong@bms.com.
30. Dr. Weiya Zhang, “Designs for a Toxicity-Efficacy Model and Inference on a
 Normal Mean with Known Coefficient of Variation”, 2007
 Current Position: Senior Statistician, Sanofi-Aventis, 10 Great Valley Parkway,
 Malvern, PA
 Email: weiya.zhang@sanofi-aventis.com.

Editorships

Annals of Statistics

Associate Editor 1973-1980

Communications in Statistics Series A and B

Editorial Board Member 1975-1993
 Associate Editor 1993-2002

Journal of Statistical Planning and Inference

Editorial Board Member 1975-1983
 Coordinating Editor 1983-1995
 Advisory Editor 1995-2000

Arab Journal of Mathematical Sciences

Advisory Board Member 1998

Student

Editorial Board Member 1993-present

Journal of American Statistical Association

Associate Editor 1993-1996; 2000-2009

- The American Statistician*
Associate Editor 2008-present
- Bulletin of Iranian Mathematical Society*
Associate Editor 2003-present
- Journal of Linear Algebra and Its Applications*
Coeditor with Wayne Barrett, Christian Krattenthaler and
Raphael Loewy the special issue on Determinants and the Legacy
of Sir Thomas Muir, Volume 411 (390 pages) Dec. 2005
- Discrete Mathematics*
Coeditor with R.A. Brualdi, H. Kharaghani, G.B. Khosrovshahi
and S. Shahriari. International Workshop on Combinatorics,
Linear Algebra, and Graph Coloring, Volume 306, Issue 23 Dec. 2006

Publications

Books

1. *Factorial Designs* (with W. T. Federer and B. L. Raktoc), Wiley, 1981.
2. *Design and Inference in Finite Population Sampling* (with B. K. Sinha), Wiley, 1991.
3. *Orthogonal Arrays-Theory and Applications* (with N. J. A. Sloane and J. Stufken), Springer-Verlag, 1999.

Articles

4. “An application of group theory to the existence and non-existence of orthogonal Latin squares” (with W. T. Federer), *Biometrika* **56** (1969), 547–551.
5. “F-square and orthogonal F-square designs: A generalization of Latin square and orthogonal Latin square designs” (with E. Seiden), *Annals of Mathematical Statistics* **41** (1970), 2035–2044.
6. “The existence and construction of two families of designs for two successive experiments” (with E. T. Parker and W. T. Federer), *Biometrika* **57** (1970), 351–355.
7. “An easy method of constructing partially replicated Latin square designs of order n for all $n > 2$ ” (with W. T. Federer), *Biometrics* **26** (1970), 327–330.
8. “On the equivalence of Mann’s group automorphism method of constructing an $O(n, n - 1)$ set and Raktoc’s collineation of constructing a balanced set of 1-restrictional prime powered lattice designs” (with W. T. Federer), *Annals of Mathematical Statistics* **41** (1970), 1530–1540.
9. “Some techniques for constructing sets of mutually orthogonal Latin squares” (with W. T. Federer, E. T. Parker, B. L. Raktoc, E. Seiden and R. J. Turyn), in *Proceedings of the Fifteenth Conference on Design of Experiments in Army Research Development and Testing, ARO-D Report*, 1970, 673–796.
10. “On a method of sum composition of orthogonal Latin squares” (with E. Seiden), in *Proceedings of the International Conference on Combinatorial Geometry with Its Applications*, Prugia, Italy, 1970, 239–256.
11. “Independent step-wise residuals for testing homoscedasticity” (with D. S. Robson), *Journal of the American Statistical Association* **65** (1970), 1573–1581.
12. “Book Review: An introduction to Finite Projective Planes , by A.A. Albert and R. Sandler,” *Biometrics* **26** (1970), 162-163.
13. “Book Review: Basic Concepts of Probability and Statistics , 2nd edition, by J.L. Hodges, Jr. and E.L. Lehman,” *Biometrics* **26** (1970), 589-590.

