

# Karine Rafael Grigoryan

## Faculty of Chemistry

Chair of Physical and Colloid Chemistry

Professor

☎ 38-60  
(060) 71-08-60

✉ kara@ysu.am

 R<sup>6</sup>

## Education

---

<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Chemistry
<b>Date</b>	1978 - 1984
<b>Degree name</b>	Qualified specialist

---

## Scientific Rank/degree

---

<b>Institution</b>	Yerevan State University
<b>Date</b>	2015
<b>Degree name</b>	Professor
<b>Specialty</b>	Chemical sciences

---

<b>Institution</b>	Yerevan State University
<b>Date</b>	2011
<b>Degree name</b>	Doctor
<b>Specialty</b>	Chemical sciences
<b>Research Topic</b>	Physico-chemical study of interactions of biomacromolecules (proteins, DNA, liposomes ) with dialkylsulfoxides and their platinum complexes

---

<b>Institution</b>	Yerevan State University
<b>Date</b>	2004
<b>Degree name</b>	Associate professor
<b>Specialty</b>	Chemical sciences

---

<b>Institution</b>	Yerevan State University
<b>Date</b>	1991
<b>Degree name</b>	Candidate
<b>Specialty</b>	Chemical sciences
<b>Scientific Supervisor</b>	Shiraz Markarian
<b>Research Topic</b>	Physicochemical Properties of Dialkylsulfoxides and Interactions with Aminoacides and Amides

---

## Language skills

---

## Work experience

---

<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2016 till now
<b>Rank/degree</b>	professor

---

## Scientific interests

---

- physical chemistry, biophysical chemistry, biomedical Physical chemistry, molecular spectroscopy, food chemistry, DNA and protein modification and complexation
- 

## Participation in international conferences and seminars

---

<b>19/09/2022 - 23/09/2022</b>	Актуальные вопросы биологической физи-ки и химии. БФФХ-2022, Երևանի պետական համալսարան Russian Federation (the)
<b>04/02/2022 - 07/07/2022</b>	POLYCHAR 20 World Forum on Advanced Materials Երևանի պետական համալսարան Armenia
<b>20/09/2021 - 24/09/2021</b>	XIV Международная научная конференция «Проблемы сольватации и комплексообразования в растворах» Кластер конференций Երևանի պետական համալսարան Russian Federation (the)
<b>13/09/2020 - 19/09/2020</b>	XVII Международная конференция «Спектроскопия координационных соединений , Երևանի պետական համալսարան Russian Federation (the)
<b>01/07/2018 - 06/07/2018</b>	XIII Международная научная конференция «Проблемы сольватации и комплексообразования в растворах», Երևանի պետական համալսարան Russian Federation (the)
<b>02/10/2017 - 06/10/2017</b>	XVII Международная Чугаевская конференция по координационной химии Երևանի պետական համալսարան Russian Federation (the)
<b>29/05/2017 - 02/06/2017</b>	VII Международная научная конференция «Химическая термодинамика и кинетика Երևանի պետական համալսարան

Russian Federation (the)

---

**05/10/2015 - 09/10/2015** - IV International Conference «Current Problems of Chemical Physics»,  
Երևանի պետական համալսարան  
Armenia

---

**18/08/2014 - 22/08/2014** - Chemistry today 2014 4-th Intern. Confer. of Young Scientists,  
Yerevan State University  
Armenia

---

**09/10/2012 - 12/10/2012** - Международная конференция «Современные проблемы химической физики»  
Yerevan State University  
Russian Federation (the)

---

**10/10/2011 - 14/10/2011** - XI Международная конференция «Проблемы соль-вагтации и  
комплекс-соединения в растворах»,  
Yerevan State University  
Russian Federation (the)

---

**21/10/2008 - 24/10/2008** - Международная конференция «Современные проблемы химической физики»  
Yerevan State University  
Armenia

