

MARIETA ZAKARYAN



Personal Information:

Date of birth: 19 December 1993
Place of birth: Gyumri, Armenia
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Education

2016-2020 - Yerevan State University, Faculty of Chemistry, Department of Chemistry, Chair of Inorganic and Analytical Chemistry, PhD

2014-2016 - Yerevan State University, Faculty of Pharmacy and Chemistry, Department of Chemistry, Master's degree

2010-2014 - Yerevan State University, Faculty of Chemistry, Department of Chemistry, Bachelor's degree

Working Experience

2022 September to present – Yerevan State University, Faculty of Chemistry, “Material Science” Master Program, Lecturer

2021 September to present - A.B. Nalbandyan Institute of Chemical Physics National Academy of Sciences of RA, Laboratory of Macrokinetics of Solid State Reactions, Research Group of Advanced Material's Physical Chemistry and Engineering, Researcher

2021 June - 2021 August - University of Notre Dame, Department of Physics, Nuclear Science Laboratory, Postdoctoral Research Associate

2020 July - 2021 September - “Hydrometeorology and Monitoring Centre” SNCO Ministry of Environment of RA, Surface Water Quality Monitoring Service of Central Laboratory, Senior Specialist - Responsible for Quality Control

2019 July - 2019 August - University of Notre Dame, Department of Physics, Nuclear Science Laboratory, Short-Term Research Visitor

2017 September - 2018 December - American University of Armenia, College of Science & Engineering, ES program (ES132 course), Teacher Assistant

2017 April - 2020 July - “Environmental Monitoring and Information Centre” SNCO Ministry of Nature Protection of RA, Water Monitoring Department, Leading Specialist of Chromatographic Analysis

2017 March - 2021 September - A.B. Nalbandyan Institute of Chemical Physics National Academy of Sciences of RA, Laboratory of Kinetics of SHS Processes, Junior Researcher

2016 May - 2017 April – “Environmental Impact Monitoring Centre” SNCO Ministry of Nature Protection of RA, Water Monitoring Department, Leading Specialist of Chromatographic Analysis

2013 September - 2017 March - A.B. Nalbandyan Institute of Chemical Physics National Academy of Sciences of RA, Laboratory of Kinetics of SHS Processes, Laboratory Assistant

Research Grants

- SC research grant - 21T-1D227 - “Nanoscale Antiperovskite Magnetic Materials: Synthesis and Function”, Investigator, 13 800 000 AMD - 2021
- Faculty Research Funding Program implemented by Enterprise Incubator Foundation (EIF) with support of Philip Morris International (PMI) Science - “Combustion synthesis and consolidation of W-Ni and W-Ag nanocomposite materials for hybrid vehicles as heat sinks”, PI, 4 830 000 AMD - 2020
- SC research grant - 20TTSG-2E003 - “Bamboo-like hierarchical microstructure inspiring silicon and boron carbides by combustion synthesis with reactions thermokinetic coupling approach”, Investigator, 55 000 000 AMD - 2020
- SC research grant - 18BL-011 - “Structure formation and properties of SHS-intermetallic materials with nanoadditives using ultrasonic activation”, Investigator, 9 000 000 AMD - 2019
- SC research grant - 18A-1d12 - “The preparation of W-Ni pseudoalloys in self-propagating combustion mode”, PI, 1 460 000 AMD - 2018
- SCS research grant - N15Ap_2e015 - “Complex chemical treatment technology of serpentine ultrasonic rocks”, Investigator, 10 000 000 AMD - 2015

Awards and Honors

- I place award from Analysis Research & Planning for Armenia (ARPA) Institute Invention Competition - “Solution combustion synthesis as a method of preparing antiperovskite nitrides such as superconductive Ni_3CuN ” - 2022
- Travel grant (Training Program for Young Scientists, Tallinn, Estonia, 01 October - 15 November, 2022) from the Young Scientists Support Program - 2022
- Travel grant (15th International Ceramics Congress CIMTEC, Perugia, Italy, 20-24 June, 2022) from the Calouste Gulbenkian Foundation - 2022
- Training Workshop on Quality Management Systems for Climate Services - 2020
- Training Workshop on “Air Quality and Health - Strengthening Capacities in Assessing Health Risks of Air Pollution” - 2019
- III place award in the competition among young scientists for the best presentation at V International Conference “Current Problems of Chemical Physics” - 2019
- III place award in the competition of young chemists by Armenian Chemical Society - 2019
- Travel grant (Department of Physics of the University of Notre Dame, IN, USA) from the Foundation for Armenian Science and Technology for Collaborative Research - 2019
- Training on “Requirements of the international standard EN ISO 17025: 2017” - 2019
- I place award in oral competition at XV International Symposium on Self-propagating High Temperature Synthesis - 2019