14. "Book Review: Experimental Design: Procedures for the Behavioral Sciences , by Roger and E. Kirk," *Biometrics* **26** (1970), 590-593.
15. "Book Review: Survey of Applicable Mathematics , by K. Rektorys," *Biometrics* **26** (1970), 594-596.
16. "Book Review: Patterns and Configurations in Finite Spaces, and The Mathematics of Experimental Design , by S. Vajda (combined review)," *Annals of Mathematical Statistics* **41** (1970), 1780-1782.
17. "Experimental designs and combinatorial systems associated with Latin squares and sets of mutually orthogonal Latin squares" (with S. S. Shrikhande), *Sankhya, Series A* **33** (1971), 423-432.
18. "A set of three mutually orthogonal Latin squares of order 15," *Technometrics* **13** (1971), 696-698.
19. "On embedding and enumeration of orthogonal Latin squares" (with W. T. Federer), *Annals of Mathematical Statistics* **42** (1971), 509-516.
20. "Book Review: Sequences, Combinations, Limits , by S. I. Gelfand and others," *Biometrics* **27** (1971), 237-238.
21. "An algebraic property of the totally symmetric loops associated with Kirkman-Steiner triple systems," *Pacific Journal of Mathematics* **40** (1972), 305-309.
22. "Some families of designs for multi-stage experiments: Mutually balanced Youden designs when the number of treatments is prime power or twin primes, I." (with W. T. Federer and E. Seiden), *Annals of Mathematical Statistics* **43** (1972), 1517-1527.
23. "Book Review: Preservation of Infinite Divisibility under Mixing and Related Topics , by R.W. Stentil," *Biometrics* **28** (1972), 643-644.
24. "Self-orthogonal Latin square designs and their importance," *Biometrics* **29** (1973), 393-396.
25. "An application of sum composition: A self-orthogonal Latin square of order ten," *Journal of Combinatorial Theory, Series A* **14** (1973), 256-260.
26. "Resistant and susceptible BIB designs" (with P. W. M. John), *Annals of Statistics* **1** (1974), 148-158.
27. "On a measure of aliasing due to fitting an incomplete model" (with W. T. Federer and B. L. Raktoe), *Annals of Statistics* **2** (1974), 650-660.
28. "Pairwise and variance balanced incomplete block designs" (with W. T. Federer), *Annals of the Institute of Statistical Mathematics* **26** (1974), 331-338.

29. “On the theory of connected designs: Characterization and optimality” (with J. Eccleston), *Annals of Statistics* **2** (1974), 1238–1255.
30. “On the theory and application of sum composition of Latin squares and orthogonal Latin squares” (with E. Seiden), *Pacific Journal of Mathematics* **54** (1974), 85–113.
31. “On the non-existence of Knut Vik designs for all even orders” (with W. T. Federer), *Annals of Statistics* **3** (1975), 445–447.
32. “Three-way BIB designs” (with D. Raghavarao), *Journal of Combinatorial Theory, Series A* **18** (1975), 207–209.
33. “Further contributions to the theory of F-squares design” (with D. Raghavarao and E. Seiden), *Annals of Statistics* **3** (1975), 712–716.
34. “Some contributions to the theory of multi-stage Youden designs” (with K. Afsarinejad), *Annals of Statistics* **3** (1975), 707–711.
35. “Self-orthogonal Latin square designs and their importance, II,” *Biometrics* **31** (1975), 755–759.
36. “Minimal unbiased designs for linear parametric functions” (with W. T. Federer and B. L. Raktoe), in *A Survey of Statistical Design and Linear Models*, J. N. Srivastava, ed., North-Holland, Amsterdam, 1975, 145–153.
37. “Repeated measurements designs, I.” (with K. Afsarinejad), in *A Survey of Statistical Design and Linear Models*, J. N. Srivastava, ed., North-Holland, Amsterdam, 1975, 229–240.
38. “An application of statistical design theory to crop estimation with special reference to legumes and mixture of cultivars” (with W. T. Federer, C. C. Lowe and D. Raghavarao), *Agronomy Journal* **68** (1976), 914–919.
39. “Optimal designs for two noninteractive treatments” (with R. A. Bradley), *Technometrics* **19** (1977), 52–57.
40. “A complete solution to the existence and nonexistence of Knut Vik designs and orthogonal Knut Vik designs,” *Journal of Combinatorial Theory, Series A* **22** (1977), 331–337.
41. “Examination and analysis of residuals: A test for detecting a monotonic relation between mean and variance in regression through the origin” (with B. L. Raktoe and P. P. Talwar), *Communications in Statistics, Series A—Theory and Methods* **6** (1977), 497–506.
42. “On theory and applications of BIB designs with repeated blocks” (with W. Foody), *Annals of Statistics* **5** (1977), 932–935, Corrigendum: *Ibid* **7** (1979), p. 925.

