

## Ֆիզիկայի ինստիտուտ

Կիրառական էլեկտրադինամիկայի և մոդելավորման ամբիոն  
Ամբիոնի վարիչ, պրոֆեսոր

## 📖 Հրատարակումներ

Հոդված

### Dielectric coated conductive rod resonantly coupled with a cut transmission line as a tunable microwave bandstop filter and sensor

David Hambaryan, Tigran Abrahamyan, Henrik Parsamyan, Artyom Movsisyan, Bill Minasyan, Hovhannes Haroyan, Arsen Babajanyan, Kiejin Lee, Barry Friedman, Khachatur Nerkararyan  
Heliyon 2024 e24477

Հոդված

### Characterization of interaction phenomena of electromagnetic waves with metamaterials via microwave near-field visualization technique

Zhirayr Baghdasaryan, Arsen Babajanyan, Barry Friedman, Kiejin Lee  
Scientific Reports 2023 18457

Հոդված

### 3D visualization of microwave electric and magnetic fields by using a metasurface-based indicator

Zhirayr Baghdasaryan, Arsen Babajanyan, Henrik Parsamyan, Barry Friedman, Seungwan Kim, Jung-Ha Lee, Kiejin Lee  
Scientific Reports 2022 6150

Հոդված

### Characterization of Metal Nanoparticles Aqueous Solution by a Thermoelastic Optical Indicator Microscope

G. Ohanyan, N. Margaryan, M. Manvelyan, L. Odabashyan, B. Minasyan, A. Movsisyan, R. Khachatryan, A. Babajanyan  
Journal of Contemporary Physics (Armenian Academy of Sciences) 2022 187-191

Հոդված

### 3D Visualization Method Based on Metastructure Optical Indicator of Thermoelastic Polarization Microscope for Electromagnetic Fields in Microwave and THz Ranges

A. Babajanyan, Zh. Baghdasaryan, H. Parsamyan, B. Friedman, K. Lee  
NanoWorld Journal 2022 S4

Հոդված

### Resonant Interaction Between Microwaves and Thin Conducting Microstructure with Finite Length

T. Abrahamyan, H. Haroyan, D. Hambaryan, H. Parsamyan, K. Lee, A. Babajanyan, Kh. Nerkararyan  
NanoWorld Journal 2022 S5

Հոդված

**Microwave and Joule Heating Visualization by a Thermo-Elastic Microscope for Carbon Composite Materials**

Sh. Arakelyan, A. Babajanyan, G. Berthiau, B. Friedman, K. Lee

Springer Proceedings in Physics (Optics and Its Applications) 2022 69-77

---

Հոդված

**Surface-standing-wave formation via resonance interaction of a finite-length conductive rod with microwaves**

Tigran Abrahamyan, Hovhannes Haroyan, David Hambaryan, Henrik Parsamyan, Arsen Babajanyan, Kiejin Lee, Barry Friedman, Khachatur Nerkararyan

Journal of Physics D: Applied Physics 2022 445001

---

Հոդված

**Microwave response phase control of a graphite microstrip**

Arsen Babajanyan, Tigran Abrahamyan, Hovhannes Haroyan, Billi Minasyan, Torgom Yezekyan, Kiejin Lee, Barry Friedman, Khachatur Nerkararyan

Carbon 2022 151-156

---

Հոդված

**Noninvasive in Vivo Evaluation of Mouse-Blood Glycemia with a Microwave Spiral Sensor**

A. Babajanyan, B. Minasyan, L. Odabashyan, S. Kim, J. Kim, J.-H. Lee, B. Friedman, K. Lee

Journal of Contemporary Physics (Armenian Academy of Sciences) 2021 47-54

---

Հոդված

**Visualization of microwave near-field distribution in sodium chloride and glucose aqueous solutions by a thermo-elastic optical indicator microscope**

Arsen Babajanyan, Zhirayr Baghdasaryan, Levon Odabashyan, Jung-Ha Lee, Barry Friedman, Kiejin Lee

Scientific Reports 2021 2589

---

Հոդված

**Performance of Pentacene Based Organic Thin Film Transistor with an Octadecyltrichlorosilane Self-Assembled Monolayer Interface**

