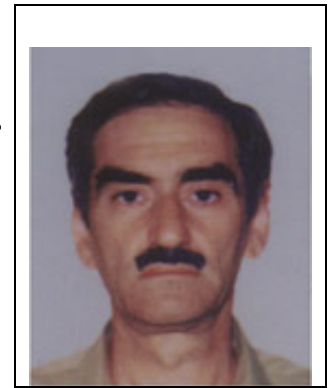




# Georgian National Academy of Sciences



## Personal Data (CV)

<b>Surname</b>	Kharazishvili	<b>Name</b>	Alexander
<b>Address (work, home)</b>	Razmadze Mathematical Institute, Tamarashvili Str., 6, Tbilisi 0177 Sisters Ishkhneli Str., 3, flat 10, Tbilisi 0160	<b>Data and place of birth</b>	1949, November 18, Moscow
<b>Citizenship</b>	Georgia	<b>Telephones</b>	237 04 42
<b>E-mail</b>	<a href="mailto:kharaz2@yahoo.com">kharaz2@yahoo.com</a> akharaz@rmi.ge		

### 3. Education

Education	Institution	Time of study
Secondary	V. Komarov Tbilisi Physics-mathematical school	1965-1967
Higher	Faculty of Mechanics and Mathematics of Iv. Javakhishvili Tbilisi State University	1967-1972
Postgraduate ship, work for doctor's thesis		

### 4. Knowledge of Languages

Foreign languages	Level of mastery (free, medium, with help of dictionary)
English, Polish	medium
Russian	free

### 5. Scientific or Academic Degree and Rank

	თემის დასახელება Powered by name	მინიჭების თარიღი
Candidates Dissertation	On some combinatorial properties of subsets of Euclidean spaces (speciality 01.01.04, geometry and topology)	1974
Doctoral Dissertation	On invariant extensions of the Lebesgue measure (speciality 01.01.01, mathematical analysis)	1982
Academician Doctor		
Professor		

Corresponding Member of the Academy	Corresponding member of the Georgian National Academy of Sciences	2009
Member of the Academy	Academician of the Georgian National Academy of Sciences	2014

## 6. Work Experience

Data	Institution	Position
1973-1976	Institute of Applied Mathematics of Tbilisi State University	junior researcher
1976-1983	Institute of Applied Mathematics of Tbilisi State University	senior researcher
1983-2005	Institute of Applied Mathematics of Tbilisi State University	head of department
2006-2011	Ilia State University	full professor
2006- present	A. Razmadze Mathematical Institute	chief researcher

### 6.1 Teaching Activity

Data	Institution	Position
1994-1998	Lodz University (Poland)	invited professor
2003-2005	V. Komarov Tbilisi Physics-mathematical school	teacher of Math Circle
2006-2011	Ilia State University	full professor

### 6.2. Work Abroad

Form of work	Data	Place and Institution
Delivering a lecture course at a foreign higher educational institution	1994-1998	Lodz (Poland), Institute of Mathematics of Lodz University
Long-term mission to research institutions	1989, 1990, 1991, 1992, 1993	Wroclaw (Poland), Institute of Mathematics of Wroclaw University
Other		

## 7. Sphere of Scientific Interests

Mathematics
Mathematical Analysis (measure theory, functional analysis, real functions)
Geometry and Topology (combinatorial, discrete and convex geometry)
Set theory and Discrete Mathematics (finite and infinite combinatorics, graph theory and its applications)

## 8. Publications (Total number, Point out the Citation Index (*number*))

Total number of publications - 282

According to Publish or Perish: Citation – 589, g-index – 18, h-index - 12

### 8.1 Monographs

Years	
1978	Selected topics of Euclidean space geometry, Tbilisi University Press, Tbilisi (in Russian)
1978	Some questions in set theory and measure theory, Tbilisi University Press, Tbilisi (in Russian)
1979	Selected questions of functional analysis and their applications, Tbilisi University Press, Tbilisi (in Russian)
1981	Elements of the combinatorial theory of infinite sets, Tbilisi University Press, Tbilisi (in Russian)

