

# Armen Hovhannesi Makaryan

## Institute of Physics

Chair of Radiophysics and Telecommunications

Associate professor

✉ armenm@ysu.am

R<sup>6</sup>

## 🌐 Language skills

Հայերեն Русский English

## 📖 Publications

### Article

#### **Sensor Technologies for Brain Signal Registration and RF Emission Analysis**

Babken Hovhannisyanyan, Tigran Hovhannisyanyan, Armen Makaryan, Vanand Mkhoyan

Armenian Journal of Physics 2025 48-52

### Article

#### **Narrowband terahertz generation in a plane-parallel Rb:KTP crystal using a phase mask**

Yuri H. Avetisyan, Armen H. Makaryan

Journal of the Optical Society of America B: Optical Physics 2024 873-878

### Article

#### **Исследование параметров нейронной системы спинного мозга в терагерцовой области частот**

Т. Н. Оганесян, А. О. Макарян, академик Р. М. Мартиросян

Доклады НАН РА 2024 16-23

### Article

#### **Investigation of Nerve Fiber Network in THz Spectrum Range**

T. Hovhannisyanyan, A. Makaryan

Armenian Journal of Physics 2024 17-20

### Article

#### **Investigation of nonlinear properties of animal spinal cord in THz range**

Tigran Hovhannisyanyan, Armen Makaryan, Radik Martirosyan

IET Conference Proceedings 2024 19 - 22 / 208333

### Article

#### **Statistical analysis of the electroencephalographic signals**

Babken Hovhannisyanyan, Tigran Hovhannisyanyan, Armen Makaryan, Eduard Sivolenko, Vanand Mkhoyan

IET Conference Proceedings 2024 23-25

### Article

#### **Generation of THz radiation in a plane-parallel artificial PPLN crystal with a THz diffraction grating in output**

Y. Sahakyan, Yu. Avetisyan, A. Kirakosyan, A. Makaryan, V. Tadevosyan

*Article*

**Generation of THz Pulses in the Transparent Ferromagnetic Materials by Optical Rectification of Ultrafast Laser Pulses**

David Baghdasaryan, Armen Makaryan, Vahram Mekhitarian, Aram Poghosyan, Yuri Sahakyan

IET Conference Proceedings 2024 79 - 81

---

*Article*

**Biosignal processing using machine learning methods**

A. Mkoyan, A. Manasyan, A. Makaryan, B. Hovhannisyan, T. Hovhannisyan, S. Khachunts

International Conference on Microwave & THz Technologies, Wireless Communications and OptoElectronics (IRPhE 2022)  
2023 22987012/ 4-6

---

*Article*

**Исследование оптического детектирования наносекундных лазерных импульсов в ферромагнитных кристаллах  $Y_3Fe_5O_{12}$  и  $YFeO_3$**

Д.А. Багдасарян, Г.С. Геворкян, А.О. Макарян, Ю.С. Саакян, В.Р. Татевосян

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2023  
250-254

---

*Article*

**Investigation of Nanosecond Laser Pulses Optical Detection in Ferrimagnetic Crystals  $Y_3Fe_5O_{12}$  and  $YFeO_3$**

D. H. Baghdasaryan, G. S. Gevorkyan, A. H. Makaryan, Y. S. Sahakyan, V. R. Tadevosyan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2023 184-187

---

*Article*

**Detection of amplitude-modulated laser radiation in transparent orthoferrite**

D. H. Baghdasaryan, A. H. Makaryan, Y. S. Sahakyan, V.R. Tadevosyan

International Conference on Microwave & THz Technologies, Wireless Communications and OptoElectronics (IRPhE 2022)  
2023 22987027/ 60-62

---

*Article*

**Biosignal processing using machine learning methods**

T. Hovhannisyan, A. Makaryan, B. Hovhannisyan, S. Khachunts, A. Mkoyan, A. Manasyan

International Conference on Microwave & THz Technologies, Wireless Communications and OptoElectronics (IRPhE 2022)  
2023 3