- Training on “For internal auditors according to the ISO 19011 guideline for auditing management systems and the requirements of the international standard EN ISO 17025:2017” - 2019
- Travel grant (XIV International Symposium on Explosive Production of New Materials: Science, Technology, Business and Innovations (EPNM-2018), St. Petersburg, Russia, 14-18 May, 2018) from the Young Scientists Support Program - 2018
- Travel grant (14th International Ceramics Congress CIMTEC, Perugia, Italy, 4-8 June, 2018) from the Calouste Gulbenkian Foundation - 2018
- Training on “ISO 6468:1996 - Water quality - Determination of certain organochlorine insecticides, polychlorinated biphenyls and chlorobenzenes - Gas chromatographic method after liquid-liquid extraction” - 2017
- II place award from Analysis Research & Planning for Armenia (ARPA) Institute Invention Competition - “Preparation of fine grained silicon by energy-saving combustion mode” - 2015

Computer Skills

MS Office, Photoshop, ISMAN Thermo Software, ImageJ, MS Jade, HSC-5, Prefix, Origin

Language Skills

Armenian - native; Russian - C1; English - B2

Research Skills

Synthesis and characterization of nanomaterials. Combustion synthesis (CS) of metals, alloys, ceramics, composite. Characterization by X-ray diffraction, scanning electron microscope, gas chromatography, chemical, atomic absorption and thermal analysis methods. Spark plasma sintering of metals, ceramics and composites.

Conferences & Symposiums

1. 15th International Ceramics Congress of CIMTEC 2022, June 20-24, 2022, Perugia, Italy
2. VI Scientific Conference of Armenian Chemical Society, 7-12 October, 2019, Yerevan, Armenia
3. XV International Symposium on Self-Propagating High Temperature Synthesis, September 16-20, 2019, Moscow, Russia
4. V International Conference “Current Problems of Chemical Physics”, 25-29 September, 2018, Yerevan, Armenia
5. 14th International Ceramics Congress of CIMTEC 2018, June 4-8, 2018, Perugia, Italy
6. XIV International Symposium on Explosive Production of New Materials: Science, Technology, Business, and Innovations (EPNM-2018), May 14-18, 2018, St. Petersburg, Russia
7. ArmCS-5: “Actual Problems of Fundamental and Applied Chemistry”, 3-7 October, 2017, Yerevan, Armenia
8. XIV International Symposium on Self-Propagating High Temperature Synthesis, September 25-28, 2017, Tbilisi, Georgia

9. Chemistry Today-2016, 5-th International Conference of Young Scientists, September 18-21, 2016, Tbilisi, Georgia
10. IV International Conference “Current problems of Chemical Physics”, 5-9 October, 2015, Yerevan, Armenia
11. “Application of Modern Scientific Methods and Technologies in Expertise Sphere”, International Conference Dedicated to 10th Anniversary of foundation of National Bureau of Expertises NAS RA, 16-17 June, 2015, Yerevan-Tsaghkadzor, Armenia
12. Chemistry Today-2014, 4-th International Conference of Young Scientists, August 18-22, 2014, Yerevan, Armenia

