

Artak Garegin Sayunts

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Research Institute of Physics

Center for Semiconductor Devices and Nanotechnologies

Senior researcher

Education

Institution	Yerevan State University
Faculty	Faculty of Radiophysics / Department of Physics of Semiconductors and Microelectronics
Date	2013 - 2016
Degree name	PhD student

Institution	Yerevan State University
Faculty	Faculty of Radiophysics / Department of Physics of Semiconductors and Microelectronics
Date	2011 - 2013
Degree name	Masters

Institution	Yerevan State University
Faculty	Faculty of Radiophysics
Date	2007 - 2011
Degree name	Bachelor

Scientific Rank/degree

Institution	Yerevan State University
Date	2016
Degree name	Candidate
Specialty	Technical sciences
Scientific Supervisor	V.M. Aroutiounian
Research Topic	Study of semiconductor gas sensors

Language skills

Հայերեն English Русский

Work experience

Institution	Department of Physics of Semiconductors and Microelectronics, YSU
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Period of time	2021 till now
Rank/degree	Head of Educational Laboratory
Institution	Center of Semiconductor Devices and Nanotechnologies, YSU
Period of time	2013 till now
Rank/degree	Research scientist



Participation in international conferences and seminars

08/05/2023 - 11/05/2023	Sensor and Measurement Science International (SMSI 2023) Germany
24/08/2022 - 26/08/2022	Measurement, Sensor Systems and Applications Conference (MeSSAC 2022) Online and On-demand China
21/11/2020 - 25/11/2020	The Fifth International Conference on Advances in Sensors, Actuators, Metering and Sensing (ALLSENSORS 2020) Spain
19/09/2018 - 21/09/2018	4th International Conference on Sensors Engineering and Electronics Instrumentation Advances (SEIA' 2018) Netherlands (the)
23/06/2017 - 25/06/2017	The 11th Int. Conference on Semiconductor Micro- and Nanoelectronics (ICSMN 2017) Armenia
19/03/2017 - 23/03/2017	Second Intern. Conf. on Advances in Sensors, Actuators, Metering and Sensing (ALLSENSORS 2017) France
30/05/2017 - 01/06/2017	The 18th Int. Conference on Sensors and Measurement Technology (AMA Conferences – SENSOR 2017) Germany



Publications

Article

SnO₂/MWCNTs Nanostructured Material for High-Performance Acetone and Ethanol Gas Sensors

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Davit Kananov, Emma Khachatryan, Rima Papovyan, Alena Michalcová, Dušan Kopecký

ACS Omega 2025 7283-7294

Article

Study of a Nanostructured Co-Doped SnO₂ Sensor for Hydrogen Peroxide Vapor Detection Using Impedance Spectroscopy

Gohar Shahnazaryan, Mikayel Aleksanyan, Artak Sayunts, Zarine Simonyan, Rima Papovyan,

Gevorg Shahkhatuni

ACS Omega 2025 14452 - 14465

Article

MWCNTs/Fe₂O₃:ZnO Nanocomposite Material for Chemoresistive Sensing of Hydrogen Peroxide Vapors

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Davit Kananov,

Hayk Kasparyan, Dušan Kopecký

ACS Applied Electronic Materials 2024 940-949

Article

Fabrication of the Fe₂O₃:ZnO Based Nanostructured Sensor for LPG Detection

Mikayel Aleksanyan,, Artak Sayunts, Gevorg Shahkhatuni, Gohar Shahnazaryan, Zarine Simonyan,

Davit Kananov

e-Journal of Surface Science and Nanotechnology 2024 149-156

Article

Fabrication and characterization of highly responsive hydrogen sensor based on Fe₂O₃:ZnO nanostructured thin film

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Gohar Shahnazaryan,

Vladimir Aroutiounian

Measurement: Sensors 2024 100984

Article

Acetone Vapors Detection Using a MWCNTs/SnO₂ Nanocomposite Material

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Davit Kananov,

Emma Khachatryan, Dušan Kopecký

ACS Applied Electronic Materials 2024 4090-4098

Article

Flexible Gas Sensor Based on the RF-Grown Fe₂O₃:ZnO/CNTs Material for Propylene Glycol Vapor Detection