A. Babajanyan, B. Minasyan, A. Movsisyan, B. Friedman, K. Lee

Journal of Contemporary Physics (Armenian Academy of Sciences) 2021 208-213

---

ՈՒՏՈՒՄՆԱԿԱՆ ձեռնարկ

**Ատոմային և միջուկային ֆիզիկայի ընդհանուր դասընթացի լաբորատոր աշխատանքների ուղեցույց**

Հասմիկ Շահինյան, Լուսինե Ղազարյան, Արսեն Բաբաջանյան

2021 64

---

Հոդված

**Detection of Iron Nanoparticles in Aqueous Solutions by Microwave Sensor**

L. Odabashyan, N. Margaryan, G. Ohanyan, M. Manvelyan, D. Hambaryan, T. Abrahamyan, R. Khachatryan, A. Babajanyan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 171-175

---

Հոդված

**Thermal distribution in unidirectional carbon composite material due to the direct heating and microwave influence visualized by a thermo-elastic optical indicator microscope**

Zhirayr Baghdasaryan, Arsen Babajanyan, Levon Odabashyan, Shant Arakelyan, Hanju Lee,  
Gerard Berthiau, Barry Friedman, Kiejin Lee  
Measurement 2020 107189(1-7)

---

Հոդված

**ОБНАРУЖЕНИЕ НАНОЧАСТИЦ ЖЕЛЕЗА В ВОДНЫХ РАСТВОРАХ С ПОМОЩЬЮ  
МИКРОВОЛНОВОГО СЕНСОРА**

Л. ОДАБАШЬЯН, Н. МАРГАРЯН, Г. ОГАНЯН, М. МАНВЕЛЯН, Д. АМБАРЯН, Т. АБРААМЯН, Р. ХАЧАТРЯН,  
А. БАБАДЖАНИЯН  
Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2020  
251-258

---

Հոդված

**COMPUTER MODELING OF MICROWAVE STRIPLINE RESONATORS FOR NON-INVASIVE SENSING**

A. Zh. BABAJANYAN, B. J. MINASYAN, L. A. ODABASHYAN, Zh. A. BAGHDASARYAN, K. LEE  
Proceedings of the YSU. Physical and Mathematical Sciences 2019 60-64

---

Հոդված

**Antenna Investigation by a Thermoelastic Optical Indicator Microscope: Defects Measurement  
and 3D Visualization of Electromagnetic Fields**

Arsen Babajanyan, Shant Arakelyan, Hanju Lee, Seungwan Kim, Gerard Berthiau, Barry Friedman,  
Kiejin Lee  
IEEE ANTENNAS AND PROPAGATION MAGAZINE 2019 27-31

---

Հոդված

**Investigation of Ag Nanoparticles/Water Solutions by Microwave Stripline Sensor**

A. Babajanyan, T. Abrahamyan, R. Khachatryan, D. Hambaryan, B. Hovhannisyanyan, B. Minasyan,  
L. Odabashyan  
Journal of Contemporary Physics (Armenian Academy of Sciences) 2019 196-202

---

Հոդված

**ИССЛЕДОВАНИЕ РАСТВОРОВ НАНОЧАСТИЦ Ag В ВОДЕ С ПОМОЩЬЮ МИКРОВОЛНОВОГО  
ПОЛОСКОВОГО СЕНСОРА**

А. БАБАДЖАНИЯН, Т. АБРАМЯН, Р. ХАЧАТРЯН, Д. АМБАРЯН, Б. ОГАНЕСЯН, Б. МИНАСЯН,  
Л. ОДАБАШЯН  
Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2019  
263-271

---

Հոդված

**Real-time sensing the glucose concentration by quadratic-shaped microwave sensor**

A. Zh. BABAJANYAN, B. A. HOVHANNISYAN, D. S. HAMBARYAN, L. A. ODABASHYAN  
Proceedings of the YSU. Physical and Mathematical Sciences 2019 132-137

---

Հոդված

**Real-Time Noninvasive Measurement of Glucose Concentration Using a Modified Hilbert  
Shaped Microwave Sensor**

Levon Odabashyan, Arsen Babajanyan, Zhirayr Baghdasaryan, Seungwan Kim, Jongchel Kim,  
Barry Friedman, Jung-Ha Lee, Kiejin Lee  
Sensors 2019 5525(1-11)

---

Հոդված

**Microwave Heating Visualization for Carbon Fibers Composite Material: Development of Tunable Microstrip Structures**

Shant Arakelyan, Hanju Lee, Do-Suck Han, Arsen Babajanyan, Gerard Berthiau, Barry Friedman,

