

Artak Garegin Sayunts

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Research Institute of Physics

Center of Semiconductor Devices and Nanotechnologies

Senior researcher

Education

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

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

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

Scientific Rank/degree

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|------------------------------|------------------------------------|
| 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

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| 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

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

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 ARAKELYAN, 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 ARAKELYAN, 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. Araqelyan, 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 толстопленочных 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. Vrnata

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, Վլչեկ 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, Վլչեկ 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 նանոկառուցվածքին 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