---

*Article*

**Генерация узкополосного терагерцового импульса в кристалле ниобата лития с помощью фазовой маски**

Ю.О. АВETИСЯН, А.О. МАКАРЯН

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2023  
555-563

---

*Article*

**Narrow-band terahertz pulse generation in lithium niobate crystal using phase mask**

Y. H. Avetisyan, A.H. Makaryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2023 362–368

---

*Article*

**High-energy multicycle THz pulse generation in artificial PPLN crystal**

Y. H. Avetisyan, A. H. Makaryan, M. I. Bakunov

Proceedings of SPIE - The International Society for Optical Engineering 2023 194067

---

*Article*

**Registration of Brain Radio Signals and Their Bispectral Analysis**

B. A. Hovhannisyan, H.L. Ayvazyan, S.V. Antonyan, A. H. Makaryan, E. R. Sivolenko, G. A. Tsaturyan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2022 87-90

---

*Article*

**Extracting Human Brain Signals from the EEG Records Using LabVIEW and Advanced Signal Processing**

Babken Hovhannisyan, Eduard Sivolenko, Armen Makaryan, Hamlet Ayvazyan, Andrei Medvedev,

Valentina Temkina

Springer Proceedings in Physics (International Youth Conference on Electronics, Telecommunications and Information Technologies)

2022 183-190

---

*Article*

**РЕГИСТРАЦИЯ РАДИОСИГНАЛОВ МОЗГА И ИХ БИСПЕКТРАЛЬНЫЙ АНАЛИЗ**

Г.Л. АЙВАЗЯН, С.В. АНТОНЯН, А.О. МАКАРЯН, Б.А. ОГАНЕСЯН, Э.Р. СИВОЛЕНКО, Г.А. ЦАТУРЯН

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2022

125-130

---

*Article*

**Laterally Emitting Nearly Single-Cycle THz Pulse Generation in Two-Dimensional Aperiodically Poled Lithium Niobate Crystal**

Y. Avetisyan, A. Makaryan, G. Arabajyan, M. Tonouchi

IEEE Xplore 2022 183280

---

*Article*

**Միկրոալիքային խոցող զեներ. տեսության և կառուցվածքի որոշ հարցեր**

Հ. Ս. Հարոյան, Խ. Վ. Ներկարարյան, Ա. Ա. Հախումյան, Ա. Հ. Մակարյան, Կ. Ռ. Միրզոյան

Հայկական Բանալ 2021 67-82

---

*Article*

**ЧАСТОТНО-ВРЕМЕННОЙ АНАЛИЗ ЭЛЕКТРОКАРДИОГРАММ**

Б.А. ОГАНЕСЯН, А.О. МАКАРЯН, Т.Н. ОГАНЕСЯН

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

575-581

---

*Article*

**ВЛИЯНИЕ ПОГЛОЩЕНИЯ НА ЭФФЕКТИВНОСТЬ ГЕНЕРАЦИИ ТЕРАГЕРЦОВОГО ИЗЛУЧЕНИЯ В МЕТАЛЛИЧЕСКОМ ВОЛНОВОДЕ, ЧАСТИЧНО ЗАПОЛНЕННОМ НЕЛИНЕЙНЫМ КРИСТАЛЛОМ LiNbO<sub>3</sub>, DAST ИЛИ ZnTe**

А.С. НИКОГОСЯН, Р.М. МАРТИРОСЯН, А.А. АХУМЯН, А.О. МАКАРЯН, В.Р. ТАТЕВОСЯН, Г.Н. ГОЛЬЦМАН,  
С.В. АНТИПОВ  
Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2019  
128-137

---

*Article*

**Optical detection of femtosecond laser pulses in a ferromagnet as a result of its magnetization by the magnetic field of the laser pulse**

A. H. Makaryan, V. R. Tadevosyan, A. S. Nikoghosyan, T. S. Yezekyan, M. A. Kazaryan

Proceedings of SPIE - The International Society for Optical Engineering 2019 113222E(1-4)