Kiejun Lee

IEEE Transactions on Microwave Theory and Techniques 2018 883-888

---

Հոդված

**Microwave Fractal Bandpass Filters Based on Modified Hilbert Curves of the First and the Second Orders**

A. Babajanyan, H. Parsamyan, K. Lee

Journal of Contemporary Physics (Armenian Academy of Sciences) 2018 146-151

---

Հոդված

**МИКРОВОЛНОВЫЕ ФРАКТАЛЬНЫЕ ПОЛОСОВЫЕ ФИЛЬТРЫ, ОСНОВАННЫЕ НА МОДИФИЦИРОВАННЫХ КРИВЫХ ГИЛЬБЕРТА ПЕРВОГО И ВТОРОГО ПОРЯДКОВ**  
Г. ПАРСАМЯН, А. БАБАДЖАНЫАН, К. ЛЕЕ

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2018

193-200

---

Հոդված

**DETERMINATION OF GLUCOSE CONCENTRATION IN AQUEOUS SOLUTION BY USING MODIFIED HILBERT SHAPED MICROWAVE METAMATERIAL SENSOR**

H. A. PARSAMYAN, A. Zh. BABAJANYAN, Sh. Kh. ARAKELYAN, K. LEE

Proceedings of the YSU. Physical and Mathematical Sciences 2018 144-148

---

Հոդված

**Performance of Pentacene-based Thin-film Transistors Fabricated at Different Deposition Rates**

Arsen Babajanyan, Jinho Hwang, Duri Kim, Meenwoo Kim, Hanju Lee, Levon Odabashyan,

Zhirayr Baghdasaryan, Kiejun Lee, Deokjoon Cha

New Physics: Sae Mulli 2018 1192-1195

---

Հոդված

**Glucose Aqueous Solution Sensing by Modified Hilbert Shaped Microwave Sensor**

A. Babajanyan, L. Odabashyan, Zh. Baghdasaryan, B. Friedman, K. Lee

Armenian Journal of Physics 2018 214-222

---

Հոդված

**Visualization of Microwave Heating Formesh-Patterned Indium-tin-Oxide by a Thermo-Elastic Optical Indicator Microscope**

A. Babajanyan, Zh. Baghdasaryan, L. Odabashyan, H. Lee, B. Friedman, K. Lee

Armenian Journal of Physics 2018 175-179

---

Հոդված

**Direct imaging of the SSD and USB memory drives heating by thermo-elastic optical indicator microscopy**

Shant Arakelyan, Hanju Lee, Yeonghun Jeong, Arsen Babajanyan, Barry Friedman, Kiejun Lee

Case Studies in Thermal Engineering 2017 407-412

---

Հոդված

**Characterization of Anisotropic Electrical Conductivity of Carbon Fiber Composite Materials by a Microwave Probe Pumping Technique**

Hanju Lee, Ogsen Galstyan, Arsen Babajanyan, Barry Friedman, Gerard Berthiau, Jongchel Kim,

Do Suck Han, Kiejin Lee

Journal of Composite Materials 2016 1999-2004

<https://us.sagepub.com/en-us/nam/journal/journal-composite-materials#description>

---

Հոդված

**Effects of Thermal Preparation on Copper Phthalocyanine Organic Light Emitting Diodes**

Sul A. Choi, Kyungchul Kim, Su Jin Lee, Hanju Lee, Arsen Babajanyan, Barry Friedman, Kiejin Lee

Journal of Luminescence 2016 149-153

<http://www.sciencedirect.com/science/journal/00222313>

---

Հոդված

**Direct Current Imaging Using a Magneto-Optical Sensor**

Shant Arakelyan, Ogsen Galstyan, Hanju Lee, Arsen Babajanyan, Jung-Ha Lee, Barry Friedman, Kiejin Lee

SENSORS AND ACTUATORS A-PHYSICAL 2016 397-401

<http://www.journals.elsevier.com/sensors-and-actuators-a-physical>

---

Հոդված

**Characteristics of Light Transfer in the Connected Conical Waveguides With the Same Symmetry Axis**

Shant Arakelyan, Tigran Abrahamyan, Arsen Babajanyan, Khachatur Nerkararyan

Applied Optics 2016 3854-3857

<https://www.osapublishing.org/ao/home.cfm>

---

Հոդված

**Near-Field Scanning Microwave Microscope As Nano-Resolution Characterization Technique**

Babajanyan A. J., Friedman B., Lee K.

