

## PUBLICATIONS

Vakhtang Kvaratskhelia

### Books

1. Unconditional Convergence of Functional Series in Problems of Probability Theory. Contemporary mathematics and its applications. Springer, Journal of Mathematical Sciences, Volume 200, Issue 2, July 2014, 143-254.
2. The Basics of the Algorithm Theory. Publishing House "Technical University", Tbilisi, 2013, in Georgian (co-authors: H. Meladze, T. Davitashvili, M. Menteshashvili, Z. Tsveraidze).

### Papers

1. Гауссовские меры в некоторых банаховых пространствах. Сообщения АН ГССР, 75, 3, 1974, 533-536.
2. О сходимости рядов из гауссовских случайных элементов. Сообщения АН ГССР, 76, 1, 1974, 41-44.
3. Центральная предельная теорема в пространствах  $l_p\{X\}$  ( $1 \leq p \leq 2$ ). Сообщения АН ГССР, 81, 3, 1976, 533-536 (соавтор Нгуен Зуй Тиен).
4. Центральная предельная теорема и усиленный закон больших чисел в пространствах  $l_p\{X\}$ ,  $1 \leq p < \infty$ . Теория Вероятностей и ее Применения, 21, 4, 1976, 802-812 (соавтор Нгуен Зуй Тиен).
5. Безусловная сходимость гауссовских рядов. Труды Вычислительного Центра АН ГССР, 18, 2, 1978, 71-79.
9. О безусловной сходимости в банаховом пространстве. Сообщения АН ГССР, 90, 3, 1978, 533-536.
10. Замечание к определению гауссовского случайного процесса. Труды ВЦ АН ГССР, 19, 2, 1979, 5-7 (соавтор Н.П.Канделаки).
11. On unconditional convergence of random series in Banach spaces. Lecture Notes in Mathematics, 828, 1980, 162-166.
12. Absolute and unconditional convergence in  $l_1$ . Bull. Georgian Acad. Sci., 160, 2, 1999, 201-203 (co-author N. Vakhania).
13. Безусловная сходимость гауссовских случайных рядов в банаховых пространствах. Теория Вероятностей и Ее Применения, 45, 1, 2000, 178-182 {английский перевод: Unconditional convergence of Gaussian random series in Banach spaces. Theory Probab. Appl., 45, 1, 2000, 147-152}.
14. Unconditional convergence of random series and Geometry of Banach spaces. Georgian Math. J., 7, 1, 2000, 85-96.
15. The structure of summable sequences and  $p$ -summing operators. Demonstratio Math., 33, 2, 2000, 379-87 (co-author V. Tarieladze).

16. The analogue of the coefficient of correlation in Banach spaces. Bull. Georgian Acad. Sci., 161, 3, 2000, 377-379.
17. Linear approximation of random elements in Banach spaces. Bull. Georgian Acad. Sci., 162, 2, 2000, 203-205.
18. On a criterion for unconditional convergence of Hadamard series in the spaces  $l_p, 1 \leq p < \infty$ . Bull. Georgian Acad. Sci., 162, 2, 2000, 199-202 (co-author N. Vakhania).
19. Convergence of Sylvester series in Banach space  $l_p, 1 \leq p < \infty$ . Bull. Georgian Acad. Sci., 164, 1, 2001, 7-9 (co-author N. Vakhania).
20. Some inequalities related with Hadamard and Sylvester matrices. Bull. Georgian Acad. Sci., 164, 1, 2001, 10-13.
21. Некоторые неравенства связанные с матрицами Адамара. Функциональный Анализ и Его Приложения, 36, 1, 2002, 81-85, {английский перевод: Some inequalities related to Hadamard matrices. Funct. Anal. Appl., 36, 1, 2002, 68-70}.
22. Одна числовая характеристика матрицы Сильвестра. Дискретная Математика, 13, 4, 2001, 92-98, {английский перевод: A numerical characteristic of the Sylvester matrix. Discrete Math. Appl., 11, 5, 2001, 501-506}.
23. An Application of the Brunel-Sucheston Spreading Model. Bull. Georgian Acad. Sci., 165, 3, 2002, 453-457 (co-author N. Vakhania).
24. On a method of finding of sign invariant pair of elements in normed spaces. Bull. Georgian Acad. Sci., 168, 3, 2003, 423-425 (co-authors: G. Chelidze and K. Ninidze).
25. Weakly Sub-gaussian random elements and Banach spaces with finite cotype. Bull. Georgian Acad. Sci., 171, 2, 2005, 221-224 (co-author N. Vakhania).
26. On inequalities between moments of normed measures. Bull. Georgian Acad. Sci., 172, 2, 2005, 173-175 (co-author N. Vakhania).
27. Слабо субгауссовские случайные элементы в банаховых пространствах. Украинский Математический Журнал, 57, 9, 2005, 1187-1208, (соавторы: Н.Н.Вахания, В.И.Тариеладзе), {английский перевод: Weakly Sub-Gaussian Random Elements in Banach Spaces. Ukrainian Mathematical Journal, 57, 9, 2005, 1387-1412 (co-authors: N. Vakhania and V. Tarieladze)}.
28. Безусловная сходимость слабо субгауссовских рядов в банаховых пространствах. Теория Вероятностей и Ее Применения, 51, 2, 2006, 247-270, (соавтор Н.Н. Вахания) {английский перевод: Unconditional Convergence of Weakly Sub-Gaussian Series in Banach Spaces. Theory Probab. Appl., 51, 2, 2007, 305-324 (co-author N. Vakhania)}.
29. On unconditional convergence in Banach spaces with unconditional basis. Bull. Georgian National Acad. Sci., 3, 1, 2009, 10-14 (co-author N. Vakhania).
30. Greedy Algorithm Fails in Compact Vector Summation. Bull. Georgian National Acad. Sci., 4, 2, 2010, 5-7 (co-authors: G. Chelidze, S. Chobanyan and G. Giorgobiani).

