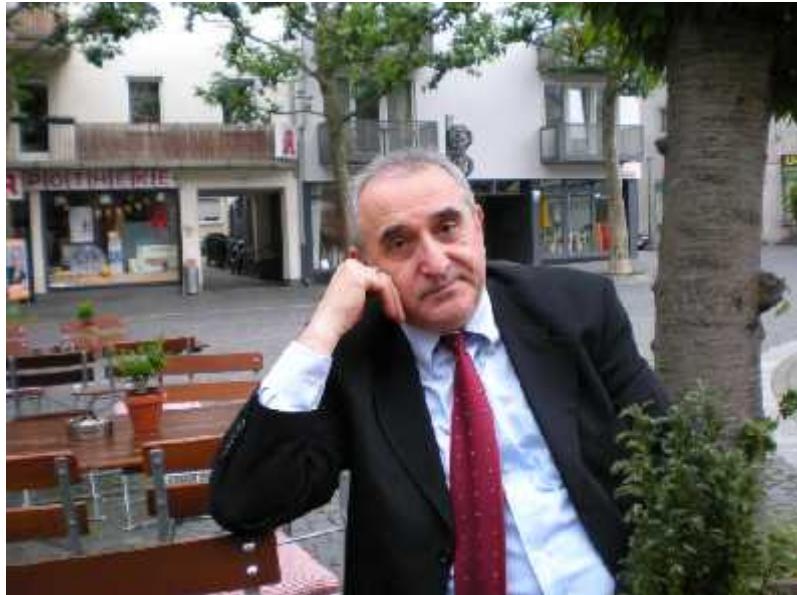




## **PROF. OMAR MUKBANIANI**



**Professor Omar Mukbaniani**

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### **Relevant educational background**

1957-1966 Graduated 15<sup>th</sup> secondary school of Tbilisi, (silver medalist).

1966-1971 Undergraduate Student, Tbilisi State University, Faculty of Chemistry (TSU).

1972-1973 Research worker, Faculty of Chemistry, Department of High Molecular Compounds (TSU).

1973-1976 Post-graduated from A.N. Nesmeyanov Institute of Organo element Compounds Academy of Sciences USSR (INEOS, Moscow, Russia).

### **Relevant work experience**

In 1977 – O. Mukbaniani defends his candidate dissertation: "Synthesis of polycyclic organosilixane compounds and block-copolymers on their Bases" (Certificate of Diploma XM 002211).

1977-1985 – Senior Research Worker, of Chemistry Faculty, Department of High Molecular Compounds of TSU.

1983 – Certificate of Diploma of Senior Research Worker (CH 032401).  
1985-1993 – Associate Professor (Docent) of the Department of High Molecular Compounds of Chemistry Faculty (TSU). Certificate of diploma of Associate Professor ( 009457).  
1993 – O. Mukbaniani defends his doctor thesis: “Organosilicon copolymers and block-copolymers with various cyclic structure of macromolecules” (TSU) (Certificate of diploma 000179).

Since 1994 – Professor of the Department of High Molecular Compounds of Faculty of Chemistry (TSU) (Certificate of diploma 000288 professor of organic chemistry).

Further activity of O. Mukbaniani is narrowly connected with polymer sciences, first of all with synthesis, investigation properties and application of heat resistance, thermal stable organo/inorganic polymers and composite materials.

1997-2006 – Head of the department of organic chemistry of Sokhumi State University, branch of Tbilisi State University (combine jobs).

2002-2006 - Head of the scientific laboratory “Hetero Chain Polymers and Composite Materials”.

2000 - till now full professor, chair of Macromolecular chemistry of the Department of Chemistry (TSU).

2009 - Director of the Institute of Macromolecular Chemistry and Polymeric Materials.

