

# Artak Garegin Sayunts

✉ sayuntsartak@ysu.am



## Research Institute of Physics

Center of Semiconductor Devices and Nanotechnologies

Senior researcher

## Education

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

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

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Radiophysics
<b>Date</b>	2007 - 2011
<b>Degree name</b>	Bachelor

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## Scientific Rank/degree

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

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## Language skills

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Հայերեն English Русский

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## Work experience

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<b>Institution</b>	Department of Physics of Semiconductors and Microelectronics, YSU
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**Period of time** 2021 till now  
**Rank/degree** Head of Educational Laboratory

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**Institution** Center of Semiconductor Devices and Nanotechnologies, YSU  
**Period of time** 2013 till now  
**Rank/degree** Research scientist

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## Participation in international conferences and seminars

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**08/05/2023 - 11/05/2023** Sensor and Measurement Science International (SMSI 2023)  
Germany

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**24/08/2022 - 26/08/2022** Measurement, Sensor Systems and Applications Conference (MeSSAC 2022)  
Online and On-demand  
China

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**21/11/2020 - 25/11/2020** The Fifth International Conference on Advances in Sensors, Actuators, Metering and Sensing (ALLSENSORS 2020)  
Spain

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**19/09/2018 - 21/09/2018** 4th International Conference on Sensors Engineering and Electronics Instrumentation Advances (SEIA' 2018)  
Netherlands (the)

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**23/06/2017 - 25/06/2017** The 11th Int. Conference on Semiconductor Micro- and Nanoelectronics (ICSMN 2017)  
Armenia

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**19/03/2017 - 23/03/2017** Second Intern. Conf. on Advances in Sensors, Actuators, Metering and Sensing (ALLSENSORS 2017)  
France

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**30/05/2017 - 01/06/2017** The 18th Int. Conference on Sensors and Measurement Technology (AMA Conferences - SENSOR 2017)  
Germany

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## Publications

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*Article*

**Room Temperature Detection of Hydrogen Peroxide Vapor by Fe<sub>2</sub>O<sub>3</sub>:ZnO Nanograins**  
Mikayel Aleksanyan, Artak Sayunts, Gevorg Shahkhatuni, Zarine Simonyan, Hayk Kasparyan,

Dušan Kopecký  
Nanomaterials 2023 120

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*Article*

**Detection of hydrogen peroxide vapor using flexible gas sensor based on SnO<sub>2</sub> 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

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*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

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*Article*

**Investigation of the MWCNT/SnO<sub>2</sub> Sensor for the Detection of Acetone Vapors**

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

H. R. Hovhannisyanyan, D. A. Kananov

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

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*Article*

**Flexible SnO<sub>2</sub> (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

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*Article*

**Use of Nanostructured Fe<sub>2</sub>O<sub>3</sub>: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

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*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

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*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

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*Article*

**Flexible sensor based on multi-walled carbon nanotube-SnO<sub>2</sub> 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 SnO<sub>2</sub> (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

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*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

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*Article*

**Cobalt Doped SnO<sub>2</sub> 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

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*Article*

**Study of MWCNT / SnO<sub>2</sub>/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

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*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

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*Article*

**Influence of UV Rays on the Volt-Capacity Characteristic of SnO<sub>2</sub>: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

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*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

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*Article*

**First-Principles Study of the Interaction of H<sub>2</sub>O<sub>2</sub> with the SnO<sub>2</sub> (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

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*Article*

**ВЛИЯНИЕ УЛЬТРАФИОЛЕТОВЫХ ЛУЧЕЙ НА ВОЛЬТ- ЕМКОСТНУЮ ХАРАКТЕРИСТИКУ SnO<sub>2</sub>: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

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*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

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*Article*

**Effects of UV Irradiation on the Sensing Properties of Co-doped SnO<sub>2</sub> 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

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*Article*

**Study of Hydrogen Peroxide Vapors Sensor Made of Nanostructured Co-doped SnO<sub>2</sub> Film**

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

Artak SAYUNTS, Berndt JOOST

Sensors & Transducers 2019 24-31

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*Article*

**Nanocomposite H<sub>2</sub>O<sub>2</sub> Vapor Sensors Made on the Base of Carbon Nanotubes Covered with  
SnO<sub>2</sub> Nanoparticles**

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

Bernth JOOST

Sensors & Transducers 2019 18-23

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*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

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*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

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*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

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*Article*

**Study of Propylene Glycol, Dimethylformamide and Formaldehyde Vapors Sensors Based on MWCNTs/SnO<sub>2</sub> 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>

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*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>

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*Article*

**Sensor for detection of chemical agents made of Co-doped SnO<sub>2</sub>**

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

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*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>

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*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>

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*Article*

**Comparative Study of VOC Sensors Based on Ruthenated MWCNT/SnO<sub>2</sub> 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/>

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*Conference*

**Hydrogen Peroxide Vapours Sensors Made From ZnO<La> and SnO<sub>2</sub><Co> Films**

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

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*Conference*

**Study of propylene glycol and dimethylformamide vapors sensors based on MWCNTs/SnO<sub>2</sub> nanocomposites**

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

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Conference

**Study of MWCNT/SnO<sub>2</sub> Nanocomposite Acetone and Toluene Vapor Sensors**

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

Arsen Z. Adamyan

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Conference

**Gasoline sensor based on ZnO**

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

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Conference

**On Selectivity of Surface-Ruthenated MWCNT/SnO<sub>2</sub> Nanocomposite VOCs Sensors**

A.G. Sayunts

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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

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Conference

**MWCNTs/SnO<sub>2</sub> Harmful Gas Sensors**

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

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Conference

**SnO<sub>2</sub> 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

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Conference

**Co-DOPED SnO<sub>2</sub> 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

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Conference

**STUDY OF MWCNTs/SnO<sub>2</sub> NANOCOMPOSITE FORMALDEHYDE GAS SENSOR**

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

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Conference

**Co-doped SnO<sub>2</sub> Sensor for Detection of Hydrogen Peroxide Vapors**

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

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Conference

**Study of MWCNTs/SnO<sub>2</sub> Nanocomposite H<sub>2</sub>O<sub>2</sub> Vapor Sensors**

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

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Conference

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

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

Gohar Shahnazaryan

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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

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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

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Patent

**Օդում ջրածնի պերօքսիդի գոլորշիների հայտնաբերման եղանակ**

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

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Patent

**Ջրածնի նանոկառուցվածքին ռեգիստրի սենսոր**

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

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Patent

**Ջրածնի դետեկտոր**

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

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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

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