31. An Application of Sylvester Matrices. Proceedings of the International Conference “Modern Algebra and its Applications”, September 19-25, 2011, Batumi, Georgia, V. 2, p. 65-74 (co-author N. Vakhania).
32. A note on the rearrangement theorem in a Banach space. Information and Computer Technologies – Theory and Practice: Proceedings of the International Scientific Conference ICTMC-2010 Devoted to the 80th Anniversary of I.V. Prangishvili. Nova Science Publishers; Computer Science, Technology and Applications, 2012, 531-535 (co-authors: S. Chobanyan, G. Giorgobiani and V. Tarieladze).
33. On an integral inequality. Information and Computer Technologies – Theory and Practice: Proceedings of the International Scientific Conference ICTMC-2010 Devoted to the 80th Anniversary of I.V. Prangishvili. Nova Science Publishers; Computer Science, Technology and Applications, 2012, 567-570 (co-authors: R. Denchev and N. Vakhania).
34. Denjoy-Luzin Systems, absolute convergence systems and unconditional convergence in Banach spaces. Several Problems of Applied Mathematics and Mechanics. Nova Science Publishers; Mathematics Research Developments, Editors: I. Gorgidze et al., 2013, 81-92 (co-author V. Tarieladze).
35. Professor David Kveselava. Proceedings of A. Razmadze Mathematical Institute, 160, 2012, 1-9 (co-author N. Vakhania).
36. An algorithmic solution to the problem of compact vector summation with an application to scheduling theory. 9th International Conference on Computer Science and Information Technologies (CSIT-2013), September 23-27, 2013, Yerevan, Armenia. Proceedings, p. 58-60 (co-author L. Chobanyan).
37. An application of Sylvester matrices. Journal of Mathematical Sciences, 195, 4, December 2013, 487-495 (co-author N. Vakhania).
38. On rearrangement theorems in Banach spaces. Georgian Math. J., 21, 2, 2014, 157-163 (co-authors: S. Chobanyan, G. Giorgobiani, S. Levental and V. Tarieladze).
39. Diagonally canonical and related Gaussian random elements. Theory Probab. Appl., 58, 2, 2014, 286-296 (co-author V. Tarieladze).
40. Some numerical characteristics of Sylvester and Hadamard matrices. Publ. Math. Debrecen, 86/1-2, 2015, p. 149-168 (co-author A. Figula).
41. Some remarks on unconditional convergence of series in Banach spaces. Proceedings of A. Razmadze Mathematical Institute, 168, 2015, p. 149-160 (co-authors: N. Vakhania, V. Tarieladze).
42. Professor Niko (Nicholas) Vakhania. Proceedings of A. Razmadze Mathematical Institute, 168, 2015, p. 1-14 (co-author V. Tarieladze).
43. Some properties of Hadamard matrices. Computer Science and Information Technologies (CSIT), 2015. Revised Selected Papers, September 28 – October 2, 2015, Yerevan, Armenia, IEEE Conference Publications, p. 64-66 (co-authors: G. Giorgobiani, M. Menteshashvili).