#### **Trainings:**

- 2014** – Invited professor of Organic Technology department of Kaunas University of Technology, Lithuania. Kaunas. Prof. Juozas Vidas Grazulevicius: “Synthesis and Properties of Electroactive Silicon Organic Compounds”
- 2008** – Groningen (Holland), Tuning Project, the approaching program of Georgian universities to European universities program.
- 2008** - Invited professor of the University of Muenster, Prof Hans-Dieter Wiemhoffer. “Synthesis of Siliconorganic Polymer Electrolites for Energy Storage Devices in Lithium Batteries”. – (DFG)
- 1998** – Invited professor of the Polymeric Research Institute of Mainz, Max-Plank Institute (MPI) with Prof. K. Meullen. Subject: “Conjugated polyheteroarylenes” (DFG – 3 months).
- 1998** – Invited professor of Pharmaceutical University of Muenster with Prof. G. Blashke. Subject: “Negative and positive charged -cyclodextrines for capillary electrophoresis” (DFG – 3 months).
- 1995** – Invited professor of Saarbruken University with Prof. Engelhard. Subject: "Siliconorganic compounds for capillary electrophoresis".
- 1992** – Research Associate of the Technical University of Dresden (FRG), with Prof. K Ruhlmann. Subject: "Synthesis of polysilanes for ceramic materials". Nuncritz GmbH, Subject: "Modification siliconorganic elastomers".
- 1987** – Scholarship of the University of Iena (GDR) on the Department of Organic Chemistry, with Prof. H.H. Horchold. Subject: "Epoxy containing organosiloxanes and copolymers on their bases".
- 1987** – Scholarship of the Technical University of Rostok (GDR), with Prof. H. Kelling. Subject: “Synthesis and investigation of properties of new polyorganosiloxanes”.
- 1987** – Scholarship of the Technical University of Dresden (GDR) on the Department of Organic Chemistry, with Prof. K. Ruehlmann. Subject: "Synthesis of new epoxy containing organosiloxanes".
- 1983 –1984** – Scholarship of Budapest Polytechnic University (Hungary). Department of inorganic Chemistry, with Prof. I. Nagy. Subject: "Novel organosiloxane copolymers containing cyclosiloxane rings as a pendant groups" (10 months).

#### **Research interests in the present:**

Polymer chemistry. Chemistry of organosilicon compounds.

Modification of organo/inorganic monomers and polymers.

Kinetics and mechanisms of chemical reactions.

Modification of industrial polymers.

Modification of mineral resources of Georgia for polymer composites.

Synthesis of silicon-based polymers and copolymers including polysiloxanes, po-lysilanes, organic polysilicates and polycarbosilanes is investigated. Methods of precision synthesis to build block, graft and comb-type structure are developed. The mechanisms of reactions leading to these polymers are also studied. Some effort is devoted to the synthesis of various types of functionalized silicon polymers with "reactionable groups". Organic functions are introduced to polymer chain ends or to side groups. In this way reactive polymers are obtained which are further used for synthesis of block and graft copolymers or for modification to give them specific properties. Kinetic methods are employed to determine the structures of intermediate products. Theoretical methods (molecular modelling) are used in addition to physical-chemical techniques to study the mechanistic problem.

Solid polymer electrolyte membranes for electro storage devices on silicon matrix.

New Composite Materials on the basis of renewable raw materials and ecologically friendly Binders.

### **Languages**

Georgian (native), Russian, English.

### **Membership of organizations:**

- ❖ From 2018 member of American Chemical Society;
- ❖ From 2008 member of Georgian Academy of Natural Sciences;
- ❖ From 2008 Member of Editorial Board of Periodical Scientific Journal "Khandzta".
- ❖ From 2007 Member of Editorial Board of International Journal "Polymers Research Journal".
- ❖ From 2006 Member of Advisor board of the Journal Proceeding of Iv. Javakhishvili Tbilisi State University (Chemical Series).
- ❖ 2002-2006 Contributing Editor of the Journal Polymer News'.
- ❖ 1993-2006 - Member of Scientific Degree Award Council of Iv. Javakhishvili Tbilisi State University;
- ❖ Member of New York Academy of Science (1996);
- ❖ From 1971 Member of D. Mendeleyev Chemical Society of Georgia;

### **Activities:**

Chair of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> International Symposium on Polymers and Advanced Materials

ICSP&AM (<http://www.tsu.ge/icsp/> (Tbilisi), <http://www.tsu.ge/icsp2/> (Tbilisi),

<http://www.tsu.ge/icsp3/> (Tbilisi), <http://icsp4.tsu.ge> ) (Batumi), <http://www.icsp.tsu.ge/>, (5<sup>th</sup> Tbilisi),

<http://www.icsp6.tsu.ge/> (6<sup>th</sup> Batumi),

Organizing chairperson of 25<sup>th</sup> POLYCHAR 2017, Kuala Lumpur, Malaysia.