43. “Repeated measurements designs, II” (with K. Afsarinejad), *Annals of Statistics* **6** (1978), 619–628.
44. “A generalization of sum composition: Self-orthogonal Latin squares designs with sub-self-orthogonal Latin square designs,” *Journal of Combinatorial Theory, Series A* **24** (1978), 202–210.
45. “Hadamard matrices and their applications” (with W. D. Wallis), *Annals of Statistics* **6** (1978), 1184–1238.
46. “An introduction to design optimality with an overview of the literature” (with A. Ash), *Communications in Statistics, Series A—Theory and Methods* **7** (1978), 1295–1325.
47. “The trade off method in the construction of BIB designs with repeated blocks” (with S-Y. R. Li), *Annals of Statistics* **7** (1979), 1277–1287.
48. “Sampling design with reduced support sizes,” in *Optimizing Methods in Statistics*, J. Rustagi, ed., Academic Press, 1979, 273–288.
49. “An algebraic study of BIB designs: A complete solution for $v = 6$ and $k = 3$ ” (with G. B. Khosrovshahi), *Journal of Combinatorial Theory, Series A* **30** (1979), 43–52.
50. “The family of t-designs: Part I.” (with S. Kageyama), *Journal of Statistical Planning and Inference* **4** (1980), 173–212.
51. “Combinatorial topology and the trade off method in BIB designs” (with S-Y. R. Li), *Annals of discrete mathematics* **6** (1980), 189–200.
52. “Study of optimality criteria in design of experiments,” in *Statistics and Related Topics*, M. Csorgo, D. A. Dawson, J. N. K. Rao and A. K. M. E. Saleh, eds., North Holland Publishing Co., 1981, 39–56.
53. “Repeated measurements designs, IV: Recent advances,” in *Proceedings of the 43rd Session of the International Statistical Institute*, vol. XLIX, Bulletin of the International Statistical Institute, 1981, 591–610.
54. “A construction of repeated measurements designs with balance for residual effects” (with G. M. Constantine), *Journal of Statistical Planning and Inference* **6** (1982), 153–164.
55. “Complete designs with blocks of maximal multiplicity” (with G. M. Constantine), *Journal of Statistical Planning and Inference* **7** (1983), 289–294, *Corrigendum: Ibid* **7** (1983), 417.
56. “The family of t-designs: Part II” (with S. Kageyama), *Journal of Statistical Planning and Inference* **7** (1983), 257–287.