44. Characterization of  $\gamma$ -Subgaussian Random Elements in a Banach Space. *Journal of Mathematical Sciences*, 216, 4, 2016, 564-568 (co-authors: N. Vakhania, V. Tarieladze).
45. Maximum Inequalities and their Applications to Hadamard Matrices. *Computer Science and Information Technologie (CSIT)*, 2017. Revised Selected Papers, September 25 – September 29, 2017, Yerevan, Armenia, IEEE Conference Publications, p. 110-112 (co-authors: G. Giorgobiani, M. Menteshashvili). <http://ieeexplore.ieee.org/document/8312151/>
46. Maximal inequalities and their applications to orthogonal and Hadamard matrices. *Periodica Mathematica Hungarica*, 2019 (co-author: G. Giorgobiani) (Accepted).

### Scientific Conferences:

1. О слабой относительной компактности вероятностных мер в подпространствах  $X^N$ . Конференция Молодых Ученых и Аспирантов, Тбилисский Государственный Университет, Апрель, 1974, Тбилиси, Тезисы докладов, стр. 75-76.
2. Разложение гауссовских случайных элементов. Конференция Молодых Ученых по Математике и Механике, Тбилисский Государственный Университет, Июнь, 1976, Тбилиси, Тезисы докладов, стр. 83-85.
3. On unconditional convergence of random series in Banach spaces. *Probability Theory on Vector Spaces II, Proc.*, September, 1979, Blazejewko, Poland.
4. Some unconditionally convergent series in Banach spaces. *Third International Vilnius Conference on Probability Theory and Mathematical Statistics*, Vilnius, 1981, Abstracts of communications, p. 182-183.
5. Unconditional convergence of random series in some Banach spaces. *14<sup>th</sup> European Meeting of Statisticians*, 1981, Wroclaw, Poland, Abstracts of communications (supplement).
6. Unconditional convergence of random series in Banach spaces. *5<sup>th</sup> Japan – USSR Symposium on Probability Theory*, Kyoto, Japan, July 8-14, 1986, Abstracts of communications, p. 28.
7. უპირობო და აბსოლუტური კრებადობა  $l_1$  სივრცეში. საქართველოს მათემატიკოსთა III ყრილობა, 2001, თბილისი, მოხსენებათა თეზისები (თანაავტორი ნ. ვახანია).
8. Unconditional Convergence of Gaussian Series in  $c_0$ . *International School in Physics and Mathematics (ISPM, Georgia): Stochastic Analysis and Applications in Control, Statistics and Financial Modelling*, September 1-7, 2002, Tbilisi, Georgia, Dedicated to the scientific heritage of Prof. Revaz Chitashvili (1942-1995).
9. Dvoretzky-Rogers theorem via Hadamard matrices. *986<sup>th</sup> AMS Meeting*, Courant Institute, New York, USA, April 12-13, 2003, Abstracts of communications, p. 55 (co-author N. Vakhania).
10. Sylvester matrices, Brumel-Sucheston spreading model and Dvoretzky-Rogers theorem. *International Workshop Modern Aspects in Function Spaces, Differential Operators and Nonlinear Analysis*, September 8-13, 2003, Tbilisi, Georgia.

