

**CURRICULUM VITAE****Abram M. Kagan**

Department of Mathematics, University of Maryland  
College Park, MD 20742

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**Education**

University of Tashkent, USSR	Math/Stat	M. Sc.
University of Leningrad, USSR	Mathematics	Ph.D.
University of Leningrad	Mathematics	D.Sc.

**(i) Academic Appointments:**

<u>Institution</u>	<u>Rank</u>	<u>Dates</u>
University of Maryland	Professor	1988 – 2019
University of Maryland	Professor and Director, Statistics Program	2010 - 2015
University of Leningrad	Adjunct Professor	1972 - 1975
Ohio State University	Visiting Professor	Summer 1988
Bowling Green State University	Distinguished Lukacs Professor	Spring 1995
Hebrew University	Forchheimer Professor	Spring 2009
Charles University, Prague	Distinguished Fulbright Professor	Fall 2015

**(ii) Other Professional Appointments:**

<u>Institution</u>	<u>Rank</u>	<u>Dates</u>
Institute of Mathematics, USSR Acad. of Sciences, Leningrad	Leading Researcher	1986 - 1988
Institute of Metrology, Leningrad	Senior Consultant	1967 - 1970
Institute of Mathematics	Senior Researcher	1965 - 1986
Military Research Institute, Leningrad	Senior Research Fellow	1960 - 1965

**AREAS OF RESEARCH INTEREST**

Statistical estimation, Fisher information  
Exponential families  
Inference in semiparametric models  
Characterization problems  
Meta-analysis  
Structure of dependence

**AWARDS, HONORS**

Eugene Lukacs Distinguished Professorship, Bowling Green State University, Spring 1995  
Special Invited Lecture, 24th European Meeting of Statisticians, Prague, August 2002  
Forchheimer Professorship, Hebrew University, Spring 2009  
Fulbright Distinguish Professorship, Charles University, Prague, Fall 2015

## Major Publications

*Characterization Problems in Mathematical Statistics* (with Yu. V. Linnik and C.R. Rao), J. Wiley & Sons, New York, 1973 (monograph)

Russian edition: Moscow, Nauka (1972)

Taiwan edition (1975)

*New Results in the Theory of Estimation and Testing Hypotheses for Problems with Nuisance Parameters* (with V. P. Palamodov): Supplement to monograph “*Statistical Problems with Nuisance Parameters*” by Yu. V. Linnik, Amer. Math. Soc., Providence, 1968

91 papers in refereed journals and 33 papers in proceedings of conferences, symposia, etc.

### List of selected publication

1. The KLR- theorem revisited. *Sankhya, Ser.A*, (2019), pp. 23-27.
2. Statistical meaning of mean functions (with P. J. Smith). *Submitted* (2019)
3. Efficiency requires innovation. *Preprint* (2019)
4. Calibrating dependence between random elements (with G. Szekely), *Submitted* (2019).
5. On the structure of UMVUEs (with Ya. Malinovsky). *Sankhya, Ser. A*, **78** (2016), pp. 124-132.
6. An analytic generalization of independence and identical distributiveness (with G. Szekely). *Stat. Probab. Letters* (2015), pp. 7-10.
7. Partially complete sufficient statistics are jointly complete (with Ya. Malinovsky and L. Mattner). *Theory Probab. Appl.*, **59**, **3** (2014), 542-561.
8. Contribution to the theory of Pitman estimators (with T. Yu, A. Barron, and M. Madiman). *Zapiski Nauchnukh Seminarov PDMI*, **408** (2012), 245-267. (reprinted in *J. Math. Sci.*, **199** (2014), 202-214).
9. On the Nile problem by Sir Ronald Fisher (with Ya. Malinovsky). *Electronic J. Statistics*, **7** (2013), 1968-1982.
10. Monotonicity in the sample size of the length of classical confidence intervals (with Ya. Malinovsky). *Stat. Probab. Letters*, **83** (2013), 78-82.
11. A class of multivariate distributions related to distributions with a Gaussian component (with L.B. Klebanov). *IMS Collections*, vol.7, 105-112.
12. Geometric properties of the sample mean and vector of residuals (with T. Yu). *Statist. Probab. Letters*, **79**(2009), 1409-1413.
13. Some inequalities related to the Stam inequality (with T. Yu). *J. Math. Analysis*, **53**(2008), 195-205.
14. Bivariate distributions with Gaussian-like dependence structure (with S. Bar-Lev). *Comm. Statistics – Theory and Methods*, **38** (2008), 2669-2676
15. An identity for the Fisher information and Mahalanobis distance (with Bing Li). *J. Statist. Plan. Inference*, **138** (2008), 3950–3959.
16. A lemma on stochastic majorization and properties of the Student distribution (with A. V. Nagaev). *Theory Probab. Appl.*, **52** (2007), 160-164.
17. Strong decompositions of random variables (with J. Hoffman –Jorgensen, L. Pitt and L. Shepp). *J. Theor. Probab.* **20** (2007), 211-220.
18. Sub- and superadditivity a la Carlen of matrices related to the Fisher information matrix (with Z. Landsman and C. R. Rao). *J. Statist. Plan. Inference*, **137** (2007), 291-298.
19. Profile sufficiency. *Austrian J. Statistics*, **35** (2006), 121-130.
20. Quasi-independence of random variables and a property of the normal and gamma distributions. *J. Statist. Plan. Inference*, **136** (2006), 199-208.
21. The structure of the UMVUEs from categorical data (with M. Konikov). *Theory Probab. Appl.*, **50** (2005), 466-473.
22. A sufficiency paradox: an insufficient statistic preserving the Fisher information (with L. Shepp). *The Amer. Statistician*, **59** (2005), 54-56.