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Davit Kananov,

Alena Michalcová, Lukáš Koláčný, Dušan Kopecký

ACS Applied Electronic Materials 2024 6893-6904

Article

Room Temperature Detection of Hydrogen Peroxide Vapor by Fe₂O₃:ZnO Nanograins

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Hayk Kasparyan,

Dušan Kopecký

Nanomaterials 2023 120

Article

Detection of hydrogen peroxide vapor using flexible gas sensor based on SnO₂ nanoparticles decorated with multi-walled carbon nanotubes

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Vladimir Aroutiounian,
Emma Khachatryan
Advances in Natural Sciences: Nanoscience and Nanotechnology 2023 025001

Article

Growth, Characterization, and Application of Vertically Aligned Carbon Nanotubes Using the RF-Magnetron Sputtering Method

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Hayk Kasparyan,

Dušan Kopecký

ACS Omega 2023 20949-20958

Article

Investigation of the MWCNT/SnO₂ Sensor for the Detection of Acetone Vapors

M. S. Aleksanyan, G. H. Shahkhatuni, E. A. Khachaturyan, G. E. Shahnazaryan, A. G. Sayunts,

H. R. Hovhannisyan, D. A. Kananov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2023 67-72

Article

Flexible SnO₂ (Co)/MWCNT Sensor for Detection Low Concentrations of Hydrogen Peroxide Vapors

M. S. Aleksanyan, A. G. Sayunts, G. H. Shahkhatuni, Z. G. Simonyan, V. M. Aroutiounian,

G. E. Shahnazaryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2022 133-139

Article

Use of Nanostructured Fe₂O₃:ZnO Film for Detection of Hydrogen

M. S. Aleksanyan, A. G. Sayunts, G. H. Shahkhatuni, Z. G. Simonyan, G. E. Shahnazaryan,

V. M. Aroutiounian

Journal of Contemporary Physics (Armenian Academy of Sciences) 2022 140-145

Article

Investigations of the Impedance Characteristics of a Nanostructured ZnO(La) Sensor for Hydrogen Peroxide Vapors

G.E. Shahnazaryan, G.A. Shahkhatuni, M.S. Aleksanyan, Z.G. Simonyan, V.M. Aroutiounian, A.G. Sayunts

Journal of Contemporary Physics (Armenian Academy of Sciences) 2022 254-262

Article

Gas Sensor Based on ZnO Nanostructured Film for the Detection of Ethanol Vapor

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Gohar Shahnazaryan,

Vladimir Aroutiounian

Chemosensors 2022 245/17

Article

Flexible sensor based on multi-walled carbon nanotube-SnO₂ nanocomposite material for hydrogen detection

Mikayel S Aleksanyan, Artak G Sayunts, Gevorg H Shahkhatuni, Zarine G Simonyan,

Vladimir M Aroutiounian, Gohar E Shahnazaryan

Advances in Natural Sciences: Nanoscience and Nanotechnology 2022 035003

Article

Study of Gas Sensitivity of SnO₂ (Nb) Film in Liquefied Petroleum Gas

M. S. Aleksanyan, A. G. Sayunts, G. H. Shahkhatuni, G. E. Shahnazaryan, V. M. Aroutiounian

Journal of Contemporary Physics (Armenian Academy of Sciences) 2021 139-145

Article

Influence of Ultraviolet Rays on Sensitivity of Sensors for Acetone Vapor Detection

M. S. Aleksanyan, A. G. Sayunts, V. M. Aroutiounian, G. E. Shahnazaryan, G. H. Shahkhatuni

Journal of Contemporary Physics (Armenian Academy of Sciences) 2021 109-116

Article

Cobalt Doped SnO₂ Thin Film for Detection of Vapor Phase Hydrogen Peroxide

M.S. Aleksanyan, V.M. Aroutiounian, G.E. Shahnazaryan, A.G. Sayunts

Armenian Journal of Physics 2021 8-18

Article

Study of MWCNT / SnO₂/Ru thick-film sensors for detecting the presence of certain harmful gases in air

Z.N. Adamyan, A.G. Sayunts, E.A. Khachaturyan, V.M. Aroutiounian

Armenian Journal of Physics 2021 49-73

Article

Tin Oxide/Carbon Nanotube Nanocomposite Sensors for Some Toxic VOCs Detection

Z.N. Adamyan, A.G. Sayunts, E.A. Khachaturyan, V.M. Aroutiounian

South Florida Journal of Development 2021 1067-1093

Article

Influence of UV Rays on the Volt-Capacity Characteristic of SnO₂:Co Sensor of Vapors of Hydrogen Peroxide