---

**21/08/2005 - 25/08/2005** - 29th Intern. Conf. on Solution Chemistry,  
Yerevan State University  
Slovenia

---

**20/05/2005 - 21/05/2005** - 3rd International Conference on Ecological Chemistry  
Yerevan State University  
Moldova (the Republic of)

---

## Membership

---

**Institution** member of specialized Council P-00-02

**Period of time** 2019 till now

---

**Institution** Institute of Chemical Physics named after A. Nalbandian

**Period of time** 2018 till now

---

**Institution** Yerevan State University

**Period of time** 2018 till now

---

## Publications

---

Article

**Spectroscopic and DFT studies of 3-(m-nitrophenyl)-4-allyl-5-mercapto-1,2,4-triazole and 3-furyl-4-allyl-5-mercapto-1,2,4-triazole**

Liana Gabrielyan, Karine Grigoryan, Hasmik Shilajyan, Melanya Samvelyan, Gevorg Grigoryan,

Tariel Ghochikyan

Next Materials 2026 101424

---

*Article*

**Synthesis, theoretical and photophysical study of functionalized quinoline - Based schiff bases**

Ashkhen L. Zatikyan, Karine R. Grigoryan, Hasmik A. Shilajyan, Lilit P. Hambardzumyan,

Iskuhi L. Aleksanyan

Journal of Molecular Structure 2026 144706

---

*Article*

**Effect of heat treatment and characterization of kaolinite-dimethylsulfoxide intercalates**

Karine Grigoryan, Artur Gabrielyan

Journal of Thermal Analysis and Calorimetry 2025 1-7

---

*Article*

**ANTIOXIDANT PROPERTIES AND BINDING INTERACTIONS OF 1-MORPHOLIN-4-YL-3-{{2-(3-NITROPHENYL)-2-OXOETHYL}THIO}-5,6,7,8-TETRAHYDROISOQUINOLINE-4-CARBONITRILE WITH BOVINE SERUM ALBUMIN**

K. R. GRIGORYAN, A. V. IGITYAN, H. H. VARDANYAN, Zh. G. KHACHATRYAN, A. S. HARUTYUNYAN,

A. L. ZATIKYAN, H. A. SHILAJYAN

Proceedings of the YSU B: Chemical and Biological Sciences 2025 57-66

---

*Article*

**Effect of bovine serum albumin on gallic acid and tannic acid radical scavenging properties and binding kinetics with 2,2-diphenyl-1-picrylhydrazyl**

Ashkhen Zatikyan, Karine Grigoryan, Hasmik Shilajyan, Ioannis Savvaidis, Liana Mkhitarian

Process Biochemistry 2024 30-38

---

*Article*

**THE IMPACT OF AGING ON THE ANTIOXIDANT PROPERTIES OF ARMENIAN GRAPE BRANDIES**

K. R. Grigoryan, H. A. Shilajyan

Proceedings of the YSU B: Chemical and Biological Sciences 2024 107-113

---

*Article*

**MOLECULAR INTERACTIONS OF L-TYROSINE IN DIMETHYL SULFOXIDE AQUEOUS SOLUTIONS. PART 1: ELECTRONIC ABSORPTION AND FLUORESCENCE SPECTROSCOPY STUDIES**

K.R. Grigoryan, H.A. Shilajyan, R.G. Harutyunyan

Proceedings of the YSU B: Chemical and Biological Sciences 2023 1-7

---

*Article*

**Study of complexation of single-stranded poly(rA) and poly(rU) with methylene blue**

Poghos O. Vardevanyan, Ara P. Antonyan, Zvart H. Movsisyan, Marine A. Parsadanyan,

Mariam A. Shahinyan, Karine R. Grigoryan, Hasmik A. Shilajyan

Journal of Biomolecular Structure and Dynamics 2023 15320-15327

---

Article

**Spectroscopic analysis of 2-(5-mercapto-1,3,4-oxadiazol-2-yl)-6-methylquinolin-4-ol binding to blood plasma albumin**

Karine R. Grigoryan, Hasmik A. Shilajyan, Ashkhen Zatikyan, Iskuhi Aleksanyan, Lilit Hambardzumyan