Publications: Articles

1. **Marieta K. Zakaryan**, Sina Malakpour Estalaki, Suren Kharatyan, Anna M. Matzner, Alexander S. Mukasyan, Tengfei Luo, Khachatur V. Manukyan, Spontaneous Crystallization for Tailoring Polymorphic Nanoscale Nickel with Superior Hardness, *The Journal of Physical Chemistry C*, 2022, vol. 126, No. 29, 12301-12312, <https://doi.org/10.1021/acs.jpcc.2c03612>
2. **Marieta K. Zakaryan**, Alina R. Zurnachyan, Narine H. Amirkhanyan, Hasmik V. Kirakosyan, Maksim Antonov, Miguel A. Rodriguez, Sofiya V. Aydinyan, Novel Pathway for the Combustion Synthesis and Consolidation of Boron Carbide, *Materials*, 2022, vol. 15, No. 14, 5042; <https://doi.org/10.3390/ma15145042>
3. **M. Zakaryan**, Kh. Nazaretyan, S. Aydinyan, S. Kharatyan, Kinetic Highlights of the Reduction of Silver Tungstate by Mg+C Combined Reducer, *Metals*, 2022, vol. 12, No. 6, 1000, <https://doi.org/10.3390/met12061000>
4. Khachik Nazaretyan, Hasmik Kirakosyan, **Marieta Zakaryan**, Larisa Abovyan, Olga Volobujeva, Sofiya Aydinyan, The Interaction Pathway in the Mechano-Ultrasonically Assisted and Carbon-Nanotubes Augmented Nickel-Aluminum System, *Metals*, 2022, vol. 12, No. 3, 436, <https://doi.org/10.3390/met12030436>
5. **Marieta Zakaryan**, Khachik Nazaretyan, Sofiya Aydinyan, Suren Kharatyan, Joint Reduction of NiO/WO₃ Pair and NiWO₄ by Mg+C Combined Reducer at High Heating Rates, *Metals*, 2021, vol. 11, No. 9, 1351, <https://doi.org/10.3390/met11091351>
6. **Marieta K. Zakaryan**, Suren L. Kharatyan, Ani Aprahamian, Khachatur V. Manukyan, Combustion in the ZrF₄-Mg-Si and ZrF₄-Al-Si systems for preparation of zirconium silicides, *Combustion and Flame*, 2021, vol. 232, 111514, <https://doi.org/10.1016/j.combustflame.2021.111514>
7. Kh.T. Nazaretyan, H.V. Kirakosyan, S.V. Aydinyan, **M.K. Zakaryan**, L.S. Abovyan, M. Kulak, B. Khina, The influence of high-energy ball milling and nanoadditives on the kinetics of heterogeneous reaction in Ni-Al system, *IOP Conference Series: Materials Science and Engineering*, 2021, vol. 1140, 012052, doi:10.1088/1757-899X/1140/1/012052
8. **M.K. Zakaryan**, Kh.T. Nazaretyan, S.V. Aydinyan, S.L. Kharatyan, NiO reduction by Mg+C combined reducer at high heating rates, *Journal of Thermal Analysis and Calorimetry*, 2021, vol. 146, No. 4, pp. 1811-1817, <https://doi.org/10.1007/s10973-020-10148-5>
9. **M.K. Zakaryan**, A.S. Arzumanyan, S.L. Kharatyan, Magnesium-Carbothermic Reduction of Ag₂WO₄. DTA/TG Study, *Chemical Journal of Armenia*, 2020, vol. 73, No. 4, pp. 300-310
10. **M.K. Zakaryan**, Reduction of Silver Tungstate in Combustion Mode and Synthesis of W-Ag Pseudoalloy, *Chemical Journal of Armenia*, 2019, vol. 72, No. 4, pp. 401-408

11. **M.K. Zakaryan**, O.M. Niazyan, S.V. Aydinyan, S.L. Kharatyan, Reaction Pathway in the WO₃-NiO-Mg-C System. DTA/TG Study, Chemical Journal of Armenia, 2019, vol. 72, No. 3, pp. 223-232
12. **Marieta Zakaryan**, Sofiya Aydinyan, Suren Kharatyan, Combustion Synthesis and Consolidation of Ni-W Nanocomposite Material, Ceramics in Modern Technologies, 2019, vol. 1, pp. 67-74, <https://doi.org/10.29272/cmt.2018.0007>
13. **M.K. Zakaryan**, O.M. Niazyan, S.V. Aydinyan, S.L. Kharatyan, DTA/TG Study of NiO Reduction by Mg+C Combined Reducer, Chemical Journal of Armenia, 2018, vol. 71, No. 4, pp. 473-485
14. S.V. Aydinyan, H.V. Kirakosyan, **M.K. Zakaryan**, L.S. Abovyan, S.L. Kharatyan, A. Peikrishvili, G. Mamniashvili, B. Godibadze, E.Sh. Chagelishvili, D.R. Lesuer, M. Gutierrez, Fabrication of Cu-W Nanocomposites by Integration of Self-propagating High-temperature Synthesis and Hot Explosive Consolidation Technologies, Eurasian Chemico-Technological Journal, 2018, vol. 20, No. 4, pp. 301-309, <https://doi.org/10.18321/ectj763>
15. **M.K. Zakaryan**, H.V. Kirakosyan, L.S. Abovyan, S.V. Aydinyan, S.L. Kharatyan, Magnesium-Carbothermal Reduction of CuWO₄/MeO Nanostructured Precursors & Synthesis of W/Cu Composite Materials, Chemical Journal of Armenia, 2017, vol. 70, No. 4, pp. 450-461
16. **M.K. Zakaryan**, S.V. Aydinyan, S.L. Kharatyan, Preparation of Fine-grained Silicon from Serpentine Mineral by Magnesiothermic Reduction of Silica in the Presence of Reaction Products as Diluents, Silicon, 2017, vol. 9, No. 6, pp. 841-846, <https://doi.org/10.1007/s12633-017-9583-4>
17. **M. Zakaryan**, H. Kirakosyan, S. Aydinyan, S. Kharatyan, Combustion Synthesis of W-Cu Composite Powders from Oxide Precursors with Various Proportions of Metals, International Journal of Refractory Metals and Hard Materials, 2017, vol. 64, pp. 176-183, <https://doi.org/10.1016/j.ijrmhm.2016.12.003>