M. S. Aleksanyan, A. G. Sayunts, A. A. Zakaryan, V. M. Aroutiounian, V. M. Arakelyan, G. E. Shakhnazaryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 151-156

Article

Investigations of Sensors for Detection of Hydrogen Peroxide Vapors under the Influence of UV Illumination

M. S. Aleksanyan, A. G. Sayunts, A. A. Zakaryan, V. M. Harutyunyan, V. M. Arakelyan,

G. E. Shakhnazaryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 205-212

Article

First-Principles Study of the Interaction of H₂O₂ with the SnO₂ (110) Surface

M. A. Aghamalyan, A. A. Hunanyan, V. M. Aroutiounian, M. S. Aleksanyan, A. G. Sayunts, H. A. Zakaryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 235-239

Article

ВЛИЯНИЕ УЛЬТРАФИОЛЕТОВЫХ ЛУЧЕЙ НА ВОЛЬТ- ЕМКОСТНУЮ ХАРАКТЕРИСТИКУ SnO₂:Co СЕНСОРА ПАРОВ ПЕРЕКИСИ ВОДОРОДА

М.С. АЛЕКСАНЯН, А.Г. САЮНЦ, А.А. ЗАКАРЯН, В.М. АРУТЮНЯН, В.М. АРАКЕЛЯН, Г.Э. ШАХНАЗАРЯН

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 218-227

Article

ИССЛЕДОВАНИЕ СЕНСОРА ДЛЯ ОБНАРУЖЕНИЯ ПАРОВ ПЕРЕКИСИ ВОДОРОДА ПОД ДЕЙСТВИЕМ УЛЬТРАФИОЛЕТОВОГО ИЗЛУЧЕНИЯ

М.С. АЛЕКСАНИЯН, А.Г. САЮНЦ, А.А. ЗАКАРЯН, В.М. АРУТЮНЯН, В.М. АРАКЕЛЯН, Г.Э. ШАХНАЗАРЯН

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 312-324

Article

Effects of UV Irradiation on the Sensing Properties of Co-doped SnO₂ Thin Film for Ethanol Detection

Mikayel Aleksanyan, Artak Sayunts, Hayk Zakaryan, Vladimir Aroutiounian, Gohar Shahnazaryan,

Valeri Arakelyan

International Journal on Advances in Systems and Measurements 2020 312-321

Article

Study of Hydrogen Peroxide Vapors Sensor Made of Nanostructured Co-doped SnO₂ Film

Vladimir AROUTIOUNIAN, Valeri ARAKELIAN, Mikayel ALEKSANYAN, Gohar SHAHNAZARYAN,

Artak SAYUNTS, Berndt JOOST

Sensors & Transducers 2019 24-31

Article

Nanocomposite H₂O₂ Vapor Sensors Made on the Base of Carbon Nanotubes Covered with SnO₂ Nanoparticles

Zaven ADAMYAN, Artak SAYUNTS, Emma KHACHATURYAN, Valeri ARAKELIAN, Vladimir AROUTIOUNIAN,

Bernth JOOST

Sensors & Transducers 2019 18-23

Article

ИССЛЕДОВАНИЕ СЕНСОРОВ ПАРОВ ПЕРЕКИСИ ВОДОРОДА, ИЗГОТОВЛЕННЫХ НА ОСНОВЕ УГЛЕРОДНЫХ НАНОТРУБОК, ПОКРЫТЫХ НАНОЧАСТИЦАМИ ДВУОКИСИ ОЛОВА

З.Н. АДАМЯН, А.Г. САЮНЦ, Э.А. ХАЧАТУРЯН, В.М. АРАКЕЛЯН, В.М. АРУТЮНЯН, В. JOOST

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2019 75-84

Article

Study of Hydrogen Peroxide Vapors Sensors Based on Carbon Nanotubes Coated with Tin Oxide Nanoparticles

Z. N. Adamyan, A. G. Sayunts, E. A. Khachaturyan, V. M. Arakelyan, V. M. Aroutiounian, B. Joost

Journal of Contemporary Physics (Armenian Academy of Sciences) 2019 57-64

Article

Nanocomposite sensors of propylene glycol, dimethylformamide and formaldehyde vapors

Zaven Adamyan, Artak Sayunts, Vladimir Aroutiounian, Emma Khachaturyan, Martin Vrnata, Premysl Fitl,