MONATSCHEFTE FÜR CHEMIE 2022 507-515

---

Article

**FLUORESCENCE STUDIES ON THE BLOOD PLASMA ALBUMIN INTERACTION WITH 4-HYDROXY-2-METHYLQUINOLINE**

K. R. GRIGORYAN, H. A. SHILAJYAN, I. L. ALEKSANYAN, L. P. HAMBARDZUMYAN, H. H. HOVHANNISYAN

Proceedings of the YSU B: Chemical and Biological Sciences 2022 100-107

---

Article

**THE EFFECT OF DIMETHYLSULFOXIDE ON THE FLUORESCENCE PROPERTIES OF SOME 4-HYDROXYQUINOLINES**

Karine R. Grigoryan, Hasmik A. Shilajyan, Iskuhi L. Aleksanyan, Zara L. Grigoryan,

Lilit P. Hambardzumyan

Proceedings of the YSU B: Chemical and Biological Sciences 2021 112-117

---

Article

**UV/Vis and fluorescence study on the interaction of Ni(II) complex of Schiff base of glycine and chiral auxiliary (S)-2-[N-(N'-benzylpropyl)-amino]benzophenone with bovine serum albumin**

Hasmik A. Shilajyan, Karine R. Grigoryan

MONATSCHEFTE FÜR CHEMIE 2020 135-139

---

Article

**Effect of monovalent ions on the thermal stability of bovine serum albumin in dimethylsulfoxide aqueous solutions. Spectroscopic approach**

Karine Grigoryan, Ashkhen Zatikyan, Hasmik Shilajyan

Journal of Biomolecular Structure and Dynamics 2020 1-15

---

Article

**BOVINE SERUM ALBUMIN FLUORESCENCE QUENCHING BY TANNIC ACID IN DIMETHYLSULFOXIDE CONTAINING SOLUTIONS**

K. R. GRIGORYAN, H. A. SHILAJYAN, V. A. HOVHANNISYAN

Proceedings of the YSU B: Chemical and Biological Sciences 2020 99-104

---

Manual

**Սննդարտադրական տեխնոլոգիաներ**

Շարինե Գրիգորյան

2020 204

---

Article

**Ab initio исследования комплексообразования галловой кислоты в водных растворах**

К.Р. Григорян, А.Л. Затикян

Журнал структурной химии (Journal of Structural Chemistry) 2018 1544-1551

---

Article

**FLUORESCENCE STUDY ON TRYPTOPHAN-POTASSIUM IODIDE INTERACTION**

H. A. Shilajyan, K.R. Grigoryan

Proceedings of the YSU B: Chemical and Biological Sciences 2018 75-79

---

*Article*

**Synthesis of Carvone-Derived 1,2,3-Triazoles Study of Their Antioxidant Properties and Interaction with Bovine Serum Albumin**

Armen S. Galstyan, Armen I. Martiryan, Karine R. Grigoryan, Armine G. Ghazaryan,

Melanya A. Samvelyan, Taniel V. Ghochikyan, Valentine G. Nenajdenko

Molecules 2018 2991(1-12)

---

*Article*

**SYNTHESIS, STRUCTURE AND BINDING AFFINITY OF A NOVEL 1,2,3-TRIAZOLYL-CARVONE WITH BOVINE SERUM ALBUMIN**

K. R. GRIGORYAN, A. S. GALSTYAN, M. A. SAMVELYAN, T. V. GHOCHIKYAN

Proceedings of the YSU B: Chemical and Biological Sciences 2018 155-160

---

*Article*

**FLUORESCENCE 2D AND 3D SPECTRA ANALYSIS OF TRYPTOPHAN, TYROSINE AND PHENYLALANINE**

K.R.GRIGOTRAN, H. A. SHILAJYAN

Proceedings of the YSU B: Chemical and Biological Sciences 2017 3-7

<http://www.ysu.am/science/hy/journals>

---

*Article*

**Analysis of the Interaction of Gallic Acid and Myoglobin by UV-vis Absorption Spectroscopy**

Grigoryan K. R., Shilajyan H. A.