Chair of POLYCHAR 26 ([www.polychar.tsu.ge](http://www.polychar.tsu.ge))

Co-chair of the TSU Bachelor Program in "Chemistry";

Head of Chemistry of TSU Master Program in "Macromolecules Chemistry";

Head of Chemistry Program in "Macromolecules Chemistry";

### **Lectures:**

For undergraduate students in Chemistry: "Macromolecular Chemistry";

For master's students in Chemistry: "Selected chapters in Macromolecular Chemistry", "Polymeric materials", "Investigation methods for macromolecular compounds", "Synthesis and reactions of macromolecules", "Elementorganic polymers".

### **Prizes:**

In 1983 – awarded of the Premium Petre Melikishvili for "Best scientific work in the Natural Sciences of Georgia" Academy of Sciences of Georgia.

2018 - The certificate of Shota Rustaveli National Science Foundation in the nomination of the best scientific group.

2018 - Honorary Declaration of the Georgian National Academy of Sciences in connection with the UNESCO World Scientific Day for scientific achievements.

**Honors received**

2003.24.02 - Honor order of Georgia ( 06099 Surrender Warrant 182).

**Internetional grants:**

- 2017-2019 Science and technology center of Ukraine and Georgian National Science Foundation: “Fluorine Containing Solid Polymer Electrolyte Membranes for Energy Storage Devices” -STCU-2016-16
- 2014-2016 Science and technology center of Ukraine and Georgian National Science Foundation: “Obtaining of new composites on the basis of renewable plant materials and ecologically pure coatings” #5892
- 2010–2012 Science and technology center of Ukraine and Georgian National Science Foundation: “Synthesis of Siliconorganic Polymer electrolytes for Electro storage Devices in Lithium Batteries”, #5055 .
- 2002-2003 – Scholarship of World Federation of Scientists (Lausane-Switzerland): „Utilization of Georgian Natural Raw Materials for Purpose to obtain New Composites“.
- 1996 – 1998 – Scholar of International Science Foundation (J. Soros).
- 1995 Individual Grant of International Science Foundation (ISSF).

**Local grants:**

- 2007- Grant of Georgian National Science Foundation for creation of the center of instrumental analysis (with the head).
- 2006-2009 - Grant of Georgian Science Foundation: “Synthesis of new organo/inorganic polymers on the base of functional group containing monomers and composition materials on their basis” – Chief of the Project GNSF/ST06/4-070.
- 2005 - Financing of Research works of Georgian State institution, “Synthesis and Investigation of Properties of New Organo/inorganic Polymers on the Basis of Functional Group Containing Monomers” – Chief of the Project #91.
- 1998-2001 – Grant of Georgian Science and Technology: [#52 (3135)] “Synthesis of sili-conorganic monomers and polymers on their basis with practical values” – chief of the project.

He is an author more than 470 publication, 26 books and monographs and 10 inventions. Under guidance of Prof. O. Mukbaniani 18 candidate dissertations and 20 magistrate works has been prepared.

### **List of scientific works**

#### **Monographs and books**

1. Science and technology of polymers and advanced materials. Applied Research Methods. Editors: Omar V. Mukbaniani, Tamara N. Tatrishvili, Marc J.M. Abadie. Publisher Apple Academic Press Inc., pp. 442, 2019. <http://www.appleacademicpress.com/science-and-technology-of-polymers-and-advanced-materials-applied-research-methods/9781771887533>  
DOI : <https://doi.org/10.1201/9780429425301>
2. Omar V. Mukbaniani, Tamara N. Tatrishvili, Marc J.M. Abadie. Science and technology of polymers and advanced materials. Applied Research Methods. Publisher Apple Academic Press Inc., pp. 389, 2019.  
<http://www.appleacademicpress.com/science-and-technology-of-polymers-and-advanced-materials-applied-research-methods/9781771887533>  
Doi: <https://doi.org/10.1201/9780429425301>
3. Composite Materials for Industry, Electronics, and the Environment: Research and Applications. Editors: *Omar V. Mukbaniani, Devrim Balköse, Heru Susanto, A. K. Haghi*. Apple Academic Press, pp. 424, 2019. DOI: <https://doi.org/10.1201/9780429457937>