Publications: Abstracts & Conference Proceedings

1. Petrosyan A.V., Galstyan A.S., **Zakaryan M.K.**, Kharatyan S.L., Ghochikyan T.V, Ligand-free Cu⁰-catalyzed S-arylation of 1,2,4-triazole-3-thioles, Advances in Synthesis and Complexing, Sixth International Scientific Conference, September 26-30, 2022, Moscow, Russia, pp. 225
2. **M. Zakaryan**, N. Amirkhanyan, H. Kirakosyan, A. Zurnachyan, S. Aydinyan, Combustion Synthesis of Nanoscale Boron and Silicon Carbides, 15th International Ceramics Congress, CIMTEC 2022, June 20-24, 2022, Perugia, Italy, CA-11.2:L04
3. N.H. Amirkhanyan, **M.K. Zakaryan**, A.B. Harutyunyan Synthesis of Nanoscale Antiperovskite Complex Nitrides for Catalytic and Magnetic Applications, 15th International Ceramics Congress, CIMTEC 2022, June 20-24, 2022, Perugia, Italy, C:P16
4. Narine Amirkhanyan, Hasmik Kirakosyan, **Marieta Zakaryan**, Alina Zurnachyan, Sofiya Aydinyan, Self-Propagating High-Temperature Synthesis of Silicon Carbide Using Reactions Thermokinetic Coupling Approach, ec-siliconf2 the 2nd European Conference on Silicon and Silica Based Materials and ic-cmtp6 the 6th International Conference on Competitive Materials and Technology Processes, October 4-8, 2021, Miskolc-Lillafred, Hungary, pp. 115
5. **M.K. Zakaryan**, A.A. Baldryan, S.L. Kharatyan, Preparation of W-Ag Pseudoalloys by Combining SHS with SCS, VI Scientific Conference of Armenian Chemical Society, October 7-12, 2019, Yerevan, Armenia, pp. 81
6. **M.K. Zakaryan**, Kh.T. Nazaretyan, S.V. Aydinyan, S.L. Kharatyan, Joint Reduction of NiO+WO₃ Oxides by Combined Mg/C Reducer. Synergetic Effect, XV International

Symposium on Self-Propagating High Temperature Synthesis, September 16-20, 2019, Moscow, Russia, pp. 546-548, DOI: 10.24411/9999-0014A-2019-10198

7. M.K. Zakaryan, A.A. Baldryan, S.L. Kharatyan, W-Ag Nanocomposite Preparation by Combining SCS and SHS, XV International Symposium on Self-Propagating High Temperature Synthesis, September 16-20, 2019, Moscow, Russia, pp. 543-545, DOI: 10.24411/9999-0014A-2019-10197

8. M.K. Zakaryan, A.S. Grigoryan, A.A. Hovhannisyanyan, S.L. Kharatyan, Combustion Synthesis of Ni-W Composite Powders by Using Nickel Tungstate as a Precursor, V International Conference “Current Problems of Chemical Physics”, September 25-29, 2018, Yerevan, Armenia, pp. 158-159

9. M.K. Zakaryan, Kh.T. Nazaretyan, O.M. Niazyan, S.L. Kharatyan, Kinetics of Nickel Oxide Reduction by Mg/C Combined Reducer at Non-Isothermal Conditions, V International Conference “Current Problems of Chemical Physics”, September 25-29, 2018, Yerevan, Armenia, pp. 78-79