Russian Journal of Bioorganic Chemistry 2017 257-260

<https://link.springer.com/journal/11171>

---

*Manual*

**Մոլեկուլային ֆլուորեսցենցիայի հիմունքները**

Շ. Ա. Մարգարյան, Կ. Ռ. Գրիգորյան

2017 132

---

*Manual*

**ՍՆՆԴ ԱՆՎՏԱՆԳՈՒԹՅԱՆ, ՍՆՆԴ ԹԻՄԻԱՅԻ ԵՎ ՍՆՆԱՐՏԱԴՐԱԿԱՆ ՏԵԽՆՈԼՈԳԻԱՆԵՐԻ ԱՆԳԼԵՐԵՆ-ՀԱՅԵՐԵՆ-ՈՒԲԵՐԵՆ ՏԵՐՄԻՆԱԲԱՆԱԿԱՆ ՀԱՄԱՌՈՏ ԲԱՌԱՐԱՆ**

Գրիգորյան Կ.Ռ., Մարտիրոսյան Ա.Ի.

2017 70

---

*Article*

**SPECTRAL STUDY OF THE INTERACTION OF MYOGLOBIN WITH TANNIN**

K. R. Grigoryan, L. S. Sargsyan

Journal of Applied Spectroscopy 2016 481-485

<http://www.springer.com/physics/atomic,+molecular,+optical+%26+plasma+physics/j...>

---

*Article*

**Heat Induced Denaturation Of Bovine Serum Albumin In Dimethylsulfoxide Containing Solutions In The Presence Of Potassium Iodide**

K. R. Grigoryan, H.A.Shilajyan

*Article*

**Intermolecular Interactions in Aqueous Solutions of Gallic Acid at 296-306 K According to Spectrofluorimetry and Densimetry Data**

K.R.Grigoryan, L.S.Sargsyan

Russian Journal of Physical Chemistry A 2015 2234-2237

<http://link.springer.com/journal/11504>

---

*Article*

**EXPERIMENTAL AND THEORETICAL STUDIES ON THE SOLVATION OF POTASSIUM AND CHLORINE IONS IN AQUEOUS DIMETHYLSULFOXIDE SOLUTIONS**

K. R. Grigoryan, A. A. Shilajyan, A. L. Zatikyan

Journal of Structural Chemistry 2015 662-666

<http://www.springer.com/chemistry/inorganic+chemistry/journal/10947>

---

*Article*

**Quenching Mechanism of Human Serum Albumin Fluorescence by Gangleron**

Grigoryan K.R., Ghazaryan A. G

Proceedings of the YSU B: Chemical and Biological Sciences 2013 6-10

---

*Article*

**STUDY OF THERMAL DENATURING OF HUMAN SERUM ALBUMIN IN THE PRESENCE OF POTASSIUM CHLORIDE BY THE EXCITATION/EMISSION MATRIX METHOD**

K. R. Grigoryan, H. A. Shilajyan

Journal of Applied Spectroscopy 2013 786-789

---

*Article*

**Intermolecular Interactions in Albumin-Sulfoxide-Water Systems at Low Temperatures, Investigated by Means of Fluorescence Quenching**

Grigoryan K. R., Shilajyan H. A.

Журнал физической химии (Russian Journal of Physical Chemistry A) 2013 780-782

---

*Article*

**INFLUENCE OF DIMETHYLSULFOXIDE ON THE FLUORESCENCE BEHAVIOR OF HUMAN SERUM ALBUMIN STUDIED BY EXCITATION/EMISSION MATRIX FLUORESCENCE SPECTROSCOPY METHOD**

Grigoryan K. R., Shilajyan H.A.