1983	Invariant extensions of the Lebesgue measure, Tbilisi University Press, Tbilisi (in Russian)
1984	Topological aspects of measure theory, Naukova Dumka, Kiev (in Russian)
1985	Introduction to combinatorial geometry, Tbilisi University Press, Tbilisi (in Russian)
1985	Brunn-Minkowski inequality and its applications, Naukova Dumka, Kiev (co-author V.V. Buldygin, in Russian)
1989	Applications of set theory, Tbilisi University Press, Tbilisi (in Russian)
1990	Selected questions in general topology, Tbilisi University Press, Tbilisi (in Russian)
1991	Vitali's theorem and its generalizations, Tbilisi University Press, Tbilisi (in Russian)
1995	Subsets of the real line, Lodz University Press, Lodz (co-authors J. Cichon and B. Weglorz)
1996	Selected topics of point set theory, Lodz University Press, Lodz
1998	Applications of point set theory in real analysis, Kluwer Academic Publishers, Dordrecht
1998	Transformation groups and invariant measures, World Scientific Publ. Co., London-Singapore
2000	Strange functions in real analysis, Marcel Dekker, Inc., New York
2000	Geometric aspects of probability theory and mathematical statistics, Kluwer Academic Publishers, Dordrecht (co-author V.V. Buldygin)
2004	Non-measurable sets and functions, Elsevier, Amsterdam
2006	Strange functions in real analysis, Chapman and Hall/CRC, New York
2009	Topics in measure theory and real analysis, Atlantis Press, Paris-Amsterdam
2014	Set-Theoretical Aspects of Real Analysis, Chapman and Hall/CRC, New York-Boca Raton, 2014, 452 p.
2016	Elements of Combinatorial Geometry, Part 1, Tbilisi, 2016, 300 p

## 8.2 Papers

- [1] *К задаче освещения*, Bull. Acad. Sci. GSSR, v. 71, n. 2, 1973.
- [2] *Характеристические свойства параллелепипеда*, Bull. Acad. Sci. GSSR, v. 72, n. 1, 1973.
- [3] *Реализация цветных графов в гильбертовом пространстве*, Bull. Acad. Sci. GSSR, v. 76, n. 1, 1974.
- [4] *О разложениях политопов*, Bull. Acad. Sci. GSSR, v. 77, n. 1, 1975.
- [5] *К задаче Серпинского о строгой продолжимости инвариантной меры*, DAN SSSR, v. 232, n. 2, 1977.
- [6] *Равносоставленность многогранников относительно группы гомотетий и параллельных переносов*, DAN SSSR, v. 236, n. 3, 1977.
- [7] *Аксиома выбора в общей теории систем*, Bull. Acad. Sci. GSSR, v. 94, n. 3, 1979.
- [8] *О некоторых сигма-алгебрах*, Ukrain. Math. Journ. v. 37, n. 2, 1985.
- [9] *О некоторых задачах комбинаторной геометрии*, Proceedings of A. Razmadze Math. Inst., v. 85, 1987.
- [10] *Some problems in measure theory*, Colloq. Math., v. 62, 1991.
- [11] *On sets of Vitali's type*, Proc. Amer. Math. Soc., v. 118, n. 4, 1993 (co-authors: J.Cichon and B.Weglorz).
- [12] *Small sets with respect to certain classes of topologies*, Colloq. Math. v. LXVII, n. 1, 1994.
- [13] *О принципе сгущения особенностей*, Bull. Acad. Sci. Georgia, v. 149, n. 2, 1994.
- [14] *On almost rigid mathematical structures*, Folia Mathematica, 9, 1997.
- [15] *On C-points of compact sets in locally convex spaces*, Soochow Journal of Mathematics, vol. 25, no. 4, 1999.
- [22] *Мера, Вероятность и Мат. Статистика*, Изд. Энциклопедия, Москва, 1999.

