

**CV**  
**Giorgi Rakviashvili**

**1. Surname**

**Name**

<b>Rakviashvili</b>	<b>Giorgi</b>
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**2. Addresses**

Ilia State University, Kakutsa Cholokashvili Ave 3/5, Tbilisi 0162, Georgia

e-mail: [giorgi.rakviashvili@iliauni.edu.ge](mailto:giorgi.rakviashvili@iliauni.edu.ge)

**2. Scientific interests / research interests: Lie algebras and Lie groups theory, Homological algebra, Algebraic K-theory, Nonlinear dynamical systems, Mathematical economics**

**4. Working experience**

Working period	from 1975 to 1983
Employer	A. Razmadze Mathematical Institute, Tbilisi
Address of the employer	Aleksidze str. 1
Position	Laboratory assistant
Responsibilities	Research work

Working period	from 1983 to 1990
Employer	A. Razmadze Mathematical Institute, Tbilisi
Address of the employer	Aleksidze str. 1
Position	Researcher
Responsibilities	Research work

Working period	From 1990 to 2011
Employer	A. Razmadze Mathematical Institute, Tbilisi
Address of the employer	Aleksidze str. 1
Position	Senior researcher
Responsibilities	Research work

Working period	From 2008 to 2011
Employer	Ilia State University, Tbilisi
Address of the employer	Kakutsa Cholokashvili Ave 3/5, Tbilisi
Position	Visiting professor
Responsibilities	Pedagogical work

Working period	From 2011 to 2013
Employer	Ilia State University, Tbilisi
Address of the employer	Kakutsa Cholokashvili Ave 3/5, Tbilisi
Position	Assistant professor
Responsibilities	Pedagogical and research work

Working period	from 2013 until now
Employer	Ilia State University, Tbilisi
Address of the employer	Kakutsa Cholokashvili Ave 3/5, Tbilisi
Position	Associate professor
Responsibilities	Pedagogical and research work

## 5. Education and scientific degrees

Date	From 1967 to 1973
Institution	Tbilis State University
Specialty	Mathematics
Diplom number	Я # 173173
Qualification	Mathematician, teacher of mathematics

Date	from 1977 to 1980
Institution	A. Razmadze Mathematical Institute, Tbilisi
Specialty	Postgraduate study

Date	1984
Institution	Minsk Mathematical Institute, Belarus
Specialty	Mathematician
Diplom number	ΦМ # 018894
Qualification	PhD in Physics and Mathematics
Thesis title	Algebraic K-theory and cohomology of crossed group algebras

## 6. Publications

1. Cohomologies, extensions and abstract kernels of Lie p-algebras. (in Russian) *Soobshch Akad. Nauk Gruz. SSR (Bull. Acad. Sci.Georgian SSR)* **93**(1979), No. 3.
2. Generalizations of the Artin theorem for semisimple algebras and crossed group rings. (in Russian) *Soobshch Akad. Nauk Gruz. SSR (Bull. Acad. Sci.Georgian SSR)* **96**(1979), No. 1.
3. Periodicity of Tate cohomologies of crossed group rings. (in Russian) *Soobshch Akad. Nauk Gruz. SSR (Bull. Acad. Sci.Georgian SSR)* **100**(1980), No. 1.
4. On the structure of projective modules over crossed group rings. (in Russian) *Soobshch Akad. Nauk Gruz. SSR (Bull. Acad. Sci.Georgian SSR)* **101**(1981), No. 3.