Proceedings of the YSU B: Chemical and Biological Sciences 2013 50-53

---

*Article*

**Physicochemical Peculiarities of Iodine-Dimethylsulfoxide-H<sub>2</sub>O Solutions and Effect on Ion Binding to Bovine Serum Albumin**

Grigoryan K. R., Shilajyan H.A.

Datasets International Dataset Papers in Chemistry 2013 1-5

---

*Article*

**Դիմերիզացիայի և ֆորսիդի ազդեցությունը կարբամիդ-ցուլի շիճուկային ալբումին փոխազդեցությունների վրա**

*Article*

**Influence of cis[PtCl<sub>2</sub>(Me<sub>2</sub>SO)<sub>2</sub>] on Thermal Denaturation of Albumin**

Grigoryan K.R., Baghranyan N. A.

Biophysics 2011 24-27

---

*Article*

**Fluorescent Analysis of the Structural Changes of Human Serum Albumin Induced by Low Temperatures in Water-Dimethyl Sulfoxide Solutions**

Grigoryan K.R.

Журнал физической химии (Russian Journal of Physical Chemistry A) 2011 317-320

---

*Article*

**The effect of solvated ions on the thermal denaturation of human serum albumin in water-dimethylsulfoxide solutions**

Grigoryan K. R., Shiladzhyan A.A.

Биоорганическая Химия (Russian Journal of Bioorganic Chemistry) 2009 581-584

---

*Article*

**INTERACTION OF DIMETHYLSULFOXIDE AND DIETHYLSULFOXIDE COMPLEXES OF PLATINUM(II) WITH BOVINE SERUM ALBUMIN**

Grigoryan K. R., Kazaryan A.G.

Журнал прикладной спектроскопии (Journal of Applied Spectroscopy) 2009 607-610

---

*Article*

**Preferential solvation of human serum albumin in dimethylsulfoxide-H<sub>2</sub>O binary solution**

K. R. Grigoryan

Russian Journal of Physical Chemistry A 2009 2368 - 2370

---

*Article*

**SPECTROSCOPIC DETERMINATION OF BINDING BETWEEN HUMAN SERUM ALBUMIN AND A PLATINUM(II) DIMETHYLSULFOXIDE COMPLEX**

K. R. Grigoryan, M. G. Aznauryan, N. A. Baghranyan, L. G. Gevorkyan, Sh. A. Markaryan

Журнал прикладной спектроскопии (Journal of Applied Spectroscopy) 2008 593-596

---

*Article*

**Complexation and Reactions of Molecular Iodine with Dimethyl and Diethyl Sulfoxides**

Grigoyan K. R., Sh. A. Markaryan, A. R. Sarkisyan, A. M. Asatryan, Ts. A. Adamyan

Russian Journal of General Chemistry (Журнал общей химии) 2006 1801-1803

---

*Article*

**Effect of Diethylsulfoxide on the Thermal Denaturation of DNA**

Karine R. Grigoryan, Arpine M. Asatryan, Shiraz A. Markarian, Hasmik R. Sargsyan

Biopolymers 2006 1-5

---

*Article*

**DSC study on the effect of dimethylsulfoxide (DMSO) and diethylsulfoxide (DESO) on phospholipid liposomes**

Grigorian K. R., Markarian S. A., S. Bonora, A. Trincherо  
Thermochimica Acta 2005 19-26

---

*Article*

**FT IR ATR Study of Molecular Interactions in the Urea/Dimethyl Sulfoxide and Urea/Diethyl Sulfoxide Binary Systems**

Karine R. Grigoryan, Shiraz A. Markarian, Liana S. Gabrielyan

Journal of Solution Chemistry 2004 1005-1015

---

*Conference*

**Experimetal and theoretical studies on competetive interactions in gallic acid - water system**

L.S. Sargsyan, K.R. Grigoryan, A.L. Zatikyan

---

*Conference*

**СПЕКТРАЛЬНЫЕ ИССЛЕДОВАНИЯ ВЗАИМОДЕЙСТВИЯ ГАЛЛОВОЙ И ДУБИЛЬНОЙ КИСЛОТ С МИОГЛОБИНОМ**

Григорян К.Р., Шиладжян А.А.