<http://www.appleacademicpress.com/composite-materials-for-industry-electronics-and-the-environment-research-and-applications/9781771887403#bios>

4. Applied Chemistry and Chemical Engineering, **Volume 1** (Mathematical and Analytical Techniques), Editors: A. K. Haghi, Devrim Balköse, Omari V. Mukbaniani, Andrew G. Mercader. Apple Academic Press, pp, 392, 2018. DOI: <https://doi.org/10.1201/9781315365626>  
<http://www.appleacademicpress.com/applied-chemistry-and-chemical-engineering-volume-1-mathematical-and-analytical-techniques/9781771885157>
5. Chemical Technology and Informatics in Chemistry with Applications. Editors: Alexander V. Vakhrushev, Omari V. Mukbaniani, Heru Susanto. Apple Academic Press, Inc., pp. 375, 2019.  
<http://www.appleacademicpress.com/chemical-technology-and-informatics-in-chemistry-with-applications-/9781771886666>  
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6. Applied Chemistry and Chemical Engineering, **Volume 2**, Principles, Methodology, and Evaluation Methods. Editors: A. K. Haghi, Lionello Pogliani, Devrim Balköse, Omari V. Mukbaniani, Andrew G. Mercader. Apple Academic Press, Inc., pp, 392, 2018.  
<http://www.appleacademicpress.com/applied-chemistry-and-chemical-engineering-volume-2-principles-methodology-and-evaluation-methods/9781771885584>  
DOI: <https://doi.org/10.1201/9781315207360>
7. Applied Chemistry and Chemical Engineering, **Volume 3**. Interdisciplinary Approaches to Theory and Modeling with Applications. Editors: A. K. Haghi, Lionello Pogliani, Francisco Torrens, Devrim Balköse, Omari V. Mukbaniani, Andrew G. Mercader. Apple Academic Press, Inc., pp, 406, 2018.  
<http://www.appleacademicpress.com/applied-chemistry-and-chemical-engineering-volume-3-interdisciplinary-approaches-to-theory-and-modeling-with-applications/9781771885669>  
DOI: <https://doi.org/10.1201/9781315207346>
8. Applied Chemistry and Chemical Engineering, **Volume 4**. Experimental Techniques and Methodical Developments. Editors: A. K. Haghi, Lionello Pogliani, Eduardo A. Castro, Devrim Balköse, Omari V. Mukbaniani, Chin Hua Chia. Apple Academic Press, Inc., pp, 418, 2018.  
<http://www.appleacademicpress.com/applied-chemistry-and-chemical-engineering-volume-4-experimental-techniques-and-methodical-developments/9781771885874>.  
<https://doi.org/10.1201/9781315207636>
9. Applied Chemistry and Chemical Engineering, **Volume 5**. Research Methodologies in Modern Chemistry and Applied Science. Editors: A. K. Haghi, Ana Cristina Faria Ribeiro, Lionello Pogliani, Devrim Balköse, Francisco Torrens, Omari V. Mukbaniani. Apple Academic Press, Inc., pp, 390, 2018. DOI: <https://doi.org/10.1201/9781315197616>  
<http://www.appleacademicpress.com/applied-chemistry-and-chemical-engineering-volume-5-research-methodologies-in-modern-chemistry-and-applied-science/9781771885935>
10. Chemical Engineering of Polymers, Production of Functional and Flexible Materials, Editors Omari V. Mukbaniani, Marc J.M. Abadie & Tamara N. Tatrishvili. Apple Academic Press, Inc., pp. 482, 2017. DOI: <https://doi.org/10.1201/9781315365985>  
<http://www.appleacademicpress.com/chemical-engineering-of-polymers-production-of-functional-and-flexible-materials/9781771884457>
11. High-Performance Polymers for Engineering-Based Composites. Editors Omari V. Mukbaniani, Marc J.M. Abadie & Tamara N. Tatrishvili. Apple Academic Press, Inc., pp. 408, 2015.  
DOI: <https://doi.org/10.1201/b19869>  
<http://www.appleacademicpress.com/title.php?id=9781771881197>
12. O. Mukbaniani, J. Aneli, T. Tatrishvili, E. Markarashvili. “Polymeric Materials”. Text book for university students – Part I, Publisher Tbilisi State University, 2015, pp. 517 (In Georgian).
13. O. Mukbaniani, J. Aneli, T. Tatrishvili, E. Markarashvili. “Polymeric Materials”. Text book for university students – Part II, Publisher Tbilisi State University, 2015, pp. 467 (In Georgian).
14. Key Engineering Materials Volume II. Interdisciplinary Concepts and Research. Editors Francois Kajzar, Eli M. Pirse, Nokolai A. Turovski, Omari. V. Mukbaniani. [Reviewers and Advisory Board](#)