57. “An algorithm for generating a basis of the trades on t-designs” (with H. Hwang), *Communications in Statistics, Series B—Simulation and Computation* **12** (1983), 109–125.
58. “BIB(8, 56, 21, 3, 6) and BIB(10, 30, 9, 3, 2) designs with repeated blocks” (with H. L. Hwang), *Journal of Combinatorial Theory, Series A* **36** (1984), 73–91.
59. “Construction of BIB designs with various support sizes—with special emphasis for $v = 8$ and $k = 4$ ” (with H. L. Hwang), *Journal of Combinatorial Theory, Series A* **36** (1984), 163–173.
60. “A unified method for constructing PBIB designs based on triangular and L2 schemes” (with C. S. Cheng and G. M. Constantine), *Journal of the Royal Statistical Society: Series B* **46** (1984), 31–37.
61. “A characterization of a universally optimal design within a class of block designs,” *Journal of Statistical Planning and Inference* **9** (1984), 143–145.
62. “Pairwise orthogonal F-rectangle designs” (with W. T. Federer and J. P. Mandili), *Journal of Statistical Planning and Inference* **10** (1984), 365–374.
63. “Orthogonal F-rectangles for all even v ” (with W. T. Federer), *Calcutta Statistical Association Bulletin* **33** (1984), 85–92.
64. “A-optimal incomplete block designs for control-test treatment comparisons” (with D. Majumdar), *Technometrics* **26** (1984), 363–370.
65. “Redesigning experiments” (with D. Majumdar), in *Developments in Statistics and Its Applications* Proceedings of the First Saudi Symposium on Statistics and Its Applications, A. M. Abouammoh, E. El-Neweihi, E. Aly and M. A. Alesh, eds., King Saud Univ. Library, Riyadh, Saudi Arabia, 1984, 113–140.
66. “A study of BIB designs through support matrices, (H. Pesotan),” *Journal of Statistical Planning and Inference* **11** (1985), 363–372.
67. “Families of A-optimal block designs for comparing test treatments with a control” (with D. Majumdar), *Annals of Statistics* **13** (1985), 757–767.
68. “Combining experiments under Gauss-Markov models” (with D. Majumdar), *Journal of The American Statistical Association* **80** (1985), 698–703.
69. “Characterization of triply balanced matrices with applications to survey sampling” (with H. Pesotan), *Journal of Statistical Planning and Inference* **15** (1986), 11–17.

70. “Fractional factorial designs in the form of incomplete orthogonal arrays” (with J. Stufken), in *Statistical Design: Theory and Practice*, C. E. McCulloch, S. J. Schwager, G. Casella and S. R. Searle, eds., Cornell University Press, 1986, 101–115.
71. “On a statistical optimality of magic squares,” *Statistics & Probability Letters* **5** (1987), 191–192.
72. “Model robust optimal designs for comparing test treatments with a control” (with D. Majumdar), *Journal of Statistical Planning and Inference* **18** (1987), 25–33.
73. “Designs for survey sampling avoiding contiguous units” (with C. R. Rao and J. Stufken), in *Handbook of Statistics Sampling*, P. R. Krishnaiah and C. R. Rao, eds., vol. 6, North-Holland, Amsterdam, 1988, 575–583.
74. “Sampling plans excluding contiguous units” (with C. R. Rao and J. Stufken), *Journal of Statistical Planning and Inference* **19** (1988), 159–170.
75. “Two-symbol orthogonal arrays” (with J. Stufken), in *Optimal Design and Analysis of Experiments*, Y. Dodge, V. V. Fedorov and H. P. Wynn, eds., Elsevier Science Publishers, B.V, North -Holland, 1988, 47–58.
76. “A graphical proof of the nonexistence of BIB $(7, b, r, 3, \lambda | 16)$ designs” (with W. Foody), *Journal of Statistical Planning and Inference* **20** (1988), 77–90.
77. “Optimal designs for comparing test treatments with controls, [with discussions]” (with M. Jacroux and D. Majumdar), *Statistical Science* **3** (1988), 462–491.
78. “Block designs—a review on combinatorics” (with S. Kageyama), in *Proceedings of International Conference on Population Mathematics* Rasch, Pirchner and Adams, ed., Rostock, D.D.R, 1988, 88–118.
79. “On the maximum number of constraints in orthogonal arrays” (with J. Stufken), *Annals of Statistics* **17** (1989), 448–451.
80. “The possible support sizes for BIB designs with $v = 8$ and $k = 4$ ” (with I. N. Landgev and J. Stufken), *Journal of Combinatorial Theory, Series A* **51** (1989), 258–267.
81. “Results on the support of BIB designs” (with I. N. Landgev and V. D. Tonchev), *Journal of Statistical Planning and Inference* **22** (1989), 295–306.
82. “On a relation between pairwise balanced and variance balanced block designs” (with J. Stufken), *Journal of The American Statistical Association* **84** (1989), 753–755.