Физические Основы приборостроения 2016 98-111

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

---

Հոդված

**Nondestructive Label-Free Mapping of DNA Bioassay Using a Near-Field Scanning Microwave Microscope**

Arsen Babajanyan, Barry Friedman, Kiejin Lee

Armenian Journal of Physics 2016 148-153

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

---

Հոդված

**Specifications of Rabi oscillations in the quantum emitters systems coupled to the localized plasmon polaritons**

A. Zh. Babajanyan, S. Kh. Nerkararyan

ԵՊՀ Գիտական տեղեկագիր, Բնական գիտություններ 2016 48-52

<http://ysu.am/science/hy/1355990920>

---

Հոդված

**Pre-Annealing Effects on a Pentacene Organic Thin Film Transistor With a Polymer Dielectric Interface**

Arsen Babajanyan, Sul A Choi, Kyungchul Kim, Shant Arakelyan, Hanju Lee, Barry Friedman, Kiejin Lee  
PROCEEDINGS of the International Conference on Microwave and THz Technologies, Photonics and  
Wireless Communications  
2016 61-64  
<http://irphe.asj-oa.am/93/1/Proceedings-IRPhE-2016.pdf>

---

*Հոդված*

**Magneto-Optical Visualization by Bi:YIG Thin Films Prepared at Low Temperatures**  
Ogsen Galstyan, Hanju Lee, Arsen Babajanyan, Arsen Hakhoumian, Barry Friedman, Kiejin Lee  
Journal of Applied Physics 2015 163914. 6  
<http://aip.scitation.org/jap/info/contact>

---

*Հոդված*

**Sensitive Detection of Nano-Scale Vibrations by the Metal-Coated Fiber Tip at the Liquid-Air Interface**  
A. J. Babajanyan, T. A. Abrahamyan, H. A. Minasyan, Kh. V. Nerkararyan  
International Journal of Mechanical, Aerospace, Industrial and Mechatronics Engineering 2015 651-654  
<https://www.waset.org/journal/Mechanical>

---

*Հոդված*

**Influence of Bismuth Substitution on Yttriumorthoferrite Thin Films Preparation by the MOD Method**  
Ogsen Galstyan, Hanju Lee, Jongwon Park, Jung-Ha Lee, Arsen Babajanyan, Barry Friedman, Kiejin Lee  
Journal of Magnetism and Magnetic Materials 2015 310-314  
<http://www.journals.elsevier.com/journal-of-magnetism-and-magnetic-materials>

---

*Ուսումնական ձեռնարկ*

**«Վիճակագրական ռադիոֆիզիկա» լաբորատոր աշխատանքների ձեռնարկ**  
Ա. Ժ. Բաբաջանյան, Վ. Ռ. Թադևոսյան, Հ. Ս. Հարոյան, Ա. Հ. Մակարյան  
2012 86

---

*Գիտաժողովի նյութ*

**Sensitive Detection of Nano-Scale Vibrations by the Metal-Coated Fiber Tip at the Liquid-Air Interface**  
A. J. Babajanyan, T. A. Abrahamyan, H. A. Minasyan, Kh. V. Nerkararyan

---

*Գիտաժողովի նյութ*

**In Vitro Monitoring of HbA1C by a Microwave Biosensor**  
Seungwan Kim, Jongchel Kim, Armen Abrahamyan, Arsen Babajanyan, Jung-Ha Lee, Barry Friedman,  
Kiejin Lee

---

*Գիտաժողովի նյութ*

**Nondestructive label-free mapping of DNA bioassay using a near-field scanning microwave microscope**  
Arsen Babajanyan, Barry Friedman, Kiejin Lee

---

*Գիտաժողովի նյութ*

**Microwave and Joule Heating Visualization by Thermo-Elastic Sensor for Carbon Fibers Composite Material**  
Kiejin Lee, Shant Arakelyan, Hanju Lee, Sunghoon Jeon, Do-Suck Han, G. Berthiau, Arsen Babajanyan

---

Գիտաժողովի նյութ

**Detection of Resonant Oscillations of the Liquid Surface by using a Tapered Fiber Opto-Mechanical Sensor**

Tigran Abrahamyan, Stella Sargsyan, Arsen Babajanyan, Khachatur Nerkararyan

---

Գիտաժողովի նյութ

**Pre-Annealing Effects on a Pentacene Organic Thin Film Transistor with a Polymer Dielectric Interface**

Arsen Babajanyan, Sul A Choi, Kyungchul Kim, Hanju Lee, Barry Friedman, Kiejin Lee

---

Գիտաժողովի նյութ

**The Resonant Coupling of the Quantum Dots in the Environment of Metal Nanoparticle at Optical Frequencies**

Sona Nerkararyan, Arsen Babajanyan, Khachatur Nerkararyan

---

Գիտաժողովի նյութ

**Microwave Characterization of Complex Dielectric Permittivity Dependence on Glucose Concentration in Blood Serum and Aqueous Solution**

Babajanyan A., Lee K., Kim S., Kim J., Friedman B., Arakelyan Sh., Parsamyan H.