Jan Vlcek

Journal of Sensors and Sensor Systems 2018 31-41

Article

Study of Propylene Glycol, Dimethylformamide and Formaldehyde Vapors Sensors Based on MWCNTs/SnO₂ Nanocomposites

Zaven Adamyan, Artak Sayunts, Vladimir Aroutiounian, Emma Khachaturyan, Arsen Adamyan,
Martin Vrnata, Přemysl Fitl, Jan Viček
Sensors & Transducers 2017 38-45
<http://www.sensorsportal.com/HTML/DIGEST/Submission.htm>

Article

Nanostructured Sensors for Detection of Hydrogen Peroxide Vapours

Vladimir AROUTIOUNIAN, Valeri ARAKELYAN, Mikayel ALEKSANYAN, Artak SAYUNTS,
Gohar SHAHNAZARYAN, Petr KACER, Pavel PICHA, Jiri KOVARIK, Jakub PEKAREK, Berndt JOOST
Sensors & Transducers 2017 46-53
<http://www.sensorsportal.com/HTML/DIGEST/Submission.htm>

Article

Sensor for detection of chemical agents made of Co-doped SnO₂

V. M. Aroutiounian, V. M. Arakelyan, M. S. Aleksanyan, A. G. Sayunts, G. E. Shahnazaryan, M. Vrnata,
P. Fitl, J. Viček, K. S. Gharajyan, H. S. Kasparyan
Armenian Journal of Physics 2017 122-127

Article

Исследование нанокompозитных толсто пленочных сенсоров паров бутанола

З.Н. Адамян, А.Г. Саюнц, Э.А. Хачатрян, В.М. Арутюнян
Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2016
192-201
<http://www.flib.sci.am/eng/Fizika/Frame.html>

Article

Study of Nanocomposite Thick-Film Butanol Vapor Sensors

Z.N. Adamyan, A.G. Sayunts, E.A. Khachaturyan, V.M. Aroutiounian
Journal of Contemporary Physics (Armenian Academy of Sciences) 2016 143-149
<http://www.springer.com/physics/particle+and+nuclear+physics/journal/11958>

Article

Comparative Study of VOC Sensors Based on Ruthenated MWCNT/SnO₂ Nanocomposites

Vladimir Aroutiounian, Zaven Adamyan, Artak Sayunts, Emma Khachaturyan, Arsen Adamyan,
Klara Hernadi, Zoltan Nemeth, Peter Berki
International journal of Emerging Trends in Science and Technology 2014 1309-1319
<http://ijetst.in/>

Conference

Hydrogen Peroxide Vapours Sensors Made From ZnO<La> and SnO₂<Co> Films

V. Aroutiounian, V. Arakelyan, M. Aleksanyan, A. Sayunts, G. Shahnazaryan, P. Kacer, P. Picha,
J. A. Kovarik, J. Pekarek, B. Joost

Conference

Study of propylene glycol and dimethylformamide vapors sensors based on MWCNTs/SnO₂ nanocomposites

Z. Adamyan, A. Sayunts, V. Aroutiounian, E. Khachaturyan, A. Adamyan, M. Vrnata, P. Fitl, J. Viček

Conference

Study of MWCNT/SnO₂ Nanocomposite Acetone and Toluene Vapor Sensors

Vladimir M. Aroutiounian, Zaven N. Adamyan, Artak G. Sayunts, Emma A. Khachaturyan,

Arsen Z. Adamyan

Conference

Gasoline sensor based on ZnO

M.S. Aleksanyan, V.M. Arakelyan, V.M. Aroutiounian, A.G. Sayunts

Conference

On Selectivity of Surface-Ruthenated MWCNT/SnO₂ Nanocomposite VOCs Sensors

A.G. Sayunts

Conference

Detection of Simulants of Chemical Warfare Agents on Textile Chemiresistors

A. Sýkorová, E. Marešová, D. Tomeček, Š. Havlová, P. Hozák, J. Vlček, L. Fišer, P. Fitl, M. Aleksanyan, A. Sayunts, V. Aroutiounian, M. Vršata

Conference

MWCNTs/SnO₂ Harmful Gas Sensors

Z. Adamyan, A. Sayunts, V. Aroutiounian, E. Khachaturyan, A. Adamyan, M. Vrnata, P. Fitl, J. Vlček

Conference

SnO₂ and ZnO Detectors of Hydrogen Peroxide Vapors

Vladimir M. Aroutiounian, Valeri M. Arakelyan, Mikayel S. Aleksanyan, Artak G. Sayunts, Gohar E. Shahnazaryan, Petr Kacer, Pavel Picha, Jiri A. Kovarik, Jakub Pekarek, Berndt Joost