83. “On the maximum number of factors in two construction methods for orthogonal arrays” (with J. Stufken), in *Statistical Data Analysis and Inference 1989*, a volume in honor of C.R. Rao, Y. Dodge, ed., North-Holland, Amsterdam, 33–40.
84. “The construction of *IIPS* sampling designs through a method of emptying boxes” (with B-Y. Lin and J. Stufken), *Annals of Statistics* **17** (1989), 1886–1905.
85. “An application of trade-off to controlled sampling” (with D. Majumdar), in *Proceedings of the Seminars on Problems of Large Scale Sample Surveys in India*. Held Dec. 26-27, 1990 at Computer Science Unit of ISI, A. Dewanji and A. K. Adhikari, eds., Calcutta, India, 44–54.
86. “The theory of trade-off for t-designs, I.M.A. Volumes in Math. and Its Applications,” in *Coding Theory and Design Theory, Part II*, D. Ray-Chaudhuri, ed., vol. 21, Springer-Verlag, 1990, 101–126.
87. “Strongly three-fold orthogonal matrices with statistical applications” (with H. Pesotan), *Linear Algebra and Its Applications* **136** (1990), 1–23.
88. “The game of emptying boxes: Theory and application,” in *Texas Tech Math Series Visiting Scholars’ Lectures, 1989-1990*, vol. 16, 1990, 49–71.
89. “Optimal two-period repeated measurements designs” (with W. Zhao), *Annals of Statistics* **18** (1990), 1805–1816, Corrigendum: *Ibid* 20 (1992), p. 619.
90. “New properties of orthogonal arrays and their statistical applications.,” in *Statistical Design and Analysis of Industrial Experiments*, S. Ghosh, ed., Marcel Dekker, Inc., 1990, 407–422.
91. “Admissible extension of the sample mean and the Horvitz-Thompson estimator utilizing additional resources” (with K. W. Pu), in *Proceedings of Raj Chandra Symposium on Probability, Statistics and Design of Experiments*, Wiley Eastern Ltd., 1990, 369–382.
92. “On the construction of asymmetrical orthogonal arrays” (with J. Stufken and W. Pu), *Annals of Statistics* **20** (1992), 2142–2152.
93. “Some mathematical results on incomplete orthogonal arrays” (with J. Stufken), *Sankhya (special issue dedicated to the memory of Professor R.C. Bose)* **54** (1992), 197–202.
94. “Two-level factorial designs for main-effects and selected two-factor interactions” (with H. Pesotan), *Statistica Sinica* **2** (1992), 453–464.
95. “Coexistence of a family of systematic sampling designs with positive second order inclusion probabilities and block designs” (with H. Pesotan), *Information and System Sciences* **17** (1992), 113–122.

96. “A pair of orthogonal Latin squares of order 10 with four shared parallel transversals” (with J. W. Brown and E. T. Parker), *Journal of Combinatorics, Information & System Science, (special volume in honor of C.R. Rao)* **18** (1993), 109–111.
97. “A prospect for general method of constructing t-designs” (with G. B. Khosrovshahi and D. Majumdar), *Discrete Applied Mathematics* **42** (1993), 31–50.
98. “Blends of statistical designs for dose-response studies” (with G. Chi and K. Mahjoob), *Communications in Statistics - Theory & Methods* **A23** (1994), 341–360, (special issue on statistical issues in drug testing and drug evaluation).
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