---

*Conference*

**Теоретические исследования межмолекулярных взаимодействий водных растворов галловой кислоты**

А.Л. Затикян, К.Р. Григорян

---

*Conference*

**ТЕРМИЧЕСКАЯ ДЕНАТУРАЦИЯ БЫЧЬЕГО СЫВОРОТОЧНОГО АЛЬБУМИНА В РАСТВОРАХ ВОДА - ДИМЕТИЛСУЛЬФОКСИД В ПРИСУТСТВИИ LiCl И LiClO4**

Григорян К.Р., Шиладжян А.А., Затикян А.Л.

---

*Conference*

**Флуоресценция комплексов альбумин-танин в смешанных растворителях вода-диметилсульфоксид.**

К.Р. Григорян, А.А. Шиладжян, В. А. Оганисян

---

*Conference*

**Fluorescence Study of 2-(5-Mercapto-1,3,4-oxadiazol-2-yl)-6-methylquinoline-4-ol binding to Bovine Serum Albumin**

Grigoryan K.R., Shilajyan H.A., Aleqsanyan I.L., Hambardzumyan L.P., Hovhannisyan H.H.

---

*Conference*

**Structural Peculiarities of L-Tyrosine Associates in Dimethylsulfoxide Aqueous Solutions**

Zatikyan A.L., Shilajyan H.A., Grigoryan K.R.

---

*Conference*

**THEORETICAL STUDY ON THE MOLECULAR STRUCTURE OF 4-HYDROXY-2-METHYL-6-AMINOQUINOLINE**

Zatikyan Ashkhen, Grigoryan Karine

---

*Conference*

**FLUORESCENCE PROPERTIES OF 2-METHYLQUINOLIN-4-OL AND ITS MERCAPTO-OXADIAZOLYL**

## **DERIVATIVE IN DIMETHYLSULFOXIDE AQUEOUS SOLUTIONS**

Hasmik Shilajyan, Karine Grigoryan, Iskuhy Aleksanyan, Zara Grigoryan, Lilit Hambardzumyan

---

*Conference*

### **DFT STUDY ON THE EFFECT OF HYDROXYL GROUPS ON THE STRUCTURE AND REACTIVITY OF 2-METHYLQUINOLIN-4-OL DERIVATIVES**

Zatikyan A., Grigoryan K.

---

*Conference*

### **ОСОБЕННОСТИ СВЯЗЫВАНИЯ МЕТИЛЕНОВОГО СИНЕГО С ОДНОЦЕПОЧЕЧНЫМИ СИНТЕТИЧЕСКИМИ ПОЛИНУКЛЕОТИДАМИ POLY(rA) И POLY(rU)**

Антонян А.П., Парсаданян М.А., Мовсесян Э.О., Шиладжян А.А., Григорян К.Р., Вардеванян П.О

---

*Conference*

### **STUDY ON SOLVENT- MEDIATED RADICAL SCAVENGING ACTIVITY OF MORIN TOWARDS 2, 2-DIPHENYL-1- PICRYLHYDRAZYL**

Grigoryan K. R., Shilajyan H., Mkhitaryan L., Harutyunyan R., Khachatryan Zh.

---

*Conference*

### **Effect of Polystyrene Nanoparticles on Gangleron Binding to Bovine Serum Albumin**

Grigoryan K.R., Zatikyan A.L., Grigoryan Z.L., Gabrielyan A.A., Shilajyan H.A.

---

*Conference*

### **Physicochemical Characteristics and Behavior of Kaolinite and Kaolinite-Dimethylsulfoxide Complexes Upon Heat Treatment**

Grigoryan K.R., Gabrielyan A

---