---

Գիտաժողովի նյութ

**Label-Free Monitoring of HbA1C by Microwaves**

Babajanyan A., Kim S., Kim J., Abrahamyan A., Friedman B., Lee K.

---

Գիտաժողովի նյութ

**Detection of Nanometric Vibrations by Using Opto-Mechanical Sensor**

Arsen Babajanyan, Tigran Abrahamyan, Shant Arakelyan, Khachatur Nerkararyan

---

Գիտաժողովի նյութ

**Noninvasive In Vitro Monitoring of Hba1c with a Microwave Biosensor**

Arsen Babajanyan, S. Kim, J. Kim, Shant Arakelyan, K. Lee, J.-H. Lee, B Friedman

---

Գիտաժողովի նյութ

**Detecting Defects in Sub-Skin-Depth Metallic Layers by a Thermo-Elastic Sensor**

Arsen Babajanyan, Shant Arakelyan, Hanju Lee, Kiejin Lee, Barry Friedman

---

Գիտաժողովի նյութ

**Effect of Pentacene Deposition Rate on OTFT**

Arsen Babajanyan, Jinho Hwang, Duri Kim, Meenwoo Kim, Levon Odabashyan, Zhirayr Baghdasaryan, Seungwan Kim, Jongchel Kim, Hanju Lee, Kiejin Lee, Deokjoon Cha

---

Գիտաժողովի նյութ

**Characterization of Heat Distribution and Microwave Absorption in a Carbon Composite Material by a Thermo-Elastic Optical Indicator Microscope**

Aarsen Babajanyan, Zhirayr Baghdasaryan, Levon Odabashyan, Hanju Lee, Seungwan Kim, Jongchel Kim, Jinho Hwang, Duri Kim, Meenwoo Kim, Deokjoon Cha, Kiejin Lee

---

Գիտաժողովի նյութ

**Real-Time Noninvasive Measurement of Glucose Concentration Using a Modified Hilbert**

### **Shaped Microwave Fractal Sensor**

Arsen Babajanyan, Levon Odabashyan, Zhirayr Baghdasaryan, Seungwan Kim, Jongchel Kim, Jinho Hwang, Meenwoo Kim, Hanju Lee, Deokjoon Cha, Kiejin Lee, Duri Kim

---

*Գիտաժողովի նյութ*

### **3D visualization of electromagnetic fields and thermal distribution by the thermo-elastic optical indicator microscope**

A. Babajanyan, K. Lee, Zh. Baghdasaryan, L. Odabashyan, S. Kim, J. Kim, Gerard Berthiau, B. Friedman

---

*Գիտաժողովի նյութ*

### **Noninvasive in-vitro monitoring of D-glucose concentration by using a microwave fractal sensor**

A. Babajanyan, L. Odabashyan, Zh. Baghdasaryan, T. Abrahamyan, N. Harutyunyan, S. Kim, J. Kim, B. Friedman, K. Lee

---

*Գիտաժողովի նյութ*

### **Sensing of silver nanoparticles in aqueous solutions by using an optical fiber probe-tip**

A. Babajanyan, T. Abrahamyan, R. Khachatryan, Kh. Nerkararyan

---

*Գիտաժողովի նյութ*

### **Characterization of Ag nanoparticles concentration in aqueous solution by microwave biosensor**

Arsen Babajanyan, Zh. Baghdasaryan, T. Abrahamyan, L. Odabashyan, H. Lee, D. Kim, M. Kim, S. Kim, K. Lee

---

*Գիտաժողովի նյութ*

### **Microwave and Joule heating visualization by a thermo-elastic sensor for carbon composite materials**

Shant Arakelyan, Arsen Babajanyan, Gerard Berthiau, Barry Friedman, Kiejin Lee

---

*Գիտաժողովի նյութ*

### **Detecting Low Dose of Glucose in the Microwave Range By Using Thermoelastic Optical Indicator Microscope**

Tigran Abrahamyan, Nelli Babajanyan, David Hambaryan, Hasmik Manukyan, Arsen Babajanyan, Kiejin Lee

---

*Գիտաժողովի նյութ*

### **Dielectric-Coated Conductive Rod Resonantly Coupled with a Cut Goubau Line as a Sensitive Microwave Sensor**

Tigran Abrahamyan, Hovhannes Haroyan, David Hambaryan, Artyom Movsisy, Henrik Parsamyan, Arsen Babajanyan, Khachatur Nerkararyan, Kiejin Lee

---