- [23] *On mutually coherent enumerations of countable sets*, Georgian Mathematical Journal, vol. 12, no. 4, 2005.
- [24] *On measurable Sierpinski-Zygmund functions*, Journal of Applied Analysis, vol. 12, no. 2, 2006.
- [25] *On the measurability of additive functionals*, Georgian Mathematical Journal, vol. 14, no. 1, 2007.
- [26] *On measurability of algebraic sums of small sets*, Studia Scientiarum Mathematicarum Hungarica, vol. 45, no. 3, 2008 (co-author A. Kirtadze).
- [27] *A nonseparable extension of the Lebesgue measure without new null-sets*, Real Analysis Exchange, vol. 33, no. 1, 2008.
- [28] *On bad descriptive structure of Minkowski's sum of certain small sets in a topological vector space*, Theory of Stochastic Processes, vol. 14 (30), issue 2, 2008.
- [29] *Metrical transitivity and non-separable extensions of invariant measures*, Taiwanese Journal of Mathematics, vol. 13, no. 3, 2009.
- [30] *On sums of real-valued functions with extremely thick graphs*, Expositiones Mathematicae, vol. 27, no. 2, 2009.
- [31] *On thick subgroups of uncountable sigma-compact locally compact commutative groups*, Topology and its Applications, vol. 156, issue 14, 2009.
- [32] *On some coverings of the Euclidean plane with pairwise congruent circles*, Amer. Math. Monthly, v. 117, n. 5, 2010 (co-author: T. Sh. Tetunashvili).
- [33] *On almost measurable real-valued functions*, Studia Scientiarum Mathematicarum Hungarica, v. 47, n. 2, 2010, pp. 257-266.
- [34] *Piecewise affine approximations of continuous functions of several variables and Gale polyhedra*, Proc. A. Razmadze Math. Institute, v. 152, 2010.
- [35] *On nonmeasurable unions of measure zero sections of plane sets*, Proc. A. Razmadze Math. Inst., v. 154, 2010.
- [36] *On a relationship between the measurability and continuity of real-valued functions*, Georgian Mathematical Journal, v. 17, n. 4, 2010.
- [37] *On non-elementary methods in elementary geometry*, Journal of Geometry, v. 97, numbers 1-2, 2010.
- [38] *Some combinatorial problems on the measurability of functions with respect to invariant extensions of the Lebesgue measure*, Acta Universitatis Carolinae, Phys.- Math. Ser., v. 51, 2010, pp. 57-65.
- [39] *A combinatorial problem on translation-invariant extensions of the Lebesgue measure*, Expositiones Mathematicae, v. 29, n. 1, 2011, pp. 150-158.
- [40] *Measurability properties of Vitali sets*, Amer. Math. Monthly, v. 118, n. 10, 2011. [271] *Some discrete geometric structures and associated algorithms*, Proc. A. Razmadze Mathematical Institute, v. 155, 2011, pp. 142-148.
- [41] *On ordinary differential equations with bad right-hand sides*, Proc. A. Razmadze Mathematical Institute, v. 155, 2011, pp. 139-141.
- [42] *On a relationship between absolutely nonmeasurable functions and Sierpiński-Zygmund functions*, Georgian Mathematical Journal, v. 18, n. 2, 2011.
- [43] *A note on algebraic convex curves of constant width*, Georgian Mathematical Journal, v. 18, n. 4, 2011.
- [44] *Some remarks concerning monotone and continuous restrictions of real-valued functions*, Proc. A. Razmadze Mathematical Institute, v. 157, 2011, pp. 11-21.
- [45] *On finite and infinite ot-sets*, Bulletin of TICMI, v. 15, 2011, pp. 27-34. 2012
- [46] *Measurable and nonmeasurable sets with homogeneous sections*, Georgian Mathematical Journal, v. 19, n. 2, 2012, pp. 247-258.
- [47] *A large group of absolutely nonmeasurable additive functions*, Real Analysis Exchange, v. 37, n. 2, 2011-2012, pp. 467-476.
- [48] *Some properties of at-sets and ot-sets in a Hilbert space*, Proceedings of A. Razmadze Mathematical Institute, v. 159, 2012, pp. 151-155.