- Members: A. K. Haggi, PhD, and Gennady E. Zaikov, DSc. Apple Academic Press, Inc., pp. 430, 2014. DOI: <https://doi.org/10.1201/b16564>  
<http://www.appleac.com/title.php?id=9781926895741>
15. O. Mukbaniani, J. Aneli, E. Markarashvili, T. Tatrishvili. "Laboratory session on polymeric materials". Text book for university students – Publisher Tbilisi State University, Tbilisi, pp. 275, 2012. (In Georgian).
  16. G. Andronikashvili, O. Mukbaniani, B. Arziani, L. Beridze. «Chemistry» – The textbook for University Preparatory Branch and Entrants, Publisher Tbilisi State University, Tbilisi, 2012, pp. 455. (In Georgian).
  17. O. Mukbaniani, J. Aneli, T. Tatrishvili, E. Markarashvili. "Polymeric Materials". Text book for university students – Publisher "Universal", Tbilisi, pp. 737, 2011. (In Georgian).
  18. E. Markarashvili, O. Mukbaniani, T. Chogovadze. Organosilicon compounds for medical purpose". Auxiliary Textbook. Publisher "Universal", Tbilisi - 2011, pp. 232. (in Georgian).
  19. O. Mukbaniani, T. Tatrishvili. "Macromolecular Chemistry", Text book for university students – Publisher Tbilisi State University, Tbilisi, pp. 766, 2010. (In Georgian).
  20. O.V. Mukbaniani, T.N. Tatrishvili and G.E. Zaikov. «Modification Reactions of Oligomethylhydridesiloxanes». Nova Science Publisher, Inc. Huntington, New York, pp. 228, 2007.  
[http://www.novapublishers.org/catalog/product\\_info.php?products\\_id=4693](http://www.novapublishers.org/catalog/product_info.php?products_id=4693)
  21. L.M. Khananashvili, O.V. Mukbaniani and G.E. Zaikov. New Concepts in Polymer Science, «Elementorganic Monomers: Technology, Properties, Applications». Printed in Netherlands, //VSP//, Utrecht, 2006, pp. 496.  
<http://www.nlb.gov.sg/biblio/13063860>
  22. O.V. Mukbaniani, T.N. Tatrishvili. «Polysilylenes». //Auxiliary Textbook, Publisher Tbilisi State University, Tbilisi 2004, pp. 168. (In Georgian).
  23. O.V. Mukbaniani and G.E. Zaikov. New Concepts in Polymer Science, «Cyclolinear Organosilicon Copolymers: Synthesis, Properties, Application». Printed in Netherlands, //VSP//, Utrecht, Boston – 2003, pp. 499.  
<https://www.amazon.com/Cyclolinear-Organosilicon-Copolymers-Properties-Application/dp/9067643971>
  24. G. Andronikashvili, O. Mukbaniani, B. Arziani, L. Beridze. «Chemistry» – The textbook for University Preparatory Branch and Entrants, Tbilisi 2004, pp. 455. (In Georgian)
  25. Andronikashvili, O. Mukbaniani, B. Arziani, L. Beridze. «Chemistry» – The textbook for University Preparatory Branch and Entrants, Tbilisi, 2000, pp. 540. (In Georgian)
  26. O. Mukbaniani, M. Karchkhadze, R. Tkeshelashvili, S. Meladze. «Practical in the synthesis of high-molecular compounds with methodical instructions», Publ., Tbilisi State University, 1997, pp. 97 (In Georgian).