11. Summable Sequences and Gaussian Measures in Banach Spaces. International Conference in Probability Theory and Mathematical Statistics, September 21-27, 2003, Tbilisi, Georgia, Dedicated to the Centenary of A. N. Kolmogorov (co-author V. Tarieladze).
12. Weakly Sub-Gaussian Random Elements in Banach Spaces. International conference “Modern problems and new trends in Probability Theory”, Chernivtsi, Ukraine, June 19-26, 2005, (co-authors: N. Vakhania and V. Tarieladze).
13. On inequalities between moments of normed measures. International Workshop and School: Function Spaces, Integral Operators and Applications, August 31-September 4, 2005, Tbilisi, Georgia, (co-author N. Vakhania).
14. სუსტად სუბგაუსის მწკრივების უპირობო კრებადობა ბანახის სივრცეში. საქართველოს მათემატიკოსთა IV ყრილობა, 11-14 ნოემბერი, 2001, თბილისი, მოხსენებათა თეზისები, გვ. 53 (თანაავტორი ნ. ვახანია).
15. კორელაციის კოეფიციენტი ბანახის სივრცეებში. ივ. ჯავახიშვილის სახელობის თბილისის სახელმწიფო უნივერსიტეტის ილია ვეკუას სახელობის გამოყენებითი მათემატიკის ინსტიტუტის გაფართოებული სემინარის სხდომები, 22-24 აპრილი, 2008, თბილისი.
16. On unconditional convergence of series in Banach spaces with unconditional basis. International Conference on Modern Problems in Applied Mathematics Dedicated to the 90<sup>th</sup> Anniversary of the Iv. Javakhishvili Tbilisi State University & 40<sup>th</sup> Anniversary of the I. Vekua Institute of Applied Mathematics, 7-9 October, 2008, Tbilisi, (co-author N. Vakhania).
17. კორელაციის კოეფიციენტი ბანახის სივრცეში. ივ. ჯავახიშვილის სახელობის თბილისის სახელმწიფო უნივერსიტეტის ილია ვეკუას სახელობის გამოყენებითი მათემატიკის ინსტიტუტის გაფართოებული სემინარის სხდომები, 22-27 აპრილი, 2009, თბილისი.
18. The law of large numbers for weakly correlated random elements in Hilbert spaces. Fifth Congress of Mathematicians of Georgia. Abstracts of contributed talks, October 9-12, 2009, Batumi/Kutaisi, 126-127.
19. სუბგაუსის შემთხვევითი სიდიდეები. ივ. ჯავახიშვილის სახელობის თბილისის სახელმწიფო უნივერსიტეტის ილია ვეკუას სახელობის გამოყენებითი მათემატიკის ინსტიტუტის გაფართოებული სემინარის სხდომები, 21-23 აპრილი, 2010, თბილისი (თანაავტორები: ნ. ვახანია, ვ. ტარიელაძე).
20. A numerical characteristic of the Sylvester matrix. Abstracts of the International Conference “Information and Computational Technologies” dedicated to commemoration of Professors Elene Dekanosidze and Murman Tsuladze. N. Muskhelishvili Institute of Computational Mathematics and St. Andrew the First Called Georgian University of the Patriarchy of Georgia, Tbilisi, 2-6 May, 2010, p. 74.
21. On an integral inequality. Book of abstracts of the International scientific conference devoted to the 80<sup>th</sup> anniversary of academician I.V. Prangishvili “Information and Computer Technologies, Modelling, Control”, Georgian Technical University, Tbilisi, 1-4 November, 2010, p. 219-220 (co-authors: R. Danchev, N. Vakhania).

22. A note on rearrangement theorem. Proceedings of The International Scientific Conference devoted to the 80-th anniversary academician I.V. Prangishvili's date of birth "Information and Computer Technologies, Modelling, Control", November 1-4, 2010, Georgia, Tbilisi (co-authors: S. Chobanyan, G. Giorgobiani, V. Tarieladze).
23. On perfectly divergence series in a Banach space. XXV Enlarged Sessions of the Seminar of I. Vekua Institute of Applied Mathematics, Iv. Javakhishvili Tbilisi State University, April 21-23, 2011 (co-authors: S. Chobanyan, G. Giorgobiani, V. Tarieladze).
24. Denjoy-Lusin sequences and unconditional convergence in a Banach space. International Conference "Continuum Mechanics and Related Problems of Analysis" to Celebrate the 70th Anniversary of the Georgian National Academy of Sciences & the 120th Birthday of its First President Academician Nikoloz (Niko) Muskhelishvili, Tbilisi, Georgia, September 9-14, 2011, Book of abstracts, p. 131 (co-author V. Tarieladze).
25. Professor D. Kveselava. II International Conference Dedicated to the 70th Anniversary of the Georgian National Academy of Sciences & the 120th Birthday of its First President Academician Nikoloz (Niko) Muskhelishvili, September 15–19, 2011, Batumi, Georgia. Book of Abstracts, p. 48-53.
26. A Characterization of Subgaussian random elements in a separable Hilbert space. II International Conference Dedicated to the 70th Anniversary of the Georgian National Academy of Sciences & the 120th Birthday of its First President Academician Nikoloz (Niko) Muskhelishvili Organized by the Georgian Mathematical Union, September 15–19, 2011, Batumi, Georgia. Book of Abstracts, p. 115 (co-authors: N. Vakhania, V. Tarieladze).
27. An Application of Sylvester Matrices. International Conference "Modern Algebra and its Applications", September 19-25, 2011, Batumi, Georgia (co-author N. Vakhania).
28. The notion of Subgaussian random element in Banach spaces. III International Conference of the Georgian Mathematical Union, September 2-9, 2012, Batumi, Georgia. Book of Abstracts, p. 127-128 (co-authors: N. Vakhania, V. Tarieladze).
29. Characterization of  $T$ -subgaussian random elements in a separable Hilbert space. Proceedings of the International Conference "Lie Groups, Differential Equation and Geometry", June 10-22, 2013, Batumi, Georgia. Volume II, p. 48 (co-authors: N. Vakhania, V. Tarieladze).
30. On exponential integrability of Subgaussian series. International Conference "Modern Problems in Applied Mathematics" Dedicated to the 95th Anniversary of the I. Javakhishvili Tbilisi State University & 45th Anniversary of the I.Vekua Institute of Applied Mathematics of TSU. September 4-7, 2013, Tbilisi, Georgia. Book of Abstracts, p. 64 (co-authors: N. Vakhania, V. Tarieladze).
31. On exponential integrability of Subgaussian sums. IV International Conference of the Georgian Mathematical Union Dedicated to Academician Victor Kupradze (1903-1985) on the Ocasion of 110-th Anniversary of his Birthday, September 9-15, 2013, Batumi, Georgia. Book of Abstracts, p. 123-124 (co-authors: N. Vakhania, V. Tarieladze).