- [49] On some topologic-geometrical properties of external bisectors of a triangle, *Georgian Mathematical Journal*, v. 19, n. 4, 2012, pp. 697-704.
- [50] Ergodic measures and the definability of subgroups via normal extensions of such measures, *Theory of Stochastic Processes*, v. 18 (34), n. 1, 2012, pp. 58-64.
- [51] Some geometric consequences of Ramsey's combinatorial theorem, *Bulletin of TICMI*, v. 16, n. 1, 2012, pp. 34-42.
- [52] Some unsolved problems in measure theory, *Proceedings of A. Razmadze Mathematical Institute*, v. 162, 2013, pp. 59-77.
- [53] Sums of absolutely nonmeasurable functions, *Georgian Mathematical Journal*, v. 20, n. 2, 2013, pp. 271-282.
- [54] Measurability properties of well-orderings, *Georgian Mathematical Journal*, v. 20, n. 3, 2013, pp. 533-545.
- [55] Additive properties of certain classes of pathological functions, *Real Analysis Exchange*, v. 38, n. 2, 2013, pp. 477-488.
- [56] On some pathological homomorphisms of uncountable commutative groups, *Proceedings of A. Razmadze Mathematical Institute*, v. 162, 2013, pp. 136-140.
- [57] On absolutely nonmeasurable homomorphisms of commutative groups, *Studia Scientiarum Mathematicarum Hungarica*, v. 50, n. 3, 2013, pp. 287-295.
- [58] On countable almost invariant partitions of  $G$ -spaces, *Ukrain. Math. Journal*, v. 66, n. 4, 2014, pp. 510--517. Springer.
- [59] On some real-valued step-functions with strange measurability properties, *Georgian Mathematical Journal*, v. 21, n. 1, 2014, pp. 83-87. Walter De Gruyter.
- [60] A characterization of uncountable sets in terms of their self-mappings and large invariant subsets, *Georgian Mathematical Journal*, v. 21, n. 3, 2014, pp. 297-302 – Walter De Gruyter.
- [61] On partitions of the real line into continuum many thick subsets, *Real Analysis Exchange*, v. 39, n. 2, 2014, pp. 459-468 – Michigan State University Press.
- [62] On measurability properties of Bernstein sets, *Proc. A. Razmadze Mathematical Institute*, v. 164, 2014, pp. 63-70. – A. Razmadze Mathematical Institute.
- [63] On a theorem of Luzin and Sierpinski, *Proc. of A. Razmadze Mathematical Institute*, v. 164, 2014, pp. 109-115. – A. Razmadze Mathematical Institute.
- [64] On three-colorings of the Euclidean plane and associated triangles of a prescribed type, *Journal of Geometry*, v. 105, issue 1, 2014, p. 193 – Springer.
- [65] On inscribed and circumscribed convex polyhedra, *Proceedings of A. Razmadze Mathematical Institute*, v. 167, 2015, pp. 123-129.
- [66] On the cardinalities of  $\mathfrak{a}$ -sets in a real Hilbert space, *Georgian Mathematical Journal*, v. 22, n. 2, 2015, pp. 259-264.
- [67] A partition of an uncountable solvable group into three negligible subsets, *Bulletin of TICMI*, v. 19, no. 1, 2015, pp. 37-44.
- [68] Three-colorings of the Euclidean plane and associated triangles of a prescribed type. *Georgian Mathematical Journal*, v. 22, n. 3, 2015, pp. 393--396.
- [69] On bijective continuous images of absolute null sets, *Ukrain. Math. Journal*, v. 67, n. 7, 2015, pp. 1134-1138.
- [70] Strangely convergent sequences. *Inference: International Review of Science, Paris*, v. 1, issue 4, 2015, 13 p.
- [71] A. Kharazishvili, On negligible and absolutely non-measurable subsets of uncountable solvable groups, *Transactions of A. Razmadze Mathematical Institute*, v. 170, issue 1, 2016, pp. 69-74
- [72] A. Kharazishvili, Absolute null subsets of the plane with bad orthogonal projections, *Real Analysis Exchange*, v. 41, n. 1, 2015-2016, pp. 233-244
- [73] A. Kharazishvili, On the cardinal number of the family of all invariant extensions of a nonzero sigma-finite invariant measure, *Transactions of A. Razmadze Mathematical Institute*, v. 170, issue 2, 2016, pp. 200-204

- [74] A. Kharazishvili, On the difference between a Vitali-Bernstein selector and a partial Vitali-Bernstein selector, *Georgian Mathematical Journal*, v. 23, n. 3, 2016, pp. 387-392
- [75] A. Kharazishvili, Cantor's diagonalization method, *Inference: International Review of Science*, Paris, v. 2, issue 3, 2016, 11 p.
- [76] A. Kharazishvili, Measurability properties of Mazurkiewicz sets, *Bulletin of TICMI*, v. 20, n. 2, 2016, pp. 1-3.

### 8.3 Textbooks, Manuals, and other Methodological Literature and Training applications

Years	
2007	Mathematical Sketches, part 1, Ilia State University Press, Tbilisi (in Georgian)
2010	Mathematical Sketches, part 2, Ilia State University Press, Tbilisi (in Georgian)
2008	The Beginnings of Set Theory, part 1, Ilia State University Press (in Georgian)
2012	The Beginnings of Set Theory, part 2, Press of the Georgian National Academy of Sciences, Tbilisi (in Georgian)