23. On estimation of a location parameter in presence of an ancillary observation (with C. R. Rao), *Theory Probab. Appl.*, **50** (2005), 172-176.
24. On maximum correlation coefficient (with W. Bryc and A. Dembo). *Theory Probab. Appl.*, **49** (2004), 191-197.
25. An inequality for the Pitman estimators related to the Stam inequality. *Sankhya*, Ser. A, **64** (2002), Part 2, 281-292.
26. How many moments can be estimated from a large sample (with S. Nagaev). *Statist. Probab. Letters*, **55** (2001), 99-105.
27. Another look at the Cramer-Rao inequality. *The Amer. Statistician*, **55** (2001), 211-212.
28. Remarks on the maximum correlation coefficient (with A. Dembo and L. Shepp). *Bernoulli*, **7** (2001), 343-350.
29. A note on the logistic link function. *Biometrika*, **88** (2001), 599-601.
30. Characterization of the normal distribution through the power of a one-way ANOVA (with G. Letac). *J. Statist. Plan. Inference*, **77** (1999), 1-9.
31. Tail hypotheses in the signal plus noise model (with L. Shepp). *Statist. Probab. Letters*, **43** (1999), 317-319.
32. Symmetrization of binary random variables (with C. Mallows, L. Shepp, R. Vanderbei, and Y. Vardi). *Bernoulli*, **5** (1999), 1013-1020.
33. Characterization of the Weibull distribution by properties of the Fisher information under type I censoring (with I. Gertsbakh). *Statist. Probab. Letters*, **42** (1999), 99-105.
34. Symmetrization of binary random variables (with C. Mallows, L. Shepp, R. Vanderbei, and Vardi). *Bernoulli*, **5** (1999), 1013-1020.
35. Why the variance? (with L. Shepp). *Statist. Probab. Letters*, **38** (1998), 329-333.
36. Statistical meaning of Carlen's superadditivity of the Fisher information (with Z. Landsman). *Statist. Probab. Letters*, **32** (1997), 175-179.
37. Variance inequalities for functions of Gaussian variables (with C. Houdre). *J. Theor. Probab.*, **8** (1995), 23-30.
38. Least squares estimator, non-quadratic losses and Gaussian distribution (with A.A. Zinger). *Theory Probab. Appl.*, **36** (1991), 34-41.
39. New classes of dependent random variables and a generalization of the Darmois-Skitovich theorem to the case of several forms. *Theory Probab. Appl.*, **33** (1988), 305-314.
40. An information property of the exponential families. *Theory Probab. Applications*, **30** (1985), 783-786.
41. Fisher information contained in a finite-dimensional linear space, and a properly formulated version of the method of moments. *Problems of Information Transmission* **12** (1976), 10-42.
42. On measure of divergency between two scalar products and its statistical application, *Sankhya* Ser. A37 (1975), 492-501.
43. "Self-governing" families of distributions (with Yu. V. Linnik, I.V. Romanovskii and A.L. Rukhin), *Sankhya* A53,3 (1971)
44. Sample mean as an estimator of a location parameter . Case of non-quadratic loss functions (with A.A. Zinger), *Sankhya* A33 (1971), 351-358.
45. Admissibility of the least square estimators - a characteristic property of the normal law (with O.V. Shalayevskii). *Matem. Zametki* 6, 1 (1969).
46. Estimation theory for families with location and scale parameters, and for exponential families. *Proc. Steklov Institute of Mathematics* 104, 19-87 (1968).
47. Incomplete exponential families and minimum variance unbiased estimators (with V. P. Palamodov). *Theory Probab. Appl.*, **12**, 34-49 (1967).
48. On the estimation theory of a location parameter. *Sankhya*, A23, 4 (1966).
49. On a characterization of the normal law based on a property of the sample average (with Yu. V. Linnik and C. R. Rao). *Sankhya*, A27, 2-3-4 (1965).
50. The Behrens-Fisher problem: the existence of similar regions within the algebra of sufficient statistics (with O.V. Shalayevskii). *Doklady Acad. Nauk SSSR* 155, 6 (1964).
51. A class of families of distributions possessing similar regions (with Yu. V. Linnik.). *Vestnik Leningrad. Univ.*, Ser. Matem., Mechan., Astronom. 7, 2 (1964).