---

*Article*

**Frequency Conversion in The Ferromagnet at Low Magnetic Bias Fields**

T. Yezekyan, A. Makaryan, V. Tadevosyan

Armenian Journal of Physics 2018 191-195

---

*Article*

**Effect of Absorption on The Efficiency of THz Radiation Generation in a Nonlinear Crystal Placed Into a Waveguide**

A.S. Nikoghosyan, R.M. Martirosyan, A.A. Hakhoumian, A.H. Makaryan, V.R.Tadevosyan, G.N. Goltsman,

S.V. Antipov

Armenian Journal of Physics 2018 257-262

---

*Article*

**Investigation of Detection of Microwave Radiation in Ferromagnetic YIG**

H. Julfayan, A. Makaryan, V.R. Tadevosyan

Armenian Journal of Physics 2017 9-13

<http://ajp.asj-oa.am/>

---

*Article*

**Design of a Multistep Phase Mask for High-Energy Terahertz Pulse Generation by Optical Rectification**

Y. Avetisyan, A. Makaryan, V. Tadevosyan, M. Tonouchi

Journal of Infrared Millimeter and Terahertz Waves 2017 1439-1447

<https://www.springer.com/engineering/electronics/journal/10762>

---

*Article*

**ИССЛЕДОВАНИЕ ПАРАМЕТРОВ ТЕРАГЕРЦОВЫХ ИМПУЛЬСОВ, ГЕНЕРИРУЕМЫХ В ОДНОДОМЕННОМ КРИСТАЛЛЕ LiNbO<sub>3</sub> С ПОМОЩЬЮ СТУПЕНЧАТОЙ ФАЗОВОЙ МАСКИ**

Г.К. АБГАРЯН, Ю.О. АВЕТИСЯН, А.О. МАКАРЯН, В.Р. ТАТЕВОСЯН

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2016  
46-52

<http://www.flib.sci.am/eng/Fizika/Frame.html>

---

*Article*

**Detection of CO<sub>2</sub> laser radiation in a ferrite**

H. Haroyan, A. Makaryan, K. Movsisyan, Farokh Nazari, V. Tadevosyan, H Julfayan

Journal of Physics: Conference Series 2016 012007

<http://iopscience.iop.org/journal/1742-6596>

---

Article

**Магнитно-нелинейные материалы для детектирования электромагнитного излучения**

Джулфаян А., Мартиросян Р. М., Макарян А. О., Мыхитарян В. М., Назари Ф., Татевосян В. Р.

Физические Основы приборостроения 2016 88-97

[http://elibrary.ru/title\\_about.asp?id=37911](http://elibrary.ru/title_about.asp?id=37911)

---

Manual

**«Կիճակագրական ռադիոֆիզիկա» լաբորատոր աշխատանքների ձեռնարկ**

Ա. Ժ. Բաբաջանյան, Վ. Ռ. Թադևոսյան, Հ. Ս. Հարոյան, Ա. Հ. Մակարյան

2012 86

---

Conference

**High Efficient Terahertz Generation Using Tilted-Pulse- Front Photoexcitation of Semiconductor Surface**

Yu. Avetisyan, A. Makaryan, M. Tonouchi

---

Conference

**Ferromagnetic detector of infrared radiation**

D. Bagdasaryan, A. Hakhoumian, R. Martirosian, A. Julfayan, A. Makaryan, F. Nazari, V. Tadevosyan

---

Conference

**Terahertz pulses generation via optical rectification in LiNbO3 crystal by step-wise phase mask**

G. Abgaryan, Yu. H. Avetisyan, A. H. Makaryan, V. R. Tadevosyan

---

Conference

**Design of a multistep phase mask for high-energy THz pulse generation in ZnTe crystal**

Yuri H. Avetisyan, Armen Makaryan, Vahe Tadevosyan

---

Conference

**Frequency conversion in the ferromagnet at low magnetic bias fields**

T. Yezekyan, A. Makaryan, V. Tadevosyan

---

Conference

**Effect of attenuation on the efficiency of THz radiation generation in a nonlinear crystal integrated into a waveguide**

A.S. Nikoghosyan, R.M. Martirosyan, A.A. Hakhoumian, A.O. Makaryan, V.R. Tadevosyan, G.N. Goltsman,

S.V. Antipov

---