### 8.4 Electronic Publications

Years	Title	Address of Source

### 8.5 Participation in Scientific Symposiums, Conferences... (in the last ten years)

Years	Title	Name of Event
2005	To the existence of non-separable invariant measures on groups	International Conference: Modern Problems and New Trends in Probability Theory, Chernivtsi, Ukraine, 2005
2007	On a bad descriptive structure of the vector sum of certain small sets	International Conference: Skorokhod Space: 50 Years On, Kyiv, Ukraine, 2007
2007	On absolutely non-measurable sets and functions	Marczewski Centennial Conference in Measure Theory, Bedlewo, Poland, 2007
2008	Some applications of almost disjoint families of sets	International Conference on Modern Problems in Applied Mathematics, Tbilisi, 2008
2008	On some families of convex functions	Workshop on Variable Exponent Analysis and Related Topics, Tbilisi, 2008
2008	On relatively measurable functions	36th Winter School in Abstract Analysis, Lhota nad Rohanovem, Czech Republic, 2008
2009	Non-elementary methods in elementary geometry	9th International Conference on Geometry and Applications, September 5-10, 2009, Varna, Bulgaria
2010	Combinatorial problems connected with extensions of the Lebesgue measure	38th Winter School in Abstract Analysis, Klenci, Czech Republic, 2010
2011	On some topologic-geometrical properties of external bisectors of triangles	10th International Conference on Geometry and Applications, September 3-9, 2011, Varna, Bulgaria
2012	Measurability properties of real-valued functions	40th Winter School in Abstract Analysis, Klenci, Czech Republic, 2012
2012	On sums of absolutely non-measurable functions	International Conference dedicated to the 120th anniversary of S. Banach, Lviv, Ukraine, September 17-21, 2012
2013	On three-colorings of the Euclidean plane and associated triangles of a prescribed type	11th International Conference on Geometry and Applications, September 1-6, 2013, Varna, Bulgaria

### 9. Organizational Work (Holding Congresses and Conferences, Editorial Work)

Years	Name
1985	First Soviet Conference in Combinatorial Geometry (Batumi, 1985, member of the Organizing Committee)
1985	Workshop "Topological Aspects of the Theory of Functions" (Tbilisi, 1985, Chair of the Organizing Committee)
1995-present	Member of the Editorial Board of Journal of Applied Analysis
1995-present	Member of the Editorial Board of Georgian Mathematical Journal

### 10. Inventions (Authors Certificate, Patents)

Years	Name

### 11. International and Local Scientific grants

Years	Name
1995-1997	Grant of the Department of Real Functions of Lodz University (Head of Department: prof. W. Wilczynski)
2005	Grant of Ministry of Education and Science of Georgia, N 1.01.90, 2005.
2006-2008	Grant of Georgia National Science Foundation, GNSF/ST06/3-010, 2006-2008.
2008-2010	Grant of Georgia National Science Foundation, GNSF/ST07/3-169, 2008-2010.
2009	Grant of Georgia National Science Foundation, GNSF/ 08 373 3-105, 2009
2013-2016	Shota Rustaveli National Science Foundation # 31/25, 2013-2016

### 12. Scientific-Commercial Activity, Realized Projects, დაწერვები

Years	Name

### 13. Other Activities

	Name	Years
Supervision of Theses and Masters work	G. Nijaradze, On some properties of measures given in Euclidean spaces (PhD, speciality: mathematical analysis + geometry and topology)	1977
	R. Tsakadze, On quasi-invariant measures in homogeneous spaces (PhD, speciality: mathematical analysis)	1985
	G. Pantsulaia, On some properties of probability measures given in spaces with additional structure (PhD, speciality: probability theory and mathematical statistics)	1986
	V. Tskhadaia, On some applications of non-measurable sets in the theory of quasi-invariant measures (PhD, speciality: mathematical analysis)	1986
	T. Sajeniuk, On some inductive constructions in combinatorial geometry (PhD, speciality: geometry and topology)	1988

	A. Kirtadze, On the uniqueness property of invariant measures in topological vector spaces (PhD, speciality: mathematical analysis)	1990
	A. Kipiani, On product-isomorphisms of finitary relations (PhD, speciality: mathematical logic, algebra and number theory)	1998
	T. Tetunashvili, Some aspects of the set-theoretical approach in courses of higher mathematics (PhD, speciality: pure mathematics)	2011
	M. Beriashvili, Set-theoretical aspects of second-order logic (MSc thesis defended at Tbilisi State University)	2011
Participation in International, State and Regional Programs		

#### 14. Awards and Prizes, Honorary Title

Data	Name of Awards, Prizes, Honorary Title
1996	Award from the Rector of the Lodz University (Poland)
2006	Award for Achievement in Science from Georgian Society of History of Science
2008	N. Muskhelishvili prize of Georgian National Academy of Sciences

#### 15. Family Status

married, has two children