**Articles published in the Journal, review articles,  
Independent chapters in the book and abstracts of conference  
1975**

27. K.A. Andrianov, N.N. Makarova, K.N. Raspopova, **O.V. Mukbaniani**. "Organosiloxane polymers with polycycles in the chain of macromolecules." // Dokl. Acad. of Sci. of USSR, 1975, v. 223, No. 4, p. 861-864.
28. K.A. Andrianov, A.I. Nogaiedeli, N.N. Makarova, K.N. Raspopova, **O.V. Mukbaniani**. "Synthesis of bi- and tricyclic organosilicon compounds with functional groups". // Dokl. Acad. of Sci. of USSR, 1975, vol. 224, No. 4, p. 825-828.
29. A.I. Nogaiedeli, R.Sh. Tkeshelashvili, **O.V. Mukbaniani**. "Polymers based on cyclic and heterocyclic bisphenols." //Abstracts of the IV International Symposium "Silicon Organic Compounds", Moscow, 1975, vol. 2, p. 1, p. 57-58.
30. N.N. Makarova, **O.V. Mukbaniani**. "Synthesis of linear organosiloxane polymers with polycyclic fragments". // Abstracts of the republic scientific confession of young chemists of the Georgian SSR, Tbilisi, 1975, p. 105.

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31. A.I. Nogaideli, R.Sh. Tkeshelashvili, L.I. Nakaidze, **O.V. Mukbaniani**. "On the reaction of the catalytic dehydrocondensation of organosilicon monomers with terminal Si-H and Si-OH groups". // Proceedings of the Tbilisi State University. The University, 1976, v. 167, p. 69-72.
32. K.A. Andrianov, A.I. Nogaideli, N.N. Makarova, **O.V. Mukbaniani**. "Synthesis of bicyclic organosilicon compounds with functional groups". // Bulletin of the Georgian Academy of Sciences, 1976, v. 81, No. 2, p. 349-352.
33. K.A. Andrianov, V.N. Tsvetkov, D.Ya. Tsvankin, A.I. Nogaideli, N.N. Makarova, M.G. Vitovskaya, Ya.V. Genin, G.F. Kolbina, **O.V. Mukbaniani**. "Synthesis of organosilicon block copolymers by the reaction of heterofunction condensation". // Vysokomolek. Soed., 1976, v. 18A, No. 4, p. 890-898.
34. K.A. Andrianov, A.I. Nogaideli, N.N. Makarova, **O.V. Mukbaniani**. "Reactivity of functional groups in organocyclotetra- and organocyclodecasiloxanes". // Abstracts of the XII Republican Scientific and Methodical Conference of Chemists of Higher Educational Institutions of the Georgian SSR, 1976.
35. K.A. Andrianov, A.I. Nogaideli, G.L. Slonimsky, V.Yu. Levin, Yu.P. Kvachev, N.N. Makarova, **O.V. Mukbaniani**. "Polyorganocyclosiloxane block copolymers with different arrangement of the cyclic fragments in the macromolecular chain". // Vysokomolek. Soed., 1976, v. 13B, # 5, p. 359-361.
36. K.A. Andrianov, A.I. Nogaideli, D.Ya. Tsvankin, N.N. Makarova, **O.V. Mukbaniani**. "Polyorganosiloxanes with cyclololineare blocks in the macromolecular chain". // Dokl. Acad. of Sci. of USSR, 1976, v. 229, #6, p. 1353-1356. 1977
37. K.A. Andrianov, A.I. Nogaideli, N.N. Makarova, **O. V. Mukbaniani**. "Reactivity of functional groups in silicon atoms in reactions of heterofunctional polycondensation of organocyclosiloxanes with polydimethylsiloxanes". // Izvestiya Acad. of Sci. of USSR, 1977, No. 6, p. 1388-1392.
38. N.N. Makarova, A.I. Nogaideli, **O.V. Mukbaniani**. "Influence of the temperature and functionality of organochlorosilanes on the structure and yield of the resulting compounds in the reactions of tetrol condensation with organochlorosilanes". // Abstracts of the 1st All-Union Symposium "Structure and reactivity of organosilicon compounds". Irkutsk, 1977, p. 273.
39. K.A. Andrianov, S.S. Pavlova, I.V. Zhuruleva, Yu.P. Tolchinsky, N.N. Makarova, **O.V. Mukbaniani**. "Thermal destruction of cyclolinear polyorganosiloxanes". // Vysokomolek. Soed., 19, No. 6, p. 1387-1392.
40. K.A. Andrianov, G.L. Slonimsky, A.A. Zhdanov, V.Yu. Levin, D.Ya. Tsvankin, Yu.P. Kvachev, E.S. Obolenkov, N.N. Makarov, E.M. Belavtseva, **O.V. Mukbaniani**. "Physico-chemical properties of methylphenylsiloxane copolymers". // Vysokomolek. Soed., 19, No. 7, p. 1507-1515.