Conference

Co-DOPED SnO₂ SENSOR FOR DETECTION OF CHEMICAL AGENTS

V.M. Arakelyan, M.S. Aleksanyan, A.G. Sayunts, G.E. Shahnazaryan, M. Vrnata, P. Fitl, J. Vlček, K.S. Gharajyan, H.S. Kasparyan

Conference

STUDY OF MWCNTs/SnO₂ NANOCOMPOSITE FORMALDEHYDE GAS SENSOR

Z.N. Adamyan, A.G. Sayunts, E.A. Khachaturyan, V.M. Aroutiounian

Conference

Co-doped SnO₂ Sensor for Detection of Hydrogen Peroxide Vapors

V. M. Aroutiounian, V. M. Arakelyan, M. S. Aleksanyan, G. E. Shahnazaryan, A. G. Sayunts, B. Joost

Conference

Study of MWCNTs/SnO₂ Nanocomposite H₂O₂ Vapor Sensors

Z. N. Adamyan, A. G. Sayunts, E. A. Khachaturyan, V. M. Arakelyan, V. M. Aroutiounian, B. Joost

Conference

UV-assisted Chemiresistive Alcohol Sensor Based on Cobalt Doped Tin Dioxide

Mikayel Aleksanyan, Artak Sayunts, Hayk Zakaryan, Vladimir Aroutiounian, Valeri Arakelyan, Gohar Shahnazaryan

Patent

Արդյունաբերական թունավոր նյութերի ռեգիստրի սենսոր

Հարությունյան Վլադիմիր Միխայիլի, Առաքելյան Վալերի Միքայելի, Վրնատա Մարտին,
Ալեքսանյան Միքայել Սերյոժայի, Ադամյան Չավեն Նիկոլայի, Սայունց Արտակ Գարեգինի,
Շահնազարյան Գոհար Էմիլի, Ադամյան Արսեն Չավենի, Խաչատուրյան Էմմա Արսենի,
Ֆիտլ Պրեմիսլ, Վլենկ Յան

Patent

Ռազմական թունավոր ազդանյութերի ռեգիստրի սենսոր

Հարությունյան Վլադիմիր Միխայիլի, Առաքելյան Վալերի Միքայելի, Վրնատա Մարտին,
Ալեքսանյան Միքայել Սերյոժայի, Ադամյան Չավեն Նիկոլայի, Սայունց Արտակ Գարեգինի,
Շահնազարյան Գոհար Էմիլի, Ֆիտլ Պրեմիսլ, Վլենկ Յան, Կասպարյան Հայկ Սերգեյի

Patent

Օդում ջրածնի պերօքսիդի գոլորշիների հայտնաբերման եղանակ

Վ. Հարությունյան, Վ. Առաքելյան, Մ. Ալեքսանյան, Չ. Ադամյան, Ա. Սայունց, Գ. Շահնազարյան,
Պ. Կաչեր

Patent

Ջրածնի նանոկառուցվածքյին ռեգիստրի սենսոր

Ալեքսանյան Միքայել Սերյոժայի, Սայունց Արտակ Գարեգինի, Շահխաթունի Գևորգ Հարությունի,
Սիմոնյան Չարինե Գևորգի, Շահնազարյան Գոհար Էմիլի, Հարությունյան Վլադիմիր Միխայիլի

Patent

Ջրածնի դետեկտոր

Միքայել Ալեքսանյան, Արտակ Սայունց, Գևորգ Շահխաթունի, Չարինե Սիմոնյան,
Գոհար Շահնազարյան

Conference

Highly Sensitive Hydrogen Sensor Based on ZnO/MWCNTs Nanocomposite Material

M.S. Aleksanyan, A.G. Sayunts, G.H. Shahkhatuni, Z.G. Simonyan, G.E. Shahnazaryan

Conference

A Chemiresistive Gas Sensor Based on SnO₂:ZnO Nanostructured Thin Film for the Detection of Hydrogen Peroxide Vapor

Mikayel Seryozha Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Vladimir Aroutiounian,
Gohar Shahnazaryan

Conference

Highly Sensitive Hydrogen Gas Sensor Based on Fe₂O₃:ZnO Nanostructured Thin Film

Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Gohar Shahnazaryan,
Vladimir Aroutiounian