32. Unconditional convergence of random series. Caucasian Mathematics Conference (CMC I), September 5-10, 2014, Tbilisi, Georgia. Book of Abstracts, p. 126 (co-authors: N. Vakhania, V. Tarieladze).
33. Universal Gaussian random elements. V Annual International Conference of the Georgian Mathematical Union, September 8-12, 2014, Batumi, Georgia. Book of Abstracts, p. 114 (co-authors: N. Vakhania, V. Tarieladze).
34. Some properties of Hadamard matrices. 10th International Conference on Computer Science and Information Technologies (CSIT-2015), September 28 – October 2, 2015, Yerevan, Armenia. Proceedings, p. 71-72 (co-authors: G. Giorgobiani, M. Menteshashvili).
35. Some properties of Hadamard matrices. The International Scientific Conference Dedicated to Academician I. Prangishvili's 85th Anniversary "Information and Computer Technologies, Modelling, Control", November 3-5, 2015, Tbilisi, Georgia. Proceedings, p. 377-379 (co-author G. Giorgobiani).
36. Two conditions related with unconditional convergence of series in Banach spaces. VI International Conference of the Georgian Mathematical Union, July 12-16, 2015, Batumi, Georgia. Book of Abstracts, p. 46 (co-author V. Tarieladze).
37. On a functional inequality. Workshop "Lie Groups, Differential Equations and Geometry", July 31, 2015, Università degli Studi di Palermo, Dipartimento di Informatica e Matematica, Italy (co-author M. Menteshashvili).
38. Unconditional convergence of random series. VII International Joint Conference of the Georgian Mathematical Union & the Georgian Mechanical Union Dedicated to 125-th birthday anniversary of academician N. Muskhelishvili. September 5-9, 2016, Batumi, Georgia. Book of Abstracts, p. 114.
39. Grigol (Gia) Sokhadze. VII Annual International Conference of the Georgian Mathematical Union, September 5-9, 2016, Batumi, Georgia. Book of Abstracts, p. 51-52 (co-author O. Purtukhia).
40. On some applications of Hadamard matrices. South Caucasus Computing and Technology Workshop (SCCTW 2016), October 3-7, 2016, Tbilisi, Georgia (co-authors: G. Giorgobiani, M. Menteshashvili).
41. Hadamard matrices, the Hadamard conjecture and some related problems. 4-th International Conference "Lie Groups, Differential Equations and Geometry", June 8-15, 2016, Modica, Italy (co-author A. Figula).
42. Maximum inequalities and their applications to Hadamard matrices. 11th International Conference on Computer Science and Information Technologies (CSIT-2017), September 25 – September 29, 2017, Yerevan, Armenia. Proceedings, p. 198-199 (co-authors: G. Giorgobiani, M. Menteshashvili).
43. A note on relationships between moments. VIII Annual International Conference of the Georgian Mathematical Union, September 4-8, 2017, Batumi, Georgia. Book of Abstracts, p. 125-126.

44. Maximum inequalities and their applications to Orthogonal and Hadamard matrices. IX Annual International Conference of the Georgian Mathematical Union, September 3-8, 2018, Batumi, Georgia. Book of Abstracts, p. 120 (co-author G. Giorgobiani).
45. On Subgaussian random elements in a Banach space. XXXIII International Enlarged Sessions of the Seminar of Ilia Vekua Institute of Applied Mathematics (VIAM) of Ivane Javakhisvili Tbilisi State University (TSU) April 23–25, 2019, Program, p. 11, (co-author V. Tarieladze). [http://www.viam.science.tsu.ge/enlarged/2019/program\\_eng.pdf](http://www.viam.science.tsu.ge/enlarged/2019/program_eng.pdf)