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41. **O.V. Mukbaniani**, S.M. Meladze, N.N. Makarov. "Modification of staircase polyphenylsilsesquioxanes with linear polydimethylsiloxanes". // Abstracts of the II Georgian Repub. Conf. of Young Chemists, Tbilisi, Kutaisi, 1978, part 2, p. 80.
42. **O.V. Mukbaniani**, S.M. Meladze, N.N. Makarov. "Copolymers with organocyclotetrasiloxane fragments in the chain". // Abstracts of the Georgian Republican Conf. young chemists, Tbilisi, Kutaisi, 1978, part 2, p. 56.
43. K.A. Andrianov, N.N. Makarova, **O.V. Mukbaniani**. «Organosilixane Copolymers with Mono- and Polycyclic Fragments». // Abstracts of communications of 5<sup>th</sup> International Symposium on Organosilicon Chemistry, 1978, Karsruhe FRG, p. 66
44. A.I. Nogaideli, **O.V. Mukbaniani**, S.M. Meladze. "Synthesis of organosiloxane block copolymers with tricyclosiloxane and tricyclocarboxyloxane fragments in the chain". // Abstracts of the International Symposium on Macromolecular Chemistry, Tashkent, 1978, p. 4, p. 108.

45. K.A. Andrianov, N.N. Makarova, **O.V. Mukbaniani**. "Organosiloxane copolymers containing polycyclic fragments". // Abstracts of the International Symp., on macromolecular chemistry, Tashkent, 1978, part 3, p. 73.

**1979**

46. N.N. Makarova, A.A. Zhdanov, K.A. Andrianov, G. Garzo, T. Sakey, M. Blazho, **O.V. Mukbaniani**. "Organosiloxane copolymers with mono- and polycyclic fragments". //Theses of reports VII Int. Symposium, "Polycondensation processes". Lodz, 1979, p. 44.

**1980**

47. K.A. Andrianov, LM Khananashvili, N.N. Makarova, **O. V. Mukbaniani**, S.M. Meladze, N.A. The Koyava. "Cyclolinear organosiloxane block copolymers as a thermo-stable binder and a method for their preparation". // Certificate of authorship, #757555, Certificate of authorship #31, 1980.
48. K.A. Andrianov, L.M. Khananashvili, N.N. Makarova, **O.V. Mukbaniani**, S.M. Meladze, N.A. Koyava. "Cyclolinear organosiloxane copolymers with increased heat resistance and a method for their preparation". // Certificate of authorship # 791758, Bulletin of invention, 48, 1980.
49. **O.V. Mukbaniani**, N.A. Koyava, V.G. Tsitsishvili. "Synthesis of organocyclopentasiloxanes with functional groups at silicon". // Abstracts of the V All-Union Conf. in Chemistry and Applications of Organosilicon Compounds. Tbilisi, 1980, # 1, p. 189.
50. **O.V. Mukbaniani**, S.M. Meladze, J.Ya. Bugianishvili. "Silylarylene-cyclocilosiloxane copolymers". //Abstracts of All-Union Conf. in Chemistry and Applications of Organosilicon compounds. Tbilisi, 1980, # 1, p. 201.
51. C.M. Meladze, **O.V. Mukbaniani**, L.M. Khananashvili, G.G. Andronikashvili. "Synthesis of oligospiroorganosiloxanes." // Vysokomolek. Soed., 1981, . 23B, . 8, . 590-593.
52. C.M. Meladze, **O.V. Mukbaniani** L.M. Khananashvili, N.N. Makarova, N.A. The Koyava. "Synthesis and study of oligoarylenecyclosiloxanes". // Bulletin of the Georgian Academy of Sciences, 1980, v. 98, No. 2, p. 341-344.
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