5. On the crossed enveloping algebra of Lie  $p$ -algebra. (in Russian) *Soobshch. Akad. Sci. Georgian SSR (Bull. Acad. Sci. Georgian SSR)* **108**(1982), No. 2.
6. Inductive theorems and projective modules over crossed group rings. (in Russian) *Trudy Tbiliss. Mat. Inst. Razmadze* **70**(1982), 92-07.
7. On the  $K$ -theory of the crossed product of a commutative algebra and a Hopf algebra. (in Russian) *Trudy Tbiliss. Mat. Inst. Razmadze* **78**(1986), 79-95.
8. On the products in the algebraic  $K$ -theory of crossed enveloping superalgebras. (in Russian) *Trudy Tbiliss. Mat. Inst. Razmadze* **91**(1988), 67-75.
9. Cohomologies of Lie  $p$ -algebras with one defining relation, *Bull. Georgian Acad. Sci.*, 172(2005), No. 2.
10. Some combinatorics aspects of free associative algebras and cohomologies of Lie  $p$ -algebras with one defining relation. *Sovremennia matematika I prilozhenia, vol. 59, Algebra I Geometriq, 2008* (in Russian).
11. Combinatorial aspects of free associative algebras and cohomologies of Lie  $p$ -algebras with one defining relation. *Journal of Mathematical Sciences, Vol. 160, No. 6, 2009*.
12. Splitting fields for crossed group rings. *Bull. Of the Georgian National Academy of Sciences, Vol. 5, No. 1, 5-9, 2011*.
13. On primitive elements of free Lie  $p$ -algebras. *III International Conference of the Georgian Mathematical Union, Book of abstracts, 101, 2012*.
14. Primitive elements of free Lie  $p$ -algebras. *Bulletin of the Georgian Academy of Sciences, vol. 8(2), 2014, pp. 15-18*
15. Primitive elements of free Lie  $p$ -algebras. *Tbilisi Mathematical Journal* 8(2), 2015, pp. 35-40.
16. (With A. Elashvili) On regular cohomologies of biparabolic subalgebras of  $sl(n)$ . *Bulletin of the Georgian Academy of Sciences, V. 10, #2, 2016, 10-13*.
17. K. Pipia, G. Rakviashvili, G. Tutberidze, P. Kunchulia. On gravitational models of migration. "Globalization and Business" #1, 2016, 53-59.
18. About a center of a biparabolic subalgebra of  $sl(n)$  (Abstracts). VII International Conference of the Georgian Mathematical Union, Batumi, 4-10.09.2016.
19. K. Pipia, G. Rakviashvili, G. Tutberidze. Theoretical bases of calculation of quantitative characteristics of the economic structure of a society (*Globalization and Business, #3, 2017, in Georgian*)
20. Inductive Theorems and the Structure of Projective Modules over Crossed Group Rings (*Bulletin of the Georgian Academy of Sciences, vol. 12, No.1, 2018, 16-20*)
21. On algebraic  $K$ -functors of crossed group rings and its applications (*Tbilisi Mathematical Journal, vol. 11, No 2, 2018, 1-15*).
22. The Measuring of the Gini, Theil and Atkinson Indices for Georgia Republic and Some other Countries. (*"Globalization & Business", #5, 2018, 110-117*).
23. On the Products of Algebraic  $K$ -Functors of a Crossed Hopf Algebras. IX International Conference of the Georgian Mathematical Union. Batumi, p.196, 2018 (Abstracts).
24. On products in Algebraic  $K$ -Theory of Crossed Hopf Algebras. *Journal of Mathematical Sciences, 2019*.
25. On Algebraic  $K$ -Functors of Crossed Restricted Enveloping Algebras of Lie  $p$ -Algebras - Abstracts (X International Conference of the Georgian Mathematical Union (Batumi, 2019)).
26. On Algebraic  $K$ -Functors of Crossed Restricted Enveloping Algebras of Lie  $p$ -Algebras. *Bulletin of the Georgian Academy of Sciences, V. 13, #4, 12-19, 2019*.

27. On cohomologies and algebraic K-theory of Lie  $p$ -superalgebras. Tbilisi Mathematical Journal 13(2), (2020), pp. 217-224.
28. On Products in Algebraic K-Theory of Crossed Hopf Algebras. Itogi Nauki i Tekhniki, Ser. Sovrem. Math. i ee Pril., Temat. Obzor, vol 177 (2020), 111-120 (on Russian).
29. (With Q. Pipia, G. Tutberidze, K. Rakviashvili) The new generalized gravitational model of migration for Georgia. Globalization and Business, #10, 131-138, 2020.
30. (With N. Tophuridze) On Hyperdeterminants and Equations over Noncommutative Rings, Tskhum-Abkhazian Academy of Sciences, Proceedings, vol21, 166-173 (2021).
31. Low dimensional cohomologies of biparabolic subalgebras. Advanced Studies: Euro-Tbilisi Mathematical Journal 15(4) (2022), pp. 155–160.
32. On Products in Algebraic K-Theory of Crossed Hopf Algebras. Journal of Mathematical Sciences, Vol. 275, No. 6, October, 2023, 758-766.
33. (With D. Aludauri, G. Bedianashvili) Time Series Analysis Using Fractal Theory (Accepted for publication in “Innovative Economics and Management”).

#### 7. Participation in scientific conferences

No	Date	Event	City	Title
1	2008	Tbilisi I. Vekua Institute of Applied Mathematics, Extended sessions of the seminar	Tbilisi	Some aspects of the combinatorics of free associative algebras
2	2009	New Trends in Geometry and Topology	Batumi	Word problems in free associative algebras
3	2011	Geometry and arithmetic around Teichmüller theory	Istanbul, Galatasaray University	Word problems in free associative algebras
4	2012	<i>III International Conference of the Georgian Mathematical Union</i>	Batumi, 2-9.09	Lie $p$ -algebras with one defining relation
5	2012	Seminar of algebra	Kiev	The combinatorics of associative and Lie $p$ -algebras
6	2014	<i>V International Conference of the Georgian Mathematical Union</i>	Batumi	On primitive elements of Lie $p$ -algebras
7	2015	<i>VI International Conference of the Georgian Mathematical Union</i>	Batumi, 12-14.07	On Regular Cohomologies of Biparabolic Subalgebras of $sl(n)$ (with A. Elashvili)