52. On the theory of Fisher information. *Doklady Acad. Nauk SSSR* 151, 2 (1963).
53. On a Robbins scheme. *Doklady Acad. Nauk. SSSR* 150, 4 (1963).

## INVITED TALKS

1989 International conference on recent developments in statistical data analysis and inference, Neuchatel, Switzerland, August 1989

1990 International Statistical Symposium, Taipei, R.O.C., June 1990

1994 4th Eugene Lukacs Symposium, Bowling Green, OH, March 1994

1995 5th Eugene Lukacs Symposium, Bowling Green, OH, March 1995

1997 50 minute talk at Special Session on Statistics, AMS Regional Meeting, Montreal, Canada

1998 50 minute talk at Workshop "Perspectives in Modern Statistical Inference", Prague, August 1998

1998 30 minute talk at Workshop "Tracking Multiple Objects", Northeastern University, May 1998

2000 30 minute talk at Conference "Statistics: Reflections on the Past and Visions for the Future" , San Antonio, TX, March 2000

2001 50 minute talk at Conference "Topics in Ergodic Theory, Probability and Analysis", Penn State University, April 2001

2002 50 minute talk at Workshop "Perspectives in Modern Statistical Inference II", Brno, August 2002.

2003 One hour talk at Conference at Rotschild Institute, Haifa, December 2003

2005 50 minute talk at Workshop "Perspectives in Modern Statistical Inference III", Mikulov, July 2005

2006 30 minute talk at Conference "From Empirical Bayes to Prophet Inequalities", Jerusalem, December 2006

2006 30 minute talk at Workshop "Statistical Inference from Small Samples", Haifa, December 2006

2007 50 min invited talk at Workshop "Perspectives of Modern Statistical Inference IV", Hejnice, September 2007

2009 30 min invited talk at a conference "50 Years of Research" in Honor of Professor Sh. Zacks, Binghamton, December 2009

2011 80 min invited talk at a Workshop "Analytical Problems in Statistics", Charles University, Prague, October 2011

2014 30 min invited talk at a conference "Frontiers of Hierarchical Modeling in Observation Studies, Complex Surveys and Big Data", College Park, MD, May 2014

2015 50 min invited talk "Quantifying dependence between random elements", AMISTAT Workshop, Charles University, Prague, November 2015

2017 50 min invited talk "A general form and statistical meaning of the Stam classical inequality", AIM workshop, San Jose, CA, May 2017

2018 50 min invited talk " F-exponent of detecting the presence of a signal in presence of an additive noise",  
Symposium on optimaltopping in memory of L. A. Shepp, Houston, TX, June 2018.

2019 50 min invited talk "Analytical problems in the signal plus noise model", AMISTAT Workshop,  
Liberec, Czechia, September 2019.