10. M.K. Zakaryan, S.V. Aydinyan, S.L. Kharatyan, NiO and WO₃ Coreduction by Combined Reducers Mg/C and Preparation of W-Ni Alloy, 14th International Ceramics Congress, CIMTEC 2022, June 20-24, 2022, Perugia, Italy, CB-10.2:L03

11. M.K. Zakaryan, S.V. Aydinyan, S.L. Kharatyan, Synthesis of Ni-W Nanopowders from Oxide and Salt Precursors in Combustion Mode by Using Thermo-Kinetic Coupling Approach, XIV International Symposium on Explosive Production of New Materials: Science, Technology, Business and Innovations (EPNM-2018), May 14-18, 2018, St. Petersburg, Russia, pp. 298-300, <https://doi.org/10.30826/EPNM18-103>

12. M.K. Zakaryan, L.S. Abovyan, H.V. Kirakosyan, S.V. Aydinyan, S.L. Kharatyan, Combustion Synthesis of W/Cu Nanopowders from CuWO₄/WO₃ & CuWO₄/CuO Precursors Derived by SCS Method, ArmCS-5: “Actual Problems of Fundamental and Applied Chemistry”, October 3-7, 2017, Yerevan, Armenia, pp. 110

13. M.K. Zakaryan, S.L. Kharatyan, Combustion Synthesis of Ni-W Composite Nanopowders from Oxide Precursors, XIV International Symposium on Self-Propagating High Temperature Synthesis, September 25-28, 2017, Tbilisi, Georgia, pp. 318-319

14. M.K. Zakaryan, H.V. Kirakosyan, S.V. Aydinyan, S.L. Kharatyan, B.A. Godibadze, G.I. Mamniashvili, A.B. Peikrishvili, Combustion Synthesis of 2W-Cu & W-3Cu Composite Nanopowders from Oxide Precursors, Chemistry Today-2016, 5th International Conference of Young Scientists, September 18-21, 2016, Tbilisi, Georgia, pp. 20-23

15. Zakaryan Marieta, Aydinyan Sofiya, Zulumyan Nshan, Kharatyan Suren, Magnesiothermic Reduction of Silica Obtained from Serpentine Mineral and Preparation of Fine Silicon Powder, ECERS 2015 14th European Ceramics Society Conference, 21-25 June, 2015, Toledo, Spain, pp. 2260

16. M.K. Zakaryan, S.V. Aydinyan, S.L. Kharatyan, Preparation of Fine-grained Silicon by Magnesiothermic Reduction of Silica in the Presence of Reaction Products as Diluents, IV International Conference “Current problems of Chemical Physics”, 5-9 October, 2015, Yerevan, pp. 195-196

17. Zakaryan M.K., Aydinyan S.V., Magnesiothermic Reduction of Silica's of Various Origin and Preparation of Fine-grained Silicon, “Application of Modern Scientific Methods and Technologies in Expertise Sphere”, International Conference Dedicated to 10th Anniversary of foundation of National Bureau of Expertises NAS RA, 16-17 June 2015, Yerevan-Tsaghkadzor, pp. 421-429

18. M. Zakaryan, S. Aydinyan, N. Zulumyan, S. Kharatyan, Magnesiothermic Reduction of Silica's of Various Origin and Preparation of Silicon, Chemistry Today-2014, 4th International Conference of Young Scientists, 18-22 August, 2014, Yerevan, Armenia, pp. 146-149

Social activities, interviews

1. <https://www.youtube.com/watch?v=0IN83B3FOo0>
2. <https://www.youtube.com/watch?v=D06xFi-4x8Q&t=9s>
3. <https://www.youtube.com/watch?v=HkRLH9au3Tk>
4. <https://www.youtube.com/watch?v=Ci8Wqs7eaL0&list=PLCtCXfSXGrB3Tk1xRbVhPT-rLAq0t-okb&index=3>
5. https://www.sci.am/eritview.php?id=1&langid=1&fbclid=IwAR3H4ayt-B0A3tIPIH2fJL0tIgQWdhq1vxxOCQD4u_W4IhepgwwX63SdxAc
6. https://www.sci.am/eritview.php?id=51&arch=0&langid=1&fbclid=IwAR0iG4_zCN8gj03Xy0EEnfhvKdMKw0bT3X9VKJxK8O1sotoUyLexQSGHeT0#top
7. <https://infocom.am/hy/article/87084?fbclid=IwAR2k6vh1uQ9jTo8uCK0HwJgiEYKvZWoeYztR8rQ-327QY00dy1XF0qt99C8>