8	2016	European Integration and Georgia (International conference)	Tbilisi, 19.06	On gravitational models of migration (with G. Tutberidze and K. Pipia)
9	2016	<i>VII International Conference of the Georgian Mathematical Union</i>	Batumi, 5-9.09	About a center of biparabolic subalgebra of $sl(n)$ (with E. Kuljanishvili)
10	2017	2-th International conference of European University Actual Problems of Knowledge Economy Under Globalization	Tbilisi, 30.06	Theoretical bases of calculation of quantitative characteristics of the economic structure of a society (with G. Tutberidze and K. Pipia)
11	2017	Conference of Mathematics Department of Batumi Sh. Rustaveli State University "Topology, algebra, analysis and applications"	Batumi, 12-16.02	On algebraic K-functors of crossed group rings and applications
12	2018	5-th International conference of European University "Actual Economic and Social Problems in Modern Globalization"	Tbilisi, 30.06	The Measuring of the Gini, Theil and Atkinson Indices for Georgia Republic and Some other Countries (with G. Tutberidze and K. Pipia)
13	2019	<i>XI International Conference of the Georgian Mathematical Union</i>	Batumi, September 1-7, 2019	On algebraic K-functors of crossed restricted enveloping algebras of Lie p-algebras
14	2020	<i>The 5th International Conference ACTUAL ECONOMIC AND SOCIAL PROBLEMS IN MODERN GLOBALIZATION</i>	Tbilisi, September 26 (remotely using zoom)	The new generalized gravitational model of migration for Georgia (with Q. Pipia, G. Tutberidze, K. Rakviashvili)
15	2021	<i>XI International Conference of the Georgian Mathematical Union</i>	Batumi, August 23 – 28	Lorenz-Like System as a Set of Coupled Driven and Damped Nonlinear Oscillators (with T. Aliashvili, I. Murusidze)
16	2021	<i>XI International Conference of the Georgian Mathematical Union</i>	Batumi, August 23 – 28	On the Low Dimensional Cohomologies of Biparabolic Subalgebras (with B. Kotchlamazashvili)

17	2022	<i>XII International Conference of the Georgian Mathematical Union</i>	Batumi, August 29 – September 3	On Low Dimensional Regular Cohomologies of Biparabolic Subalgebras
18	2023	<i>XIII International Conference of the Georgian Mathematical Union</i>	Batumi, September 4 – 9	Lyapunov Dimension Formula of n-Generalized Henon Map

## 8. Grants

№	Grants	Role in the project	Project title	დამფინანსებელი
1	04.05.2019-04.05.2020	Researcher	Circadian rhythm as a regulatory system for biosystem homeostasis from the perspective of nonlinear dynamics and chaos theory	Institutional Development Research Grant Program, Ilia State University
2	2.04.2014-2.04.2016	Principal Investigator	Shota Rustaveli National Science Foundation, FR/307/5-113/13 grant Froebenius Lia elgebras“	Shota Rustaveli National Science Foundation
3	1.10.2006-30.09.2008	Researcher	“Singularities, Bifurcations and Monodromy”	INTAS grant Nr. 05-1000008-7805
4	2006-2009	Researcher	Algebraic and topological structures in the homotopical and categorical algebra, K-theory and cyclic homology	GNSF/ST06/3-004

## 9. Courses

Courses	University
1. <b>Analytic geometry</b>	Tbilisi State University, Ilia State University
2. <b>Elements of practical mathematics</b>	Ilia State University
3. <b>Elementary mathematics in banking</b>	Ilia State University
4. <b>Elementary mathematics in economics</b>	Ilia State University
5. <b>Higher Algebra</b>	Ilia State University

6. Theory of Probability and Mathematical Statistics	Ilia State University
7. Theory of Probability and Stochastic Processes	Ilia State University
8. Set theory	Ilia State University
9. Discrete mathematics	Ilia State University
10. Mathematical analysis	Ilia State University
11. Linear programming and optimizations	Ilia State University
12. Group theory	Ilia State University
13. Geometry and groups	Ilia State University
14. Group theory and geometrical structures	Ilia State University
15. The theory of linear representations of finite groups	Ilia State University
16. Homological Algebra	Ilia State University

**10. Membership of scientific community, scientific councils, editorial colleagues**

*Georgian Mathematical Union*

*“Pure and Applied Mathematics Journal(PAMJ)” - Member of the Editorial Board*

**11. Scientific leadership**

You are the head of the master's thesis	22
How many doctoral dissertations you were an opponent	3
How many PhD students do you have	2

**12. Languages**

Georgian – excellent

Russian – good

English – Satisfactory

Germany - Satisfactory





### **13. Additional Information**

**I have developed a Dictionary of mathematical terms in six languages (Georgian, Azerbaijani, Turkish, Armenian, Russian, English) in MS Access.**

I recommend the program (see <http://www.generatorzadach.lgb.ru/>) that can generate dozens of different tasks on some topics in mathematics, this program has also the English version.