## **INVITED SEMINAR TALKS**

AT&T Bell Laboratories  
Cornell University  
Florida State University  
Harvard University  
Indian Statistical Institute  
Oklahoma State University  
Penn State University  
Purdue University  
Rutgers University  
Stanford University  
Temple University  
University of California, Berkeley  
University of California, Los Angeles  
University of Chicago  
University of Florida  
University of Pittsburgh  
Yale University  
Michigan State University  
Wayne State University  
Purdue University at Indianapolis  
Ohio State University  
University of Paul Sabatier (Toulouse, France)  
University Paris-6  
Charles University (Prague)  
Warsaw Technical University  
University of Torun (Poland)  
Ben-Gurion University (Beer Sheva)  
Technion  
Columbia University (Feb. 1997)  
Penn State University (April 1997)  
Rutgers University (Sept. 1997)  
Penn State University (April 1998)  
Penn State University (October 1998)  
Penn State University (April 1999)  
University of Illinois at Urbana-Champaign (February 2000)  
University of Haifa (March 2000)  
Georgetown University (November 2000)  
University of Kentucky at Louisville (April 2001)  
Penn State University (April 2001)  
Rutgers University (February 2002)  
University of Leeds (March 2002)  
Penn State University (March 2002)  
University of Paul Sabatier (April 2002)  
Cambridge University (May 2002)  
University of Haifa (June 2002)  
Penn State University (November 2004)

Binghamton University (April 2006)  
University of Haifa (December 2006)  
Ben-Gurion University (March 2009)  
Charles University (April 2009)  
Haifa University (May 2009)  
University of Cyprus (May 2009)  
University of Maryland Baltimore County (February 2012)  
Univ. of Maryland Baltimore County (October 2012)  
Penn State University (October 2013)  
University of Trier, Germany (September 2015)  
Masaryk University, Brno, Czech Republic (October 2015)  
Palacky University, Olomouc, Czech Republic (November 2015)  
Aarhus University, Denmark (November 2015)  
Warsaw Polytechnic University (December 2015)  
University “La Sapienza”, Rome (May 2016)  
Renyi Institute of Mathematics, Budapest (September 2019)

## PHD. STUDENTS SUPERVISED

Name	Topic
Otto Gerleyn	Linear Methods in Statistics
Ashot Kakosyan	Non-linear Estimation of Parameters of Linear Regression
Yuri Karpov	Characterization in Bayesian Models
Mikhail Konikov	Parameter Estimation with Applications to Finance
Joseph Melamed	Characterization Problems
Dmitry Skryabin	Statistical Problems in Random Walks
Albert Shalyt	Sequential Estimation
George Tzavelas	Semiparametric Models and Exponential Families
Tinghui Yu	Estimation Theory of a Location Parameter in Small Samples
Ryan Janicki	Statistical Inference Based on Estimating Functions in Exact and Misspecified Models
Carolina Franco	Estimation of Parameters in Kernel Families
Ran Ji	Semiparametric Threshold Regression Analysis for Time-to-Event Data

## SERVICE

### SERVICE TO THE MATHEMATICAL COMMUNITY

Associate Editor, Journal of Statistical Planning and Inference, 2005 - 2011

Associate Editor, Mathematical Methods in Statistics, 1998-2006

Member, Subcommittee on translation from Russian, Institute of Mathematical Statistics

Referee for "Statistics and Probability Letters," "Sankhya", Journal of Theoretical Probability, Journal of Multivariate Analysis, Annals of Statistics, Ann.Inst.Statist. Math., Journal of Fourier Analysis and Applications, Journal of Australian Math. Soc., Intern. Journal of Math & Math. Sci. ,Journal of Statist. Planning and Inference, Signal Processing

Co-organizer of the 5th Eugene Lukacs Symposium in Probability and Statistics (Bowling Green, OH, March 1995)

Co-organizer of Special Session of the AMS Regional Meeting (College Park, Spring 1997)

Co-organizer, Section "Characterization of Probability Distributions", Intern. Conference in Honor of C.R.Rao (Calcutta, December 2000)

Co-organizer, Conference in Honor of Hillel Furstenberg (College Park, March 2007)



## SERVICE TO THE DEPARTMENT

Director, Statistics Program, 2010 - 2015

Organizer, Statistics Seminar, 2010 – 2015

Member, Search Committee for the Chair, Sept. 2